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Environmental Knowledge of Primary School Students: Zonguldak (Turkey) Example

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Abstract

The number of environmentally conscious individuals in society can be raised by increasing environmental education quality in primary schools. Starting studies about environment in the childhood years is very important. In this study, the knowledge and skill levels of primary school students in Zonguldak about waste recycling was determined, and the participation levels of theirs into recycling activities was measured. For this aim, the third and fourth grade primary school students were identified as a target group of the study, and a questionnaire assessing the impact of the parents' socio-economic structures and education status on environmental awareness of theirs was prepared. The results were evaluated to determine the strengths and weaknesses of environmental education of the students, statistically. The questionnaire was conducted in three elementary schools having different social and economic levels. Questions in the first, second and last parts of the questionnaire relate with the demographic characteristics of students families, the environmental awareness of the students, and the participation of students into recycling activities, respectively. The survey reviews were carried out with a statistical program and differences between the schools were determined by using one way ANOVA test.

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1. Introduction

The rapid changes in industry and technology have caused various environmental problems. Natural resources are decreasing due to rapidly increasing population, industrialization and the variation of the consumption habits each

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passing day. For efficient use of natural resources, reducing and recycling of waste should be considered. Researches have shown that the 50 % of present pollution on earth today has taken place in the last 35 years [1]. As environmental problems become more complicated and difficult to manage, there is an expanding requirement for development in community realization of environmental science and policy. For this reason, extensive environmental education may be an important mean for communities to meet the accelerating need for community understanding of environmental problems [2].

According to the Tbilisi Declaration (UNESCO, 1978), environmental education which is described as training durations enhances people's knowledge about the environmental problems. Therefore, environmental education is integrated into normal education at schools for students [3]. With environmental education, individuals are grown that have sensitive, conscious and attender about the environmental issues. Students get a sufficient environmental education that can enhance their consciousness about the environmental problems [1]. However, environmental education cannot be limited to formal education, also obtained with social life and relationships.

Discussions about environment and environmental awareness are a very late start in Turkey. Therefore, Turkey's experience in environmental education is very new. Environmental education can be grouped by three main titles in Turkey: formal education, informal education and in-service training. Formal education is handled through environment related curricula at the pre-school, primary, secondary and higher education levels. Informal education contains education and increasing of consciousness of individuals outside the formal educational system [4].

Zonguldak, located on the northwest of Turkey, had a population of about 606,000 by the 2012 census. Zonguldak is also an important port in the Black Sea and one of the provinces of Turkey's that rich in mineral resources. In 2011-2012 academic years, 6,317 students are studying in pre-school education, 69,356 students are studying in primary schools and 29,405 students are studying in secondary schools in our province [5]. The goal of this study is to determine the manner in which the 3rd and 4th graders perceive the environmental problems and to bring solutions to these problems from their own perspectives.

2. Method

The study was conducted by 130 graders who attend from three different primary schools in the city centre of Zonguldak. The third and fourth grade primary school students were identified as target group of the study. In this context, a questionnaire was prepared to evaluate the impact of socio-economic structure and parents' educational status on environmental awareness. The results were statistically evaluated to determine the strengths and weaknesses of environmental education in primary schools in province of Zonguldak.

In this study, a questionnaire was applied to 3rd and 4th grade students that consist of 15 questions. First part of the survey has questions about demographic characteristics of family, second part is about environmental awareness of the students and the last part is about students' participation in recycling activities. Schools are encoded as A, B and C. School A is located in a neighbourhood which has low-income families. School B is situated in the middle class income families. Family education and economic status is higher than the other two schools in school C. Totally 130 students have participated in this study. Schools were visited by the researchers and questionnaires were applied to students. Results were entered to the Access database. The survey data were statistically analysed by SPSS V.16.0 statistical program. One Way ANOVA test was used to examine differences between the groups. Tests were carried out 95% confidence interval.

3. Results

3.1. *The demographic structure of the students*

The researchers visited each school in spring semester 2011-2012. During these school visits, students were informed about the study, and were invited to complete the questionnaire. On average, it took about 15- 20 minutes to complete the questionnaire. In total, 130 students (57 females and 73 males) submitted a completed questionnaire for this study.

Demographic information about the students that participated in the survey is given in Table 1. As seen from Table 1, most of the mothers have primary school education level in school A and school B but on the other hand mothers have higher education level in school C. 70% of fathers have graduated from high school or college in school C, whereas educational status of the fathers is mostly primary school level in school A and B.

Table 1. Demographic characteristics of the students that participating in the study.

Schools	A	B	C	Total
Total number of students (N)	36	49	45	130
Gender (%)				
Female	36	45	49	44
Male	64	55	51	56
Mother Education Status (%)				
None	33	10	4	15
Primary school	39	49	17	36
Secondary school	14	18	4	12
High School	8	18	36	22
University or higher	3	0	36	13
Unknown	3	5	3	2
Father Education Status (%)				
None	25	6	2	10
Primary school	36	36	4	26
Secondary school	22	14	14	16
High School	11	24	22	20
University or higher	3	14	58	26
Unknown	3	6	0	3
The number of individuals working in the family				
1	54	61	38	51
2	23	15	29	22
3	23	24	33	27

3.2. Students' knowledge about recycling

One Way ANOVA test method was used to determine the differences between the schools. When we consider the information level of the students about the environmental problems in Zonguldak, we could see that 70% of students have a lot of information. In addition, half of the students do not know anything about the meaning of recycling and recyclable materials (Table 2).

Table 2. Awareness of recyclable materials in different schools.

