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# An Implementation To Raise Environmental Awareness Of Elementary Education Students

Yeter Simsekli <sup>a\*</sup>

<sup>a</sup>*Education Faculty, Uludag University, Bursa, 16059, Turkey*

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## Abstract

The aim of this study was to examine the effect of environmental education practices on elementary education students' awareness of the environment and the problems in their environment. The participant students were selected via criteria sampling method and the data were collected by means of open ended questions before and after the implementation. Descriptive and content analysis were used to analyze the data. The findings reveal that, after the implementation, there has been an increase in the number of students who mention the problems, the causes of the problems in their environment and propose solutions for these problems. In addition, there has been an increase in the number of students who volunteer to take part in environmental activities within the school or out of the school.

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## 1. Main text

In 21st century, there has been a significant increase in the amount of both regional and global environmental problems. These worrying changes around us not only bring the precautions to be taken for these problems into the forefront but also enhance the importance of environmental education (Ünal ve Dımişki, 1999). Therefore, recent studies have been focusing on improving the quality of environmental education (Tarnı and other., 2009; Erdoğan 2011). The fact that environmental education starting at elementary education level will raise environmental awareness of today's children but individuals of the future has gained more importance. During recent years in our country, many studies have been conducted to search environmental education programmes (Erten, 2003), the efficiency of teachers in environmental education (Kahyaoglu and other., 2008) and.

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\* Yeter Simsekli. Tel.: +0-505-925-9840; .  
*E-mail address:* [ysimseklir@uludag.edu.tr](mailto:ysimseklir@uludag.edu.tr)

environmental education methods (Şimşekli, 2010). Very few of these studies involve environmental education implementations. It is possible to raise environmental awareness of elementary level students only via environmental education implementations. The implementations can focus on a local environmental problem to catch their attention or their attention can be drawn on more abstract global environmental problems. In this study, the primary school was preferred for the environmental implementations because of the fact that the school is located by the lake and students' parents live on fishing, agriculture and tourism. For this reason, the practices focused on preserving water resources that had an important role in the lives of those children, water pollution problem and its effects. In addition, the practices dealt with solid waste, air pollution and global warming and the aim was to see the effects of these implementations on students' environmental awareness.

## 2. Method

This is a qualitative study the purpose of which was to search the effects of environmental education practices on students' environmental awareness. The participant students were selected via criteria sampling method (Yıldırım and Şimşek, 1999). This research was conducted at İnallar Primary School located by Uluabat Lake with 30 6th graders during 2009-2010 academic year. For the implementations, the students were divided into groups of five. The implementations were scheduled to be two hours a week for two weeks and 12 teacher candidates studying their 4th years at Uludag university Faculty of Education Science Education Department were involved in the study. The teacher candidates were informed before the practices and each week 6 of them assisted the implementation. During the first week, the importance of water resources, preserving them, water pollution and its effects were studied and the samples of lake water were examined in macroscopic and microscopic conditions, It was emphasized that water is a habitat for many living things and for the survival of these living things it is essential to preserve water habitats. Next, some kinds of things such as oil, tomato sauce, salt, detergent, pieces of paper were added to lake water to discuss the pollutants that pollute water (Şimşekli, 2010). It was also discussed that the pollutants in the soil and the air also pollute water. During the second week, the greenhouse effect was demonstrated with an experiment and the increase in greenhouse effect and its causes were discussed (Yeşil kutu). The data were collected by means of open ended questions before and after the implementations. Descriptive and content analysis were used to analyze the students' responses to the open-ended questions (Yıldırım and Şimşek, 1999). The views of the students were analysed and shown in tables.

## 3. Findings and Discussion

The aim of this research was to study the change in students' environmental awareness with the analysis of students' responses to open-ended questions before and after the implementations. It was seen that the students gave more than one answer to the open-ended questions and all the responses were listed and turned into numeric data and then shown in tables. The students' responses to the question "What are the environmental problems in your region?" before and after the implementations were listed and shown in Table 1. When Table 1 is examined, it is seen that before the implementation the students only mentioned lake pollution and waste problem, but after the implementation they mentioned all of the four environmental problems. What attracts attention in this table is the numeric changes between the responses before and after the implementation. Before the implementation, 63.33% of the students mentioned water pollution, but after the implementation it was 90%; before the implementation 26.66% of the students mentioned waste problem, but after the implementation it was 53.33%. In addition, after the implementation, 30% of the students touched upon global warming and 20% of them touched on soil pollution. These findings are in accordance with the findings of Aguirre-Bielschowsky and his friends (2012).

