



## Children's environmental perceptions and solutions<sup>1</sup>

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### Abstract

In this study, a fifth-grade secondary school student's environmental perceptions and proposals aimed at the determination of the solution. 2013-2014 academic year secondary school education in the three Provinces of Burdur 120 fifth grader sample research. The research of the fifth class was chosen because secondary school 4. social studies lesson to win the environmental awareness in the second period, class-oriented topics.

The research data developed by researchers with the interview forms were collected. Identified and the relevant research literature and subject matter experts through interviews and pre- interview form was detected and problems. Expert opinion has been restated in accordance with the form. This interview form consists of six open-ended questions. Data from the qualitative data analysis methods were evaluated by descriptive analysis and content analysis. As a result, the majority of students of the environmental problem, the concept of "pollution " meaning that they install, they live around environmental issues most as " trash " factor stated, Burdur Lake' in the students, most "natural beauty" suggests, Burdur Lake and about problems "waste, garbage, bad smell" like pollution elements focused on that, Burdur Lake related problems as the primary "municipality" can solve what they believe, Burdur Lake' against what their responsibilities are most "contamination to prevent" thought it was detected.

*Keywords:* Environmental education, environmental information, environmental issues, natural resource;

### 1. Introduction

Humankind has met its vital needs using natural resources around its environment since its existence. So, it has preserved its existence. By the help of technological and scientific developments, humankind has tried to create its own life area controlling the nature. It has seen its existence different from nature and used all the sources in natural environment to meet its needs as if these sources will never finish (Atasoy and Ertürk, 2008; Yalçınkaya and Çelikbaş, 2013). This process has continued so fast till now and social environment, high technology production, using the lands –used for agricultural area in the past- for residential area and doing different agricultural works using high technology have caused ecociding irretrievably (Türküm). Therefore, environmental education has become inevitable for people's education.

In the second term of social studies subject of a fourth-grade primary school class, there are some topics about getting environmental awareness. In addition, subjects of life science, science and technology and all the other subjects have been prepared for a multidisciplinary structure, environmental education topics seem to support each other. Demirkaya (2006) states that mental awareness of environment in children develops mostly at the ages of 9 or 10. So, it's very important to create an environmental awareness in children in fourth and fifth-grades.

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Moreover, creating an awareness of close environment in children considering proximodistal learning causes the awareness of saving the earth before coming to older ages. Cohen (1984) stated in his study that if children get negative attitudes against environment in early ages, it's possible that they will still have these attitudes in older ages (akt. Özbebek Tunç vd., 2012). Thus, this study has been done with reference to Burdur Lake.

According to 'Project of Saving Burdur Lake' which is being done by nature association, Burdur Lake, that is one of Turkey's 13 wetlands of international importance and 305 key biodiversity areas, has lost one-third of its area and its level of water has come to 12 metres and 25 centimetres since 1975. In this process, the surface area of the lake has become 153 km<sup>2</sup> when it was 228 km<sup>2</sup> before. Though it has been a rainy period since 1995 in Burdur Lake basin, the continuous rapidly drying in the lake shows that the reason is human. According to the study, it's shown that the main reasons of low water level are dams and ponds which were built on influent rivers since 1970. It's said that many boreholes around the lake have decreased the influent underground water resources. It is claimed that if this process goes on in this way, most of the lake will dry in 2040. It is stressed that if Burdur Lake dries, the climate of the region will change, there will be degradation in agriculture and stockbreeding and there will be a risk of wind erosion. Also if Burdur Lake hosting hundreds of different living creatures dries, a worldwide known bird white-headed duck (*Oxyura leucocephala*) and Burdur sailton pupfish (*Aphanius sureyanus*), that lives only in Burdur Lake in the world, will endanger. It's stressed 194 different birds and 10 kinds of reptiles which lives around the lake will be damaged (<http://www.dogadernegi.org/burdur-golunu-kurtarma-projesi.aspx>).

The fact that nature education is only in scientific extent will prevent the aimed behaviour change. Giving love of nature and awareness as a value and practising this in daily life will indicate the success of the education (Köşker, 2013). Getting something as a value is about considering the thoughts of people in early ages and realising them if they are really suitable.

## **2. Researches question**

What are the fifth-grade secondary school students' environmental perceptions and solutions?

## **3. Aim**

It is aimed to decide on the thoughts and solutions of fifth-grade secondary school students, to present their specific perceptions and contributions for problems through open-ended questions. Some answers have been searched for the questions below:

1. What are the meanings of the concept of 'Environmental issues' students assign?
2. What do students see in their immediate environment as an environmental issue?
3. What does Burdur Lake remind students?
4. What do students see as the problems of Burdur Lake?
5. What do students think about who will solve the problems about Burdur Lake?
6. What do students think about their responsibilities for Burdur Lake?

