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Sensitivity of Students to the Natural Environment, Animals, Social Problems and Cultural Heritage

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Abstract

The study aims to determine the sensitivity levels of fourth-grade students to the natural environment, animals, social concerns and cultural heritage. Besides, it has been investigated whether some personal characteristics of the students have differentiating effect on the views related to the sensitivity to the natural environment, animals, social concerns and cultural heritage. The participants of the study were a total of 447 fourth-grade students attending fifteen different public schools in Afyonkarahisar province in the school year of 2014-2015. The data of the study were collected through the administration of the sensitivity value scale developed by the author of the current the study. The scale consisted of four dimensions and included fifty-eight items. In regard to content and face validity, the scale was reviewed by the field specialists. For construct validity first and second order confirmatory factor analysis was employed. In addition, the Cronbach alpha coefficient was found for the reliability of the scale. The findings of the study showed that the participants had sensitivity to the natural environment, to animals, to social concerns and to cultural heritage. It was also found that the gender of the students, residence, the educational background and occupation of parents and the frequency of follow up news had statistically significant effects on the sensitivity levels of the participants.

Keywords: Sensitivity value, Confirmatory factor analysis, Primary students, Social studies.

Introduction

Doğanay (2006) argued that the course of social studies makes use of the content and methods of other disciplines about society and people to deal with the interaction of people with their physical and social environment in an interdisciplinary way and to produce individuals who are equipped with basic democratic values. One of the major goals of this course is to produce active citizens who can make informed decisions and solve problems in a changing world (Öztürk, 2009). Social studies is one of the main courses of the elementary and middle school curriculum in Turkey. Social studies took educators attention because it prepares students as active citizens (Kılınç, 2014). Active citizens are aware of the problems in society and attempt to eliminate these problems. They are also aware of their rights and responsibilities. They are expected to know and

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make use of their rights, to fulfil their responsibilities and to involve societal activities (Kuş, 2013). Karatekin & Sönmez (2014) argued that active citizens should not be insensitive about the problems they meet. Instead, they should search for the reasons for these problems and attempt to solve. It is one of individuals' responsibilities for themselves, other people and the world. In recent periods, the values education has become an effective method in producing active citizens. From 2005, the values education has been part of primary social studies programs.

The values included in the social studies programs in Turkey are as follows: importance of family unity and health, respect for the flag and national anthem, rights and freedoms, differences, fairness, independence, peace, freedom, scientific, industriousness, solidarity, sensitivity, integrity, aesthetics, tolerance, hospitality, cleanliness, nature, responsibility, patriotism and charity (MONE, 2010). Some of these values were included in the programs for different grades while others were grouped into sub-categories. For instance, the value of respect has five sub-categories and that of sensitivity has three sub-categories, which are related to historical heritage, natural environment and cultural heritage (Keskin & Öğretici, 2013). In the social studies program for grades of 4, 5, 6 and 7, which became effective in 2005, the most frequently stated value is that of sensitivity. Sensitivity to the natural environment is one of the most frequent improvements targeted social studies (Merey et al., 2012). In this course, there are certain values which are directly related to the natural environment and its protection. These values are that of love, respect, sensitivity, cleanliness, responsibility, fairness, solidarity, peace and aesthetics (Karatekin & Sönmez, 2014). One of the major goals of environmental education is to produce individuals who have environmental literacy which refers to cognitive and affective qualities about responsible acts towards the environment. Sensitivity to the environment is one of the significant ingredients of environmental literacy (Sivek, 2002).

In producing responsible and sensitive individuals, informing them about social topics is a significant step. In addition, students should perceive social problems in a healthy way and have sensitivity to problems (Johnson, 2005: cited in Öcal et al., 2013). Kıncal & Işık (2003) analysed the democratic values and concluded that the values of sensitivity, responsibility and fairness are among the most included values in education worldwide. Kıncal & Işık (2003) found that basic democratic values include equality, respect for life, freedom, justice, honesty, quest for good, cooperation, self-confidence, tolerance, sensitivity and responsibility. Individuals are expected to be sensitive to not only environmental and social problems, but also to cultural/historical heritage which consists of material and spiritual elements from the past. In a similar vein, the social studies program covers a learning domain called culture and heritage. This domain is explained as follows: "In this learning domain students generally become familiar with basic elements of Turkish culture and develop an attitude towards the protection and improvement of it. Students comprehend the fact that cultural elements in a society are distinctive features which make a distinction between their society and other societies and that cultural elements which are transferred from local to national and from national to international contribute to make culture much more varied." (MONE, 2010). In short, students are expected to be informed about and make evaluations concerning the cultural heritage of their society, about the continuity of culture and their own origins and to define their cultural and social identities (Çulha Özbaş, 2009). In social studies teachers play a significant role in protecting the cultural heritage and in developing awareness about its protection and significance of cultural heritage, and also in producing individuals who can internalize this awareness (Selanik Ay & Kurtdede Fidan, 2013). In teaching the topics related to cultural heritage, teachers may make use of several fields and materials such as historical places, cultural landscape, natural sites, sacred places, museums, festivals,

traditional crafts, language, oral and written literature, religion and beliefs, rituals, music and dance, food culture, traditional children's games and sports (Çulha Özbaş, 2009).

Research suggests that sensitivity is among the values to be taught to students. Susar Kırmızı (2014) reviewed the textbook for the fourth-grade Turkish language course in order to find which values were included in the texts. In the study of Susar Kırmızı (2014), it was found that the most frequently stated value in the texts was love of nature/sensitivity to natural environment (35% in 14 texts). Ekinci et al. (2011) also reviewed the Turkish language textbooks for the grades of 6, 7 and 8 in order to find which values are implied in the texts. They concluded that the most commonly emphasized values were patriotism, recognition of the national identity and sensitivity to cultural heritage and history. Keskin (2008) examined the social studies programs which have been implemented since the establishment of the Republic Turkey. In the study of Keskin (2008), it was found that all social studies programs included values and that the common values across the programs were cooperation/assistance, awareness, independence and responsibility. On the other hand, there are studies arguing that although values are covered in the educational programs and textbooks, students cannot acquire them sufficiently. In a study by Yiğittir & Öcal (2011), teachers reported that the acquisition of the values such as academic honesty, scientific diligence, sensitivity to the natural environment, aesthetics, respect for diversity, sensitivity and sensitivity to cultural heritage, awareness about historical heritage, self-confidence and responsibility cannot be efficiently transferred to students. Elbir & Bağcı (2013) reviewed 16 master's theses and five PhD theses in their study. They concluded that teachers did not have necessary information about the values education. Although values are the center of education, the necessary importance has not been given to the values education. In education subjects and academic learning are emphasized, but there is a tendency to neglect the values (Einarsdottira et al., 2015).