Table 1. The responses of the students to the question "What are the environmental problems in your region?"

Student responses	Pre-implementation		Post-implementation	
	n	%	n	%
Lake Pollution	19	63.33	27	90
Waste Problem	8	26.66	16	53.33
Global warming	-		9	30
Soil pollution	-		6	20

The students' responses to the question "What are the causes of the environmental problems in your region?" before and after the implementations were analysed and shown under three subtitles, which are causes of lake pollution, causes of soil pollution and causes of global warming in Table 2.

Table 2. The responses of the students to the question "What are the causes of the environmental problems in your region?"

Student responses	Pre-implementation		Post-implementation	
	n	%	n	%
Causes related to lake pollution				
Waste thrown into the lake	19	63.33	22	73.33
Domestic wastes getting into the lake water	11	36.66	17	56.66
Overhunting in the lake	7	23.33	7	23.33
Fertilizer in the lake water	-	-	4	13.33
Causes related to global warming				
Cutting trees	2	6.66	7	23.33
The use of fuel that pollutes the air	-	-	6	20
Not planting trees	-	-	4	13.33
Causes related to soil pollution				
Waste thrown into the soil	1	3.33	10	33.33
Over fertilizing the soil	-	-	5	16.66

In table 2, it can be seen that students use various statements to mention the causes of environmental pollution in their region. Whereas the students refer to five causes before the implementation, they mention nine causes after the implementation. The students wrote four causes related to lake pollution, three causes related to global warming and two related to soil pollution. The main problem related to lake pollution is throwing waste into the lake. 63.33% of the students mentioned this cause before the implementation, and it was 73.33% after the implementation. Before the implementation, 36.66% of the students made a mention of domestic wastes getting into the lake; however, it was 56.66% after the implementation. Before the implementation, 23.33% of the students mentioned the problem of overhunting and the percentage was the same after the implementation. Before the implementation, none of the students made a mention of fertilizer in the lake water, but after the implementation 13.33% of the students mentioned this problem. When students wrote about the causes related to global warming, it is seen that before the implementation they only referred to the problem of cutting the trees; however, after the implementation they mentioned the use of fuel that pollutes the air and not planting trees among the causes. 6.66% of the students mentioned cutting trees before the implementation and it was 23.33% after the implementation. Despite the fact that none of the students mentioned the fuel that pollutes the air and not planting trees before the implementation, 20% of them made a mention of fuels that pollute the air and 13.33% of them stated the problem of not planting trees after the implementation. It can also be seen that, before the implementation, students mentioned the problem of waste thrown into the soil among the causes of soil pollution, but after the implementation they also talked about over fertilizing. 3.33% of the students made a mention of waste thrown into the soil before the implementation; however, it was 33.33% after the implementation. Although none of the students mentioned the problem of over fertilizing before the implementation, after the implementation 16.66% of them mentioned this problem. These findings are in accordance with the findings of Yurttas and Sülün (2010). The students' responses to the question "What may be the problems that result from the environmental problems in your region?" before and after the implementations were analysed and shown in Table 3. Before the implementation, the students wrote three problems resulting from the environmental problems in their region, but after the implementation the number of the problems was nine. It is seen that the students stated the lake looked filthy, it smelled bad and many fish die in the lake. The main problem that the students referred to before and after the implementation was the filthy look of the lake. 63.33% of the students mentioned this problem before the implementation and it moved up to 96.66% after the implementation. 46.66% of the students mentioned the bad smell of the lake before the implementation and it was 76.66% after the implementation. While 36.66% of the students made a mention of fish deaths before the implementation, it was 56.66% after the implementation. Although not mentioned before the implementation, many of the students mentioned problems such as the extinction of living things (70%), the decrease in the number of fish (30%), the decrease in the number of waterbirds (16.66%), the negative impact on people (16.66%), the negative impact on tourism (13.33%), rising temperature (43.33%).

Table 3. The responses of the students to the question “What are the problems that result from the environmental problems in your region?”