## **4. Method**

### *4.1. The Model and Group of the Study*

The study is a kind of descriptive survey. The study consists of fifth-grade students who study in Burdur central secondary schools in 2013-2014 education year. Research data is collected from 120 students from 3 different secondary schools in Burdur. The information about the students whose views were taken has been given in table 1.

Table 1. The Range of Students According to Their Schools

School	Students	
	f	%
Gazi Secondary School	36	30
Kemal Solmaz Secondary School	42	35
Suna Uzal Secondary School	42	35
TOTAL	120	100

#### 4.2. Data Collection Tool and Data Analysis

A data collection tool has been used by the researchers in order to determine the fifth-grade secondary school students' environmental perceptions and solutions. The created data collection tool is a kind of interview form. A pre-interview with the domain experts has been done by the researchers and the problems have been fixated. After the problems fixated, the interview form has been created. The interview form has been redesigned in line with expert views. 6 open-ended questions have been asked to the students with the data collection tool:

1. What do 'Environmental issues' mean for you?
2. What are the environmental issues around the place you live in?
3. What does Burdur Lake mean for you?
4. What are the problems about Burdur Lake?
5. Who do you think can solve the problems about Burdur Lake?
6. What can you do for Burdur Lake?

An expert view about asked questions, collected data and codings has been taken to provide relevance of the data. Some expressions have been quoted in this study. In order to ensure reliability, an expert's approval has been taken about the consistency of the relations between the raw data about the study, the results reached in the direction of this data and the comments.

This data has been recorded in computers and a data set has been designed for each question. This data set has been examined and evaluated with the descriptive analysis and content analysis which are data analysis techniques.

The views of the students have been studied by doing Word, sentence and paragraph analysis (Yıldırım and Şimşek, 2004; Bogdan and Biklen, 1998). After this content analysis, the headings about each question have been decided as categories (themes). The students's views have been supported with these findings.

There are some expressions which will be in a theme in students' answers. In that kind of situations the number of frequencies in themes that were obtained in analysis are much more than the number of participants. The participants have been coded according to their schools. These codes have been used while including the students' statements. In these codes: A symbolizes Gazi Secondary School, B symbolizes Kemal Solmaz Secondary School, C symbolizes Suna Uzal Secondary School. Figures mean the numbers of the students.

## 5. Findings

### 5.1. 'Environmental Issues' for Students

The meaning that the students gave for the concept of 'Environmental issues' has been analyzed and six themes have consisted: 'Pollution, Cleaning, Garbage, Negation-Damaging the environment, Nature and Natural Disasters. The themes, the conceptual codes and the frequency of them usage have been shown in table 2.

Table 2. The Attributed Meanings for the Concept of 'Environmental Issues'

Themes					
Pollution (f: 55)	Cleaning (f: 21)	Garbage (f: 18)	Negation and Damaging the Environment (f: 11)	Nature (f: 10)	Natural Disasters (f: 6)
Dirty environment	Environmental cleaning	Garbage on ground Garbage dumps	Irresponsibility Issues	The End of Natural Life	Earthquake Flood
Dirtiness of ground	Clean grounds	Littering	Damaging the environment	Misuse Clearcutting	Landslide Avalanche
Foul air			Disturbance Disorder	Deforestation	Tsunami Disaster
			Unsoundness		Desert

When we look at the descriptions of the students' about 'Environmental issues', it is seen that they give the meaning for this issue as the theme of pollution. Some expressions of the students who describe environmental issues under the theme of pollution are presented below:

A-8: It represents everywhere will be dirty. Animals live in garbage dumps.

A-24: A dirty environment.

B-4: It represents the environment is dirty.

B-24: It represents illness and foul air.

C-18: Very dirty places.

C-28: Environmental pollution, foul air.

The expressions of the students who describe environmental issues under the theme of cleaning are as below:

A-11: Keeping the environment clean.

B-16: When we say environmental issue, I remember littering on ground and insufficient recycling.

C-9: Keeping the environment clean, cleaning.

Students describe the concept of environmental issue as garbage. The samples of expressions that students describe the environmental issue under the theme of garbage are presented below:

A-13: The garbage thrown at the environment.

B-14: It represents cleaning the environment.

C-7: Disgusting, a place like garbage dump.

The samples of expressions that students describe the environmental issue under the themes of negation and damaging the environment are presented below:

A-32: Damaging the environment.

B-34: Bad condition of the environment.

C-6: I think it has a bad meaning.

The samples of expressions that students describe the environmental issue under the theme of nature are presented below:

A-25: The end of nature.

B-41: All the issues created by the result of indifference of nature.