School	Recyclable Materials	N	%
A	Wrong answers	12	33%
	Correct answers	24	77%
B	Wrong answers	30	61%
	Correct answers	19	39%
C	Wrong answers	8	17%
	Correct answers	37	83%

Answers about recyclable materials are significantly different in school B than school A and C ($p < 0.05$). Only 39% of students in this school have information about what the recyclable materials are. The rate of the right answer to this question is 77% and 83% for school A and C respectively. Similarly 28%, 77% and 69% of the students have answered "I saw and used it" to the question of "Have you ever seen a recycle bin?" in school B, A and C respectively ($p < 0.05$) (Table 3).

Table 3. Rates of see and use the recycle bin.

School	Have you ever seen a recycle bin?	N	%
A	I have not seen	8	22%
	I've seen, but not used	4	11%
	I've seen and used	24	77%
B	I have not seen	25	52%
	I've seen, but not used	10	20%
	I've seen and used	13	28%
C	I have not seen	9	20%
	I've seen, but not used	5	11%
	I've seen and used	30	69%

Majority of students in all three schools indicated that "they can use recycling bin if there is" and "they could attend to recycling activities even if nobody else does not". According to the survey 60% - 80% of the students "would attend the recycling activities on their own", 10-15% of the students "would attend the recycling activities if their teachers want", 5-15 % of the students "would attend the recycling activities if their parents do", 10% of the students "would attend the recycling activities if their friends do". More than 80% of the students in all three schools think that recycling is "very important for their future".

A majority of respondents (83%) who has course on environmental issues in school, reported that the environmental problems will be one of the most important problem that will be faced in Zonguldak in the recent future. On the contrary, 56% of the students who has not any course on environmental issues in school, think that there is not any significant environmental problems in Zonguldak ($p < 0,05$). Results about the effect of environmental education to the environmental awareness are presented in table 4 and 5.

Table 4. Levels of students' environmental education and recycling information.

Environmental Education (EE) Status	“What is recycling?”	N	%	P
Have not EE education	Don't know	11	31%	0,002
	Some of the waste	20	55%	
	All of the waste	5	14%	
Have EE education	Don't know	6	6%	
	Some of the waste	64	68%	
	All of the waste	24	25%	

As seen from Table 4, 68% of students who has taken courses on environmental problems are know what recycling is, 55% of students who didn't take courses on environmental problems, also give the right answer.

Table 5. Relationship between environmental education and knowledge about recyclable materials.

Environmental Education (EE) Status	“What is recycling materials?”	N	%	P
Have not EE education	Wrong Answers	19	53%	0,038
	Right Answers	17	47%	
Have EE education	Wrong Answers	31	32%	
	Right Answers	63	68%	

When we consider the knowledge of the students about the recycling materials, we could see that 31% of them have given wrong answer and 63 % of them have given right answer if they have environmental education in their school. But on the other hand 53% of them have given wrong answer and 47% of them have given right answer if they have not environmental education in their school. On average, these results suggest that students do not have strong environmental backgrounds if they didn't have any environmental education before.

4. Discussion

Environmental education changes the learner's knowledge, skills and behaviour to environment. Also it is an essential tool for training students and individuals to live in a sustainable society. Young generations are the most important target group for environmental education. Because this education teaches how to learn about their environmental issues, and to make decisions about how they can take care of the environment [6]. Thus, teachers should be trained for incorporate environmental issues into their curricula. Primary schools have not enough experienced about environmental education in Turkey, because of teacher training has not been realized [2]. [7] It developed hands-on activities to facilitate environmental learning. They reported that this method enhanced student's interest, motivation, and ability to think about environmental issues.

The schools that selected for this study have different economic and social characteristics. We investigated that parents and school education effect on the students' consciousness about recycling. In addition we tried to determine the causes of these differences between the schools. Firstly were examined that the students current knowledge about recycling and effect of the school and family education. As a result of analysing the findings, despite of low income levels and low parents' education level, environmental awareness and recycling awareness was higher than expected in the school A. Students have lower awareness of environmental issues and recycling in school B that

have higher income and parents' education levels than school A. Environmental education and activities of recycling cause of this awareness in school A. Another important result observed in this study, contrary to expectations, fathers' educational status creates a significant difference on students' answers rather than the mothers' do.

When we think about the fact that environmental education first starts with in the family and continues with school education and social life, we could understand that parents and then the teachers have very important duties and responsibilities. Formal education must be considered in correlation with non-formal and informal education. Also it will be necessary to create a new curriculum of environmental literacy and increasing of activities about environmental issues. An action should be taken by the government and make sure environmental education should be entrenched in our education system. In addition to evaluate the environmental education, better tools and mechanisms need to be explored and developed.

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References

- Ercan, F., (2011), "Student perceptions and solutions about the matters of environment", *Procedia - Social and Behavioral Sciences*, 19, 450-2.
- Tuncer, G., Tekkaya, C., Sungur, S., Cakiroglu, J., Ertepinar, H., Kaplowitz, M., (2009), "Assessing pre-service teachers' environmental literacy in Turkey as a mean to develop teacher education programs", *International Journal of Educational Development*, 29, 426-36.
- Tsai, W.-T., (2012), "An investigation of Taiwan's education regulations and policies for pursuing environmental sustainability", *International Journal of Educational Development*, 32, 359-65.
- Ors, F., (2012), "Environmental Education and the Role of Media in Environmental Education in Turkey", *Procedia - Social and Behavioral Sciences*, 46, 1339-42.
- <http://www.tuik.gov.tr/>
- Carleton-Hug, A., Hug, J.W., (2010), "Challenges and opportunities for evaluating environmental education programs", *Evaluation and Program Planning*, 33, 159-64.
- Poudel, D.D., Vincent, L.M., Anzalone, C., Huner, J., Wollard, D., Clement, T., et al., (2005), "Hands-On Activities and Challenge Tests in Agricultural and Environmental Education", *The Journal of Environmental Education*, 36, 10-22.