Sensitivity refers to developing relations with the world and the events and developing a responsibility about them. It is certain that individuals have ongoing relationships with the environment and the world. On the other hand, individuals live in an environment of which they are inseparable part. Therefore, individuals should have relations to their environment and be sensitive to each ingredient of the environment. Therefore, it is very significant that the awareness of students about sensitivity values should be improved (Keskin & Öğretici, 2013). There are numerous studies about the environmental sensitivity of students and also, of student teachers (Çabuk & Karacaoğlu 2003; Makki et al., 2003; Huang & Yore, 2003; Yilmaz et al., 2004; Tuncer et al., 2005; Erol & Gezer 2006; Uzun & Sağlam, 2006; Başal et al., 2007; Chu et al., 2007; Kaiser et al., 2007; Tuncer, et al., 2009; Gülay, 2011; Tirri & Nokelainen 2011; Ozsoy et al.; Yaşaroğlu, 2012; Bilge, 2015; Başal et al., 2015). However, there is no study specifically dealing with the sensitivity levels of primary students and secondary schools about the natural environment, animals, cultural heritage and social problems. Therefore, the major aim of the study is to reveal sensitivity levels of fourth-grade students attending public schools concerning the natural environment, animals, social problems and cultural heritage. In parallel to this aim, the current study seeks to answer the following research questions:

1) At which level do the fourth-grade students have sensitivity to natural environment, animals, social problems and cultural heritage?
2) Does sensitivity of the fourth-grade students significantly vary based on the following factors?
    a) Gender
    b) Residence
    c) Educational background of parents

d) Occupations of parents
e) Frequency of following news

Method

Model of the study

This study, which aims to reveal the sensitivity levels of fourth-grade students, attending public schools, concerning the natural environment, animals, social problems and cultural heritage based on some variables, was designed as having a scanning model.

Participants

The participants of the study were a total of 447 fourth-grade students attending fifteen different public schools in Afyonkarahisar province in the school year of 2014-2015. Of them 238 were females (53.2%) and 209 (46.8%) were males. In regard to residence, 296 resided in the city centre, 123 in the villages and 28 in towns. Table 1 presents demographic data about the participants.

Table 1. *Demographic data about the participants*

		n	**%**
Gender	Female	238	53.2
	Male	209	46.8
	Total	447	100
Residence	Village	123	27.5
	Town	28	6.3
	City	296	66.2
	Total	447	100
Educational background of father	Illiterate	10	2.2
	Literate (without any formal education)	40	8.9
	Primary school	147	32.9
	High school	153	34.2
	Undergraduate	81	18.1
	Graduate	16	3.6
	Total	447	100
Educational background of mother	Illiterate	17	3.8
	Literate (without any formal education)	44	9.8
	Primary school	223	49.9
	High school	100	22.4
	Undergraduate	53	11.9
	Graduate	10	2.2
	Total	447	100
Occupation of father	Public servant	117	26.2
	Worker	139	31.1
	Private sector employer	48	10.7
	Tradesman	79	17.7
	Farmer	64	14.3
	Total	447	100
Occupation of mother	Public servant	49	11
	Worker	32	7.2
	Housewife	359	80.3
	Other	7	1.6
	Total	447	100

Table 1. (Cont.) *Demographic data about the participants*

How often you follow news?	Never	32	7.2
	Once a month	6	1.3
	Once a week	39	8.7
	Several days a week	186	41.6
	Everyday	184	41.2
	Total	447	100

Data collection tools

The data of the study were collected through the sensitivity value scale developed by the author. The scale also includes a demographic form which covers items related to the gender of the student, residence, educational background and occupation of parents and frequency of following news. The scale consists of four dimensions, namely sensitivity to natural environment, sensitivity to animals, sensitivity to social concerns and sensitivity to cultural heritage, and includes fifty-eight items. The scale is designed as a three-point Likert-type scale and participants are asked to answer each item using one of the following options: "always (3), sometimes (2) and never (1)". Items in the scale are all positive statements. The codes assigned to each item range between 1.00 and 3.00. The minimum score from the scale is 58, while the maximum score is 174.

The validity of the scale, its content validity, and its construct validity were analysed. For the reliability of the scale, the Cronbach alpha coefficient was calculated. During the scale development, first, the studies concerning the values education and the sensitivity value as well as the similar scales were examined. Then a total of fifty-five fourth-grade students were asked to write an essay about the definition of sensitivity. These essays were analysed by the author and another specialist in social studies using descriptive analysis technique. Based on all findings the scale was designed as having four dimensions: sensitivity to natural environment, sensitivity to animals, sensitivity to social concerns and sensitivity to cultural heritage. Of these dimensions, the sensitivity to environment and the sensitivity to cultural heritage were included in the educational program for the social studies course. The remaining two, namely the sensitivity to animals and the sensitivity to social problems, were added based on the review of literature. Items were written down in a plain and understandable manner and each item expressed a single view or feeling. At the end, the scale was developed with sixty-four items. The item was three-point Likert-type. In order to analyze the appropriateness of the items in the scale for identifying students sensitivity about the natural environment, animals, cultural heritage and social problems, the scale was reviewed by seven field specialists working at a public university.

Content validity refers to the sufficiency of the items about the qualities to be tested in terms of quality and quantity (Büyüköztürk, 2007). Two education specialists, one psychological counselling and guidance specialist, two social studies specialists and two science education specialists reviewed the scale in regard to the content validity and the face validity. The reviews showed that there were three inappropriate items and three overlapping items. Therefore, these items were excluded from the scale. The final version of the scale included a total of fifty-eight items. The scale was used in a pilot study with twenty fourth-grade students to review its intelligibility. Following the pilot study some of the items were redesigned.

For construct validity of the scale first and second order confirmatory factor analysis was employed. Confirmatory factor analysis (CFA) is a special form of factor analysis and is a statistical technique used to verify the factor structure of a set of observed variables. CFA allows the researcher to test the hypothesis that a relationship between observed variables and their underlying latent constructs exists. The factorial model to be

tested may be based on the findings of an amprical study or based on a theory (Sümer, 2000). There are numerous fit indices used to verify the validity of the model in the context of CFA. Of them the most frequently used ones are as follows (Cole, 1987; Sümer, 2000): Chi-Square Goodness (χ^2), Root Mean Square Error of Approximation (RMSEA), Comparative Fıt Index (CFI), Non-Normed Fit Index (NNFI), Normed Fit Index (NFI) and Goodness of Fit Index (GFI). If the values observed are distributed in the following values X2/d<3; 0<RMSEA<0.05; 0.97≤NNFI≤1; 0.97≤CFI≤1; 0.95≤GFI≤1 and 0.95≤NFI≤1, it indicates that there is a perfect fit; the values of 4<X2/d<5; 0.05<RMSEA<0.08; 0.95≤NNFI≤0.97; 0.95≤CFI≤0.97; 0.90≤GFI≤0.95 and 0.90≤NFI≤0.95 indicate an acceptable fit (Kline, 2005; Sümer, 2000). In the first CFA, those items with statistically no significant t values were sought. It was found that there was no such item in the scale, and therefore, no item was not excluded from the scale. The path diagram resulted from the analyses is given in Figure 1.