Student responses	Pre-implementation		Post-implementation	
	n	%	n	%
The filthy look of the lake	19	63.33	29	96.66
The bad smell of the lake	14	46.66	23	76.66
Fish deaths in the lake	11	36.66	17	56.66
Extinction of living things in the lake	-	-	21	70
The decrease in the number of fish in the lake	-	-	9	30
The decrease in the number of seabirds in the lake	-	-	5	16.66
The bad impact on people	-	-	5	16.66
The bad impact on tourism	-	-	4	13.33
Rising temperature	-	-	13	43.33

The students' responses to the question “What are your suggestions to solve the environmental problems in your region?” before and after the implementations were analysed and shown in Table 4.

Table 4. The responses of the students to the question “What are your suggestions to solve the environmental problems in your region?”

Student responses	Pre-implementation		Post-implementation	
	n	%	n	%
Preventing wastes thrown into the lake	17	56.66	27	90
Increasing the number of dustbins	9	30	14	46.66
Warning people	7	23.33	8	26.66
Cleaning the lake	5	16.66	11	36.66
Punishing the ones who pollute the lake	5	16.66	9	30
Not polluting the environment	4	13.33	19	63.33
Planting trees	3	10	21	70
Preparing banners on this issue	3	10	6	20
Waste collection campaign	2	6.66	17	56.66
Warning the authority	1	3.33	4	13.33
Recycling campaign	-	-	10	33.33

It is seen in the table that the students mentioned ten solutions before the implementation and eleven after the implementation. After the implementation they also proposed recycling campaign. Before and after the implementation the students mostly referred to the solution of preventing wastes thrown into the lake. 56.66% of the students made a mention of this before the implementation and this moved up to 90% after the implementation. Before the implementation 30% of the students suggested increasing the number of dustbins, but after the implementation 46.66% of them suggested this. Before the implementation 23.33% of the students suggested warning people and it was 26.66% after the implementation. While 16.66% of the students mentioned cleaning the lake before the implementation, after the implementation 36.66% of them suggested this. Before the implementation 16.66% of the students suggested punishing the people who pollute the lake, but it was 30% after the implementation. Not polluting the lake was suggested by 13.33% of the students before the implementation; however, 63.33% of them suggested this after the implementation. Before the implementation 10% of the students suggested planting trees, but after the implementation it was 70%. Before the implementation 10% of the students suggested preparing banners and it was 20% after the implementation. While waste collection campaign was suggested by 6.66% of the students before the implementation, 56.66% of them suggested this after the implementation. Before the implementation 3.33% of the students suggested warning the authority and it was 13.33% after the implementation. Although not mentioned before the implementation, after the implementation many students (33.33%) suggested recycling campaign. These findings are in accordance with Uluçınar Sağır ve others (2008). When the students' responses to the question “Would you like to join environmental activities within the school or out of the school?” are analysed, it is seen that 9 students (30%) said yes before the implementation, but 24 (80%) said yes after the implementation. These findings are in accordance with the findings of Palmberg and Kuru (2000) in their study that nature experience enhances students' willingness to participate in open field activities.

#### 4. Conclusion and Suggestions

Raising elementary students' environmental awareness is really important because it is a great investment to the environment and the future. In this study, the aim was to search the effect of environmental education practices on elementary students' environmental awareness. The findings reveal that, before the implementation only some of the students responded all the five questions, but after the implementation there was an increase in the number of students who responded to all the questions and in the variety of their responses. Before the implementation, the majority of the students mentioned the environmental problems in the lake, however, after the implementation they made a mention of problems such as global warming, soil pollution, the causes of these problems, their effects and suggestions to solve these problems. After the implementation, although the students (30%) mentioned global warming problem and the use of fuels that pollute the air as the cause of it (20%), they didn't suggest anything to solve this problem. This shows that more practices should be applied on this issue. In addition, the students mentioned recycling campaign (33.33%) among their suggestions and this shows that environmental problems caught the students' attention in general terms. Before the implementation the number of students who responded to the open-ended questions and the variety in their responses were not high and this shows that few of the students are aware of the environmental problems and their knowledge is limited. These findings are in accordance with the findings of Uluçınar Sağır and others (2008) and Yurttaş and Sülün (2010). The increase in the number of students who answered the questions and in the number of their responses may be an indicator of raise in the students' environmental awareness. To sum up, the findings reveal that the students' attention can be caught via practices that involve environmental problems they face or may face in their region and also practices that involve other problems. It is assumed that this study will contribute to environmental education studies to be done with elementary students. Besides, if the number of environmental education practices are increased and done with more students for a longer period of time, the findings will be more comprehensive.

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