In addition, CFA showed the following fit indices for the scale: χ^2=5290.08, X^2/sd= 3.33, RMSEA=.072, CFI=.95, NFI=.92, NNFI=.95 and IFI=.95. The analysis indicated that all coefficients given above were at a sufficient level. The fit indices showed that there was a consistency between observed variables and their underlying latent constructs.

Table 2. *Regression and t values for the scale*

Items	Regression values	*t* values	Items	Regression values	*t* values
I1	0.25	9.10	I30	0.32	8.19
I2	0.31	9.66	I31	0.30	7.63
I3	0.34	9.87	I32	0.23	6.98
I4	0.21	9.08	I33	0.27	7.90
I5	0.28	9.77	I34	0.34	7.80
I6	0.14	7.63	I35	0.25	7.85
I7	0.36	8.60	I36	0.25	8.16
I8	0.28	8.29	I37	0.31	8.27
I9	0.40	10.57	I38	0.30	7.15
I10	0.34	9.71	I39	0.27	8.14
I11	0.24	8.80	I40	0.24	7.74
I12	0.22	9.11	I41	0.33	8.48
I13	0.29	8.92	I42	0.29	8.39
I14	0.39	10.02	I43	0.33	8.44
I15	0.36	10.09	I44	0.29	10.46
I16	0.24	8.66	I45	0.30	9.62
I17	0.25	9.09	I46	0.34	11.36
I18	0.30	9.29	I47	0.34	11.24
I19	0.34	9.24	I48	0.29	10.45
I20	0.23	7.79	I49	0.30	9.94
I21	0.29	8.45	I50	0.39	11.75
I22	0.28	8.46	I51	0.35	10.79
I23	0.26	8.48	I52	0.31	8.82
I24	0.52	9.85	I53	0.40	11.54
I25	0.51	9.31	I54	0.37	11.62
I26	0.51	9.58	I55	0.36	11.35
I27	0.29	8.45	I56	0.25	9.96
I28	0.24	8.24	I57	0.36	10.74
I29	0.21	7.71	I58	0.29	10.15

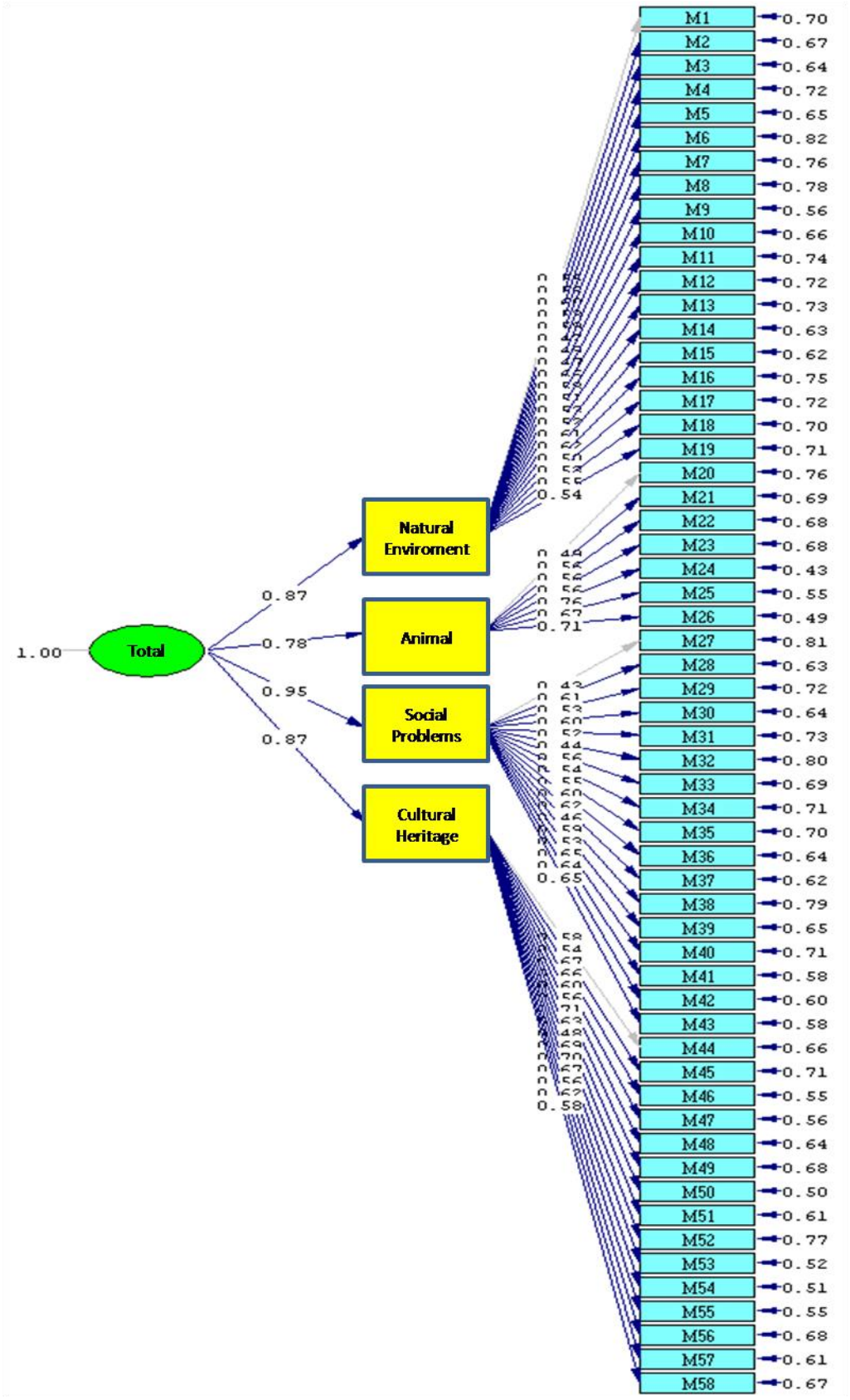

Figure 1. *Shows the regression and t values of the four-factor model obtained from the CFA.*

Table 2 indicates that both the regression values and t values obtained are significant and that the model is confirmed. Table 2 also shows that t values range between 6.98 and 11.75. As stated earlier, the scale consisted of four dimensions. There are nineteen items under the dimension of the sensitivity to the natural environment, namely *i1, i2, i3, i4, i5, i6, i7, i8, i9, i10, i11, I12, 13, i14, i15, i16, i17, i18* and *i19.* The dimension of the sensitivity to animals includes seven items, namely *i20, i21, i22, i23, i24, i25* and *i26*. The third dimension, namely the dimension of the sensitivity to social problems, consisted of seventeen items, namely *i27, i28, i29, i30, i31, i32, i33, i34, i35, i36, i37, i38, i39, i40, i41, i42* and *i43*. There are a total of fifteen items in the dimension of the sensitivity to the cultural heritage, namely *i44, i45, i46, i47, i48, i49, i50, i51, i52, i53, i54, i55, i56, i57 and i58*.

In regard to the reliability of the scale, the Cronbach alpha coefficient was found. The analysis showed that the Cronbach alpha coefficient for the dimension of the sensitivity to the natural environment was .89. It was found to be .81 for the dimension of the sensitivity to animals. The Cronbach Alpha coefficient for the dimension of the sensitivity to social problems was found to be .89. It was found to be .90 for the dimension of the sensitivity to cultural heritage. The Cronbach Alpha coefficient was found to be .96 for the scale as a whole.

Data analysis

The data collected were analysed using the SPSS 20. The normal distribution of the variables was analysed using the Shapiro-Wilk Test. The significance level was set at .05. More specifically, if the significance level is $p<.05$, it refers to not normally distributed variables. However, if it is $p>.05$, it refers to normally distributed variables. The differences among the groups were analysed using the Mann Whitney U test and the Kruskal Wallis-H test when the variables were not normally distributed. Given that the number of units is more than 20 the standardized z values for the Mann Whitney U Test were given. When the Kruskal Wallis-H Test produced significant differences, the groups causing the difference were identified using the multiple/post hoc comparison test. The significance level was set at .05. More specifically, the significance level of $p<.05$ indicated a significant difference while the significance level of $p>.05$ showed a non-significant difference.

Findings

This section presents the findings of the study. Table 3 shows the mean scores of the participants from the scale and from the dimensions of the scale together with arithmetic mean and standard deviation.

Table 3. *Mean scores and standard deviation related to the scale and the dimension scores*

	N	Mean	Median	Minimum	Maximum	*sd*
Sensitivity to natural environment	447	51.2	53.0	31.0	57.0	5.9
Sensitivity to animals	447	18.4	19.0	7.0	21.0	2.8
Sensitivity to social problems	447	46.6	49.0	29.0	51.0	5.1
Sensitivity to cultural heritage	447	40.8	43.0	19.0	45.0	5.2
Total sensitivity	447	157.1	162.0	110.0	174.0	16.6

As can be seen in Table 3, the participants have an overall mean score of M= 157 from the sensitivity value scale. The minimum score from the scale is 58 and the maximum score is 174. The mean score of 157 suggests that their overall sensitivity is at a higher

level. In terms of the dimensions of the scale, it is seen that the participants are sensitive to all dimensions, namely to the natural environment, animals, social problems and cultural heritage.

As stated earlier, the effects of some variables on the sensitivity of the fourth-grade students were analysed. In regard to the effects of gender on their sensitivity levels the Mann Whitney U test was employed. The results of the test are given in Table 4.

Table 4. *The results of the Mann Whitney U Test regarding the effects of gender on the mean scores for the dimensions of the scale*

		Gender					**Mann Whitney U Test**			
		n	***Mean***	***Min***	***Max***	***sd***	***Mean rank***	***Z***	***P***	***Effect size Cohen's d***
Score for the dimension of the sensitivity to the natural environment	Female	238	51.8	35	57	5.7	236.83	-2.261	.024	0.20
	Male	209	50.6	31	57	6	209.39			
	Total	447	51.2	31	57	5.9				
Score for the dimension of the sensitivity to animals	Female	238	18.5	7	21	3	231.08	-1.277	0.202	
	Male	209	18.3	11	21	2.7	215.94			
	Total	447	18.4	7	21	2.8				
Score for the dimension of the sensitivity to social problems	Female	238	47.1	33	51	4.7	232.77	-1.568	.117	
	Male	209	46.2	29	51	5.4	214.01			
	Total	447	46.6	29	51	5.1				
Score for the dimension of the sensitivity to cultural heritage	Female	238	41.1	24	45	5.1	233.74	-1.755	.079	
	Male	209	40.4	19	45	5.3	212.9			
	Total	447	40.8	19	45	5.2				
Total sensitivity score	Female	238	158.5	113	174	16.3	236.16	-2.128	.033	0.18
	Male	209	155.4	110	174	16.9	210.16			
	Total	447	157.1	110	174	16.6				

Table 4 shows that the variable of gender has statistically significant effects on the scores of the participants in the dimension of the sensitivity to the natural environment (p<.05). More specifically, female students had significantly higher mean scores in the dimension of the sensitivity to the natural environment in contrast to male students. Gender was also found to have statistically significant effects on the overall sensitivity score (p<.05) in that again female students had significantly much higher overall mean sensitivity scores in contrast to male students. Effect size has been calculated to determine how much the gender variable has been effective on the sensitivity to the natural environment and the overall sensitivity. These scores (effect size= 0.20 and 0.18) that have been calculated related to the effect size show that the gender variable has little effects on sensitivity. Based on the findings of both the effect sizes that have been calculated, It can be said that the gender variable has quite little (Cohen, 1992) effect on the sensitivity towards the natural environment and the overall sensitivity. Huang and Yore (2003) explored the differences between two culturally distinct (Canadian and Taiwanese students) groups and also developed models of children's responsible environmental behavior. The differences in results for boys and girls, levels of nature participation, and nationalities were found to be significant but of small to moderate effect size. These effect sizes indicate that the comparison groups were more similar than different. (Huang & Yore, 2003).

The potential effects of residence on the sensitivity levels of the participants were analysed using the Kruskal Wallis-H test. The results are given in Table 5.

Table 5. *The results of the Kruskal Wallis-H regarding the effects of residence on the mean scores for the dimensions of the scale*

		Residence		Kruskal Wallis H Test					
		n	***Mean***	***Min***	***Max***	***sd***	***Mean rank***	***H***	***p***
Score for the dimension of the sensitivity to the natural environment	1.Village	123	49	32	57	6.4	177.69	50.366	.001
	2.Town	28	46.4	37	56	5.7	118.88		
	3.City	296	52.6	31	57	5.1	253.19		
	Total	447	51.2	31	57	5.9	2-3 1-3		
Score for the dimension of the sensitivity to animals	1.Village	123	17.8	11	21	2.7	190.02	39.254	.001
	2.Town	28	16.1	12	21	2.8	120.05		
	3.City	296	18.9	7	21	2.7	247.95		
	Total	447	18.4	7	21	2.8	2-1 2-3 1-3		
Score for the dimension of the sensitivity to social problems	1.Village	123	44.8	31	51	5.6	180.32	58.954	.001
	2.Town	28	41	30	51	5.7	98.88		
	3.City	296	47.9	29	51	4.2	253.99		
	Total	447	46.6	29	51	5.1	2-1 2-3 1-3		
Score for the dimension of the sensitivity to cultural heritage	1.Village	123	39.4	24	45	5.6	188.39	53.236	.001
	2.Town	28	35.3	26	45	5.1	95.25		
	3.City	296	41.9	19	45	4.5	250.98		
	Total	447	40.8	19	45	5.2	2-1 2-3 1-3		
Total sensitivity score	1.Village	123	151	110	174	17.9	179.64	59.67	.001
	2.Town	28	138.9	113	170	15.4	94.45		
	3.City	296	161.3	111	174	14.2	254.69		
	Total	447	157.1	110	174	16.6	2-1 2-3 1-3		

Table 5 indicates that the variable of residence has a statistically significant effect on the mean scores of the participants both in overall scores and in the scores of the dimensions. Therefore, it had significant effects in regard to the mean scores of the participants in the dimension of the sensitivity to the natural environment, the sensitivity to animals, the sensitivity to social problems, the sensitivity to the cultural heritage (p <.05). The effect of this variable on the overall sensitivity mean score was also found to be statistically significant (p <.05). More specifically, those participants living in villages and towns had lower overall mean sensitivity scores in contrast to those living in the city. In addition, those living in towns had lower overall mean sensitivity scores in contrast to those living in villages.

The potential effects of the educational background of fathers on the sensitivity levels of the participants were analysed using the Kruskal Wallis-H test. The results are given in Table 6.

Table 6. *The results of the Kruskal Wallis-H regarding the effects of the educational background of fathers on the mean scores for the dimensions of the scale*

		Educational background of fathers					Kruskal Wallis H Test	
		n	***Min***	***Max***	***ss***	***Mean rank***	***H***	***p***
Score for the dimension of the sensitivity to the natural environment	1.Illiterate	10	46	57	4.4	217.4	31.431	.001
	2.Literate	40	36	57	7	199.75		
	3.Primary school	147	32	57	6.3	181.65		
	4.High school	153	31	57	5.2	247.05		
	5.Undergraduate	81	39	57	4.7	260.28		
	6.Graduate	16	39	57	4.6	273.75		
	Total	447	31	57	5.9		3-4 3-5	

Table 6. (Cont.) *The results of the Kruskal Wallis-H regarding the effects of the educational background of fathers on the mean scores for the dimensions of the scale*

	Educational background of fathers					Kruskal Wallis H Test	
		n	***Min***	***Max***	***sd***	***Mean rank***	***H***	***p***
Score for the dimension of the sensitivity to animals	1.Illiterate	10	14	21	2.4	204.75	19.238	.002
	2.Literate	40	12	21	2.6	226.69		
	3.Primary school	147	7	21	3.1	190.17		
	4.High school	153	7	21	2.8	236.8		
	5.Undergraduate	81	12	21	2.3	252.86		
	6.Graduate	16	15	21	2.1	271.66		
	Total	447	7	21	2.8		3-4 3-5	
Score for the dimension of the sensitivity to social problems	1.Illiterate	10	35	51	5.4	182.85	38.721	.001
	2.Literate	40	29	51	5.8	199.6		
	3.Primary school	147	31	51	5.5	180.56		
	4.High school	153	30	51	4.6	243.87		
	5.Undergraduate	81	34	51	3.8	268.93		
	6.Graduate	16	39	51	3.7	292.41		
	Total	447	29	51	5.1		3-4 3-5 3-6	
Score for the dimension of the sensitivity to cultural heritage	1.Illiterate	10	26	45	6.3	206.9	20.188	.001
	2.Literate	40	27	45	5.8	203.44		
	3.Primary school	147	24	45	5.5	191.26		
	4.High school	153	24	45	4.3	245.35		
	5.Undergraduate	81	19	45	5	247.65		
	6.Graduate	16	24	45	6.2	263.03		
	Total	447	19	45	5.2		3-4 3-5	
Total sensitivity score	1.Illiterate	10	126	174	16.9	199.7	34.532	.001
	2.Literate	40	111	174	18.4	200.59		
	3.Primary school	147	110	174	17.7	179.76		
	4.High school	153	115	174	14.9	247.82		
	5.Undergraduate	81	118	174	13.7	263.22		
	6.Graduate	16	119	174	14.6	277.81		
	Total	447	110	174	16.6		3-4 3-5	

As can be seen in Table 6, the educational background of participants' fathers had statistically significant effects on both overall sensitivity scores and the scores for the dimensions of the scale. The variable of fathers' educational background had significant effects in regard to the mean scores of the participants in the dimension of the sensitivity to the natural environment, the sensitivity to animals, the sensitivity to social problems, the sensitivity to the cultural heritage (p<.05). The variable of fathers' educational background had significant effects in regard to the overall mean sensitivity scores of the participants environment (p<.05). Those participants whose fathers were the graduates of primary school had lower mean sensitivity scores than those participants whose fathers were the graduates of either high school or university.

The potential effects of the educational background of mothers on the sensitivity levels of the participants were analysed using the Kruskal Wallis-H test. The results are given in Table 7.

Table 7. *The results of the Kruskal Wallis-H regarding the effects of the educational background of mothers on the mean scores for the dimensions of the scale*

		Educational background of mothers					***Kruskal Wallis H Test***		
		n	***Mean***	***Min***	***Max***	***sd***	***Mean rank***	***H***	***p***
Score for the dimension of the sensitivity to the natural environment	1.Illiterate	17	50.5	40	57	6.2	215.53	21.145	0.001
	2.Literate	44	49.6	37	57	6	187.18		
	3.Primary school	223	50.3	32	57	6.2	205.72		
	4.High school	100	53	36	57	4.7	260.37		
	5.Undergraduate	53	52.9	31	57	5.4	261.34		
	6.Graduate	10	53.1	49	57	2.8	246.45		
	Total	447	51.2	31	57	5.9	2-4 3-4		
Score for the dimension of the sensitivity to animals	1.Illiterate	17	18.5	14	21	2.5	225.76	11.571	0.041
	2.Literate	44	18.2	12	21	2.7	209.59		
	3.Primary school	223	18.1	7	21	3.1	208.85		
	4.High school	100	18.7	7	21	2.7	240.55		
	5.Undergraduate	53	19.2	13	21	2.1	256.32		
	6.Graduate	10	19.8	16	21	1.9	285.6		
	Total	447	18.4	7	21	2.8	3-4 3-5		
Score for the dimension of the sensitivity to social problems	1.Illiterate	17	45.1	35	51	6.2	197.97	22.717	0.001
	2.Literate	44	45.2	29	51	5.4	183.23		
	3.Primary school	223	46	30	51	5.3	207.91		
	4.High school	100	47.8	34	51	4.3	253.7		
	5.Undergraduate	53	48.3	34	51	4.1	266.9		
	6.Graduate	10	49	42	51	3.1	282.15		
	Total	447	46.6	29	51	5.1	2-4 2-5 3-4 3-5		
Score for the dimension of the sensitivity to cultural heritage	1.Illiterate	17	39.1	26	45	6.3	194.91	16.307	0.006
	2.Literate	44	39.5	27	45	5.3	188.64		
	3.Primary school	223	40.4	24	45	5.2	212.21		
	4.High school	100	42.1	28	45	4	253.67		
	5.Undergraduate	53	41.5	19	45	6.2	259.1		
	6.Graduate	10	40.6	31	45	4.6	209.3		
	Total	447	40.8	19	45	5.2	2-4 2-5 3-4 3-5		
Total sensitivity score	1.Illiterate	17	153.2	126	174	19.9	208.56	20.476	0.001
	2.Literate	44	152.5	111	174	17.4	186.25		
	3.Primary school	223	154.8	110	174	17.4	206.93		
	4.High school	100	161.7	122	174	13.2	255.52		
	5.Undergraduate	53	162	115	174	15.8	268.11		
	6.Graduate	10	162.5	149	174	9.4	248.05		
	Total	447	157.1	110	174	16.6	2-4 2-5 3-4 3-5		

Table 7 shows that the educational background of participants' mothers had statistically significant effects on both overall sensitivity scores and the scores for the dimensions of the scale. The variable of mothers' educational background had significant effects in regard to the mean scores of the participants in the dimension of the sensitivity to the natural environment, sensitivity to animals, the sensitivity to social problems, the sensitivity to the cultural heritage (p<.05). The variable of mothers' educational background had significant effects in regard to the overall mean sensitivity scores of the participants (p<.05). Those participants whose mothers were literate without any formal education and those whose mothers were graduates of primary school had lower mean sensitivity scores than those participants whose mothers were the graduates of high school or university.

The potential effects of the occupation of participants' fathers on the sensitivity levels of the participants were analysed using the Kruskal Wallis-H test. The results are given in Table 8.

Table 8. *The results of the Kruskal Wallis-H regarding the effects of the occupation of fathers on the overall mean scores and mean scores for the dimensions of the scale*

		Occupation of fathers					***Kruskal Wallis H Test***		
		n	***Mean***	***Min***	***Max***	***sd***	***Mean rank***	***H***	***p***
Score for the dimension of the sensitivity to the natural environment	1.Public servant	117	52.9	35	57	4.9	261.82	31.974	0.001
	2.Workers	139	50.5	37	57	5.8	205.17		
	3.Private sector employer	48	53.1	41	57	4.5	259.6		
	4.Tradesman	79	51.4	31	57	6	229.53		
	5.Farmer	64	48.1	32	57	6.7	162.23		
	Total	447	51.2	31	57	5.9	5-4 5-3 5-1 2-1		
Score for the dimension of the sensitivity to animals	1.Public servant	117	19	7	21	2.6	251.08	23.509	0.001
	2.Workers	139	18.1	7	21	2.9	208.34		
	3.Private sector employer	48	19.1	10	21	2.4	253.89		
	4.Tradesman	79	18.6	7	21	2.9	237.52		
	5.Farmer	64	17.3	11	21	2.9	169.41		
	Total	447	18.4	7	21	2.8	5-4 5-1 5-3		
Score for the dimension of the sensitivity to social problems	1.Public servant	117	48.2	34	51	3.8	259.83	30.29	0.001
	2.Workers	139	45.6	29	51	5.6	199.96		
	3.Private sector employer	48	48.4	33	51	3.7	267.43		
	4.Tradesman	79	46.7	31	51	5.4	227.42		
	5.Farmer	64	44.7	34	51	5.2	173.91		
	Total	447	46.6	29	51	5.1	5-1 5-3 2-1 2-3		
Score for the dimension of the sensitivity to cultural heritage	1.Public servant	117	41.7	19	45	4.7	249.41	20.712	0.001
	2.Workers	139	40.1	27	45	5.2	203.87		
	3.Private sector employer	48	42.4	24	45	3.9	260.48		
	4.Tradesman	79	41.2	20	45	5.2	234.72		
	5.Farmer	64	38.7	24	45	6.1	180.66		
	Total	447	40.8	19	45	5.2	5-1 5-3 2-1		
Total sensitivity score	1.Public servant	117	161.9	119	174	13.7	260.89	31.669	0.001
	2.Workers	139	154.3	111	174	17.6	203.02		
	3.Private sector employer	48	163	125	174	12	261.85		
	4.Tradesman	79	157.9	110	174	16.9	232.01		
	5.Farmer	64	148.7	117	174	17.9	163.85		
	Total	447	157.1	110	174	16.6	5-4 5-1 5-3 2-1		

Table 8 shows that the occupation of participants' fathers had statistically significant effects on both overall sensitivity scores and the mean scores for the dimensions of the scale. This variable is found to have significant effects on the mean scores for the dimension of the sensitivity to the natural environment, sensitivity to animals, the sensitivity to social problems, the sensitivity to the cultural heritage (p<.05). The overall mean sensitivity score of the participants was also significantly affected by the occupation of fathers (p<.05). More specifically, those participants whose fathers were farmers had lower overall mean sensitivity scores than those whose fathers were private sector employers, or public servants or tradesmen. In addition, those participants whose fathers were workers were found to have lower overall mean sensitivity scores than those whose fathers were public servants.

The potential effects of the occupation of participants' mothers on the sensitivity levels of the participants were analysed using the Kruskal Wallis-H test. The results are given in Table 9.

Table 9. *The results of the Kruskal Wallis-H regarding the effects of the occupation of mothers on the overall mean scores and mean scores for the dimensions of the scale*

		Occupation of mothers					***Kruskal Wallis H Test***		
		n	***Mean***	***Min***	***Max***	***sd***	***Mean rank***	***H***	***p***
Score for the dimension of the sensitivity to the natural environment	1.Public servant	49	53.4	39	57	4.1	261.3	5.881	0.118
	2.Worker	32	50.5	38	57	6.6	216.53		
	3.Housewife	359	50.9	31	57	6	218.64		
	4.Other	7	54	49	57	3.5	272		
	Total	447	51.2	31	57	5.9			
Score for the dimension of the sensitivity to animals	1.Public servant	49	19	13	21	2.3	246.36	4.827	0.185
	2.Worker	32	18.5	12	21	2.7	226.52		
	3.Housewife	359	18.3	7	21	2.9	219.2		
	4.Other	7	20	17	21	1.7	302		
	Total	447	18.4	7	21	2.8			
Score for the dimension of the sensitivity to social problems	1.Public servant	49	48.5	34	51	4	273.81	12.234	0.007
	2.Worker	32	45.8	29	51	5.9	206.55		
	3.Housewife	359	46.4	30	51	5.1	217.16		
	4.Other	7	49.4	44	51	2.8	305.79		
	Total	447	46.6	29	51	5.1		3-1	
Score for the dimension of the sensitivity to cultural heritage	1.Public servant	49	41.8	24	45	4.7	249.96	6.779	0.079
	2.Worker	32	40.7	30	45	5.2	228.48		
	3.Housewife	359	40.6	19	45	5.3	218.24		
	4.Other	7	44.1	40	45	1.9	317.21		
	Total	447	40.8	19	45	5.2			
Total sensitivity score	1.Public servant	49	162.7	119	174	12.7	262.84	8.459	0.037
	2.Worker	32	155.5	111	174	18.6	219.3		
	3.Housewife	359	156.2	110	174	16.9	217.46		
	4.Other	7	167.6	154	174	9.3	308.93		
	Total	447	157.1	110	174	16.6		3-1	

Table 9 indicates that the occupation of participants' mothers had statistically significant effects on both overall mean sensitivity scores and the score for the dimensions of the sensitivity to social problems (p<.05). It was found that those participants whose mothers were housewives had lower mean score for the dimensions of the sensitivity to social problems than those whose mothers were public servant. This variable is also found to have significant effects on the overall mean sensitivity scores (p<.05). More specifically, those participants whose mothers were housewives had lower overall mean sensitivity score than those whose mothers were public servant.

The potential effects of participants' habits of reading or listening to news on the sensitivity levels of the participants were analysed using the Kruskal Wallis-H test. The results are given in Table 10.

Table 10. *The results of the Kruskal Wallis-H regarding the effects of participants' habits of reading or listening to news on the overall mean scores and mean scores for the dimensions of the scale*

		Frequency of following news					***Kruskal Wallis H Testi***		
		n	***Mean***	***Min***	***Max***	***sd***	***Mean rank***	***H***	***p***
Score for the dimension of the sensitivity to the natural environment	1.Never	32	44.7	32	57	7.1	108.95	47.435	0.001
	2.Once a month	6	47.8	42	54	3.9	126.5		
	3.Once a week	39	49.6	39	57	5.7	184.09		
	4.Several days a week	186	51	35	57	5.8	220.18		
	5.Everyday	184	53	31	57	4.8	259.51		
	Total	447	51.2	31	57	5.9	1-4 1-5 3-5 4-5		
Score for the dimension of the sensitivity to animals	1.Never	32	15.7	7	21	3.6	125.08	33.674	0.001
	2.Once a month	6	17.2	15	21	2.4	153.08		
	3.Once a week	39	17.6	11	21	3.1	185.41		
	4.Several days a week	186	18.6	12	21	2.5	225.6		
	5.Everyday	184	19	7	21	2.7	250.08		
	Total	447	18.4	7	21	2.8	1-4 1-5 3-5		
Score for the dimension of the sensitivity to social problems	1.Never	32	42.1	29	51	6.5	132.58	44.35	0.001
	2.Once a month	6	41.7	35	47	4	90.33		
	3.Once a week	39	45.6	32	51	5.2	194.9		
	4.Several days a week	186	46.3	30	51	5	212.08		
	5.Everyday	184	48.2	33	51	4.1	262.48		
	Total	447	46.6	29	51	5.1	2-5 1-4 1-5 3-5 4-5		
Score for the dimension of the sensitivity to cultural heritage	1.Never	32	37.1	27	45	5.8	143.86	22.043	0.001
	2.Once a month	6	39.8	29	45	5.9	200.25		
	3.Once a week	39	40.1	24	45	5	199.04		
	4.Several days a week	186	40.6	20	45	5.2	219.68		
	5.Everyday	184	41.7	19	45	4.8	248.37		
	Total	447	40.8	19	45	5.2	1-4 1-5		
Total sensitivity score	1.Never	32	139.7	110	174	19.7	114.78	43.391	0.001
	2.Once a month	6	146.5	125	162	12.6	123.25		
	3.Once a week	39	152.9	119	174	16	184.5		
	4.Several days a week	186	156.5	117	174	16.4	220.53		
	5.Everyday	184	161.9	113	174	14	258.16		
	Total	447	157.1	110	174	16.6	1-4 1-5 3-5 4-5		

Table 10 shows that participants' habits of following news had statistically significant effects on both overall sensitivity scores and the scores for the dimensions of the scale. This variable is found to have significant effects on the mean scores for the dimension of the sensitivity to the natural environment, of the sensitivity to the natural environment, the sensitivity to animals, the sensitivity to social problems, the sensitivity to the cultural heritage (p<.05). The overall mean sensitivity score was also found to be significantly affected by participants' habits of following news (p<.05). Those participants who never read or listened to news had significantly lower overall mean sensitivity scores than those who read or listened to news once a week or several days a week and those who read or listened to news several days a week had significantly lower overall mean sensitivity scores than those who read or listened to news every day.

Discussion and conclusions

In the study, it was found that the mean scores of the fourth-grade students were high for both the scale as a whole and the dimensions of the scale. Therefore, it can be argued that the participants were sensitive to the natural environment, animals, social problems and cultural heritage. Keskin & Öğretici (2013) examined the effects of the activities used in the social studies course to improve the student awareness about sensitivity. They found that these activities specifically designed to improve sensitivity were successful in achieving the goal. However, it was also found that the knowledge base and awareness of the sixth-grade students regarding sensitivity were very limited, although they studied topics about the sensitivity to the natural environment and the sensitivity to historical heritage in the fifth-grade. On the other hand, they suggested that activity-based teaching and learning should be employed in the social studies courses and that the textbooks should contain much more references to the values education. Erdoğan (2009) found that the fifth-grade students had higher levels of environmental attitudes and the sensitivity to environment.

In the current study it was found that the variables of gender, residence, educational background and occupation of parents significantly affected the sensitivity levels of the participants concerning the natural environment, animals, social problems and cultural heritage. The gender of the participants had statistically significant effects on both their overall mean sensitivity scores and their mean scores for the dimensions of the scale. It was seen that female students had much higher levels of sensitivity in contrast to the male students sampled. Research findings suggest that gender is a significant factor concerning sensitive behaviour of individuals. The inferential statistics showed that female students had higher levels of environmental sensitivity, environment-related information and positive attitudes towards environment. In the literature, gender difference in favour of females is reported in many of research studies (Huang & Yore, 2003; Chu et. al. 2007). Similar results are also reported in studies conducted with Turkish samples (by Çabuk & Karacaoğlu, 2003; Yılmaz et. al. 2004;, Tuncer et. al. 2005; Atasoy & Ertürk 2008; Keskin 2008; Tuncer et. al. 2009; Ozsoy et al.). The findings of the current study are consistent with these previous findings. On the other hand, there are studies suggesting that female students' levels of environmental sensitivity, environment-related information and attitudes were lower than those of male students (O'Brein, 2007).

It was also found in the current study that the place of living had statistically significant effects on both overall mean sensitivity scores and the mean scores for the dimensions of the scale. Those participants living either in villages or in towns had lower mean scores for the dimension of the sensitivity to the natural environment in contrast to those living in the city. It was also found for the dimensions of the sensitivity to animals, social problems and cultural heritage. In addition, those living in towns had lower mean scores in the dimensions of the sensitivity to animals, social problems and cultural heritage in contrast to those living in villages. Therefore, those students living in villages and towns have lower levels of sensitivity to the topics examined in the study. It was seen that residence plays a significant role in shaping sensitivity levels. It is argued that people living in cities are much more anxious about environment than those living in villages (Fransson & Gärling, 1999 cited in Erdoğan 2009). There are studies suggesting that students living in cities have much higher awareness about the environmental problems and are much opitimistic about the solutions for such problems (Tuncer et. al, 2005; Yılmaz et. al; 2004; Yaşaroğlu, 2012). It is natural that students living in cities much more frequently come across environmental problems resulting from rapid urbanization and fast population growth. Therefore, they are very eager to exhibit actions to protect the natural environment (Erdoğan, 2009). The findings of the present study concerning the

higher sensitivity levels of students' living in cities about animals, social problems and cultural heritage can also be accounted for using the same factors.

In the current study, it was found that the educational background of parents had a statistically significant effect on the mean scores of the participants both in overall scores and in the scores of the dimensions. Those participants whose fathers were the graduates of primary school had significantly lower mean scores for the dimensions of the sensitivity to the natural environment, animals, social problems and cultural heritage as well as significantly lower overall mean sensitivity score in contrast to those participants whose fathers were the graduates of either high school or university. In addition, those participants whose mothers were literate without any formal education or the graduate of primary school had significantly lower mean scores for the dimensions of the sensitivity to the natural environment, animals, social problems and cultural heritage as well as significantly lower overall mean sensitivity score in contrast those participants whose mothers were the graduates of either high school or university. Therefore, it is possible to argue that those students whose parents have higher levels of education have much higher levels of sensitivity. In other words, educated parents seem to educate their children more sensitively and more consciously. Such parents encourage their children to read books and to play games and are the models for their children in regard to sensitive acts and behaviours. Varışlı (2009) and Chu et. al (2007) also found that educational background of parents had a significant effect on their children's environmental literacy. Carlisle (2007) argued that the educational background of parents has positive effects on their children's knowledge about environment and their attitudes towards environment. Because educated parents share their knowledge and awareness about environment with their children through different activities (cited in Varışlı; 2009; Erdoğan, 2009; Yaşaroğlu, 2012). Makki et. al. (2003) also concluded that the educational background of parents has positive effects on their children's knowledge about environment and that those students whose parents have graduate education had higher levels of environment-related information and much more positive attitudes towards environment in contrast to those whose parents were the graduates of high school or whose parent had lower educational levels. Keskin (2008) stated that the higher educational levels of parents higher scores for the sensitivity to historical heritage and to the natural environment. All these findings are consistent with the present findings and therefore, it can be argued that the educational levels of parents plays a significant role in their children's sensitivity to the natural environment, animals, social problems and cultural heritage.

In the current study, it was found that the occupation of participants' fathers had statistically significant effects on both overall sensitivity scores and the mean scores for the dimensions of the scale. More specifically, the participants whose fathers were either farmers or workers had significantly lower mean scores for the dimensions of the sensitivity to the natural environment, animals, social problems and cultural heritage than those whose fathers were private sector employers, or public servants or tradesmen. Yaşaroğlu, (2012) concluded that those students whose fathers were public servants exhibited much more environmentally sensitive behaviour in terms of interest in environment, cleaning-saving and love for animals in contrast to those students whose fathers were tradesmen or whose parents were unemployed. Keskin (2008) also found that there was a statistically significant correlation between the sensitivity of the fifth-grade students to the natural environment and historical heritage and the occupation of their fathers. This correlation was in favor of those students whose fathers were either public servant, or tradesman or self-employed.

In the study, it was also concluded that the occupation of participants' mothers had statistically significant effects on their mean scores. More specifically, those participants

whose mothers were housewives had significantly lower mean scores for the dimension of the sensitivity to social problems as well as significantly lower overall mean sensitivity scores in contrast to those whose mothers were public servants. Therefore, it can be argued that children whose mothers are employed have much more sensitivity to social problems. Staub (1979) stated that social sensitivity refers to behaviour related to positive social acts and related to the needs of other people. People have an instinct of considering the outcomes of their behaviour. If this inherent tendency is improved during the childhood and adolescence periods, individuals become responsible for their acts and sensitive to the society. However, if it is not improved or not encouraged, they become both irresponsible and insensitive. Societal sensitivity is one of the basic life skills and it first emerges in family context and improves in the peer circles and in school (cited in Akman . et. al., 2006). Varışlı (2009) concluded that environmental knowledge which is a significant ingredient of environmental literacy was much higher in the students whose mothers were employed. Those students whose mothers are employed better know the concepts related to the environmental sensitivity. For instance, Keskin (2008) found that there was a significant correlation between the sensitivity of the fifth-grade students for the natural environment and historical heritage and the occupation of their mothers. This correlation was positive for the students whose mothers were public servants. This finding is consistent with the current finding. Therefore, it is possible to suggest that both educational background of parents and their employment status have significant effects in children's acquisition of knowledge, values and skills.

In the study, it was also found that participants' habits of following news had statistically significant effects on both overall sensitivity scores and the scores for the dimensions of the scale. Those participants who never read or listened to news or those who read or listened to news several days a week, once a week or once a month had lower mean scores for the dimension of the sensitivity to the natural environment, animals, social problems and cultural heritage than those who read or listened to news every day. This finding clearly shows that frequent follow up news has positive effects on the sensitivity levels of people. Through follow up actual events the awareness of students about the world improves and they can relate their learning with real events and apply their learning to the actual problems or situations. It is argued that interest in actual events improves interest in the world (Moffatt, 1957; Ord, 1972 cited in Gedik, 2010).

Based on the findings of the study, the following suggestions were developed:

- Given that both education and socio-economic status are significant in producing sensitive individuals, parents living in villages or unemployed parents can be trained about sensitivity.
- During the pre-school education behaviour related to the sensitivity to environment, animals, cultural heritage and social problems can be emphasized to begin to educate children.
- Projects can be developed to make sensitivity common in family, school and society; such projects may target younger children.

In order to create awareness on sensitivity training can be offered to people in public education centres and in workplace and media may also support for similar attempts and activities.

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