C-36: It means saving the environment.

Some parts of the students describe the environmental issue under the theme of natural disasters. The samples of expressions that belong to these students are presented below:

A-4: Disaster.

B-38: Natural disasters around our environment.

C-4: It represents earthquake, avalanche, landslide, tsunami and flood.

### 5.2. What Students Think as Environmental Issues in the Environment They Live in

The students' expressions about what they think as environmental issue in the environment they live have been analysed. According to this analysis: There have been three themes: 'Garbage, Pollution and Nature Issues. The themes, the conceptual codes under the codes and the frequency of themes' usage are given in table 3.

Table 3. What Students Think as Environmental Issues in the Environment They Live in

Themes		
Garbage (f: 77)	Pollution (f: 30)	Nature Issues (f: 20)
Throwing garbage Waste	Air pollution Dirty environment	Burdur Lake Clearcutting Shrink of the lake

When what students think as an environmental issue in the environment they live is studied, most of them use the word 'garbage'. Some expressions are below:

- A-6: Throwing garbage to the environment.
- A-35: Cigarette, broken pieces of glass.
- B-33: The garbage on ground, dirty waste.
- B-41: Garbage, factories and food waste.
- C-25: Throwing garbage on ground.
- C-40: Garbage.

A part of the students see the pollution in their environment they live as an environmental issue. Sample expressions of these students were presented below:

- A-29: The lake is dirty, schools are dirty.
- B-37: My environment is a clean environment, but it started to become a dirty environment.
- C-18: The pollution of the streets.

Some of the students see nature issues as environmental issues in their environment. Sample expressions of these students were presented below:

- A-25: Lake becomes a desert.
- B-38: Cutting green wood.
- C-8: The biggest issue in our environment is our lake

### 5.3. What Burdur Lake Reminds Students

The answers that students gave about what Burdur Lake means for them have been analysed and according to this analysis: There have been 4 themes: "Natural Beauty, Pollution, The Shrink of the Lake, Marshiness and Nothing". The themes, the conceptual codes under the codes and the frequency of themes' usage are given in table 4.

Table 4. Association of Student' s Ideas Related to Burdur Lake

Themes			
Natural Beauty (f: 63)	Pollution (f: 47)	The Shrink of the Lake - Marshiness (f: 13)	Nothing (f: 6)
Beauty of Burdur A Beautiful View Natural Asset	Bad Smell A Dirty Place Garbage	Marshiness Shrinking	I don't know

When we look at the explanations of students about what Burdur Lake means for them, it is seen that it reminds them mostly natural beauties. Some statements of the students are below:

- A-15: A beautiful lake with hard water.
- A-35: Water, life, beautiful environment.
- B-9: It seems beautiful, its view is great.
- B-42: A very beautiful scene.
- C-17: The places white-headed ducks live.
- C-29: It is a natural asset.

Burdur Lake reminds some students pollution. Sample statements of these students have been presented below:

- A-19: A dirty place, a smelliness place.
- B-6: All feces flows into there, I think Burdur should have a suitable place for swimming.
- C-7: People throw everthing into the lake as if it is a garbage dump.

It reminds a small part of the students shrinking of the lake and marshiness. It doesn't mean anything for only six students.

#### 5.4. The Thoughts of the Students About the Problems of Burdur Lake

Students said some expressions about the problems of Burdur Lake such as 'Waste-Garbage-Smell and Shrinking'. Eight students said that they didn't know the problems. The themes, the conceptual codes under the codes and the frequency of themes' usage are given in table 5.

Table 5. The Thoughts of the Students About the Problems of Burdur Lake

<b>Themes</b>		
Waste-Garbage-Smell (f: 88)	Shrinking (f: 36)	I don't know (f: 8)
Pollution Bed smell Throwing garbage	Water decrease Drying Marshiness	I don't know

When we look at the expressions of students about the problems of Burdur Lake, the concepts of waste-garbage-smell are coming into prominence. Some expressions of the students are below:

- A-25: Bad smell, marshiness and pollution.
- A-31: All the waste flows there.
- B-6: It is very dirty, it's ful of feces.
- B-17: There is a bed smell a bit away from the Burdur Lake. I would like to suppress this smell.
- C-16: Sewages flow into the lake.
- C-27: Pollution, people's waste.

Some of the students think that shrinking is the problem of Burdur Lake. Sample expressions of these students are below:

- A-9: Its water is decreasing day by day.
- B-26: The shrink of the lake.
- C-32: The lake shrinks and dries each time.

#### 5.5. The Views of the Students About Who can solve the problems of Burdur Lake

The views of the students about who can solve the problems of Burdur Lake have been analysed. According to this analysis, there have been four themes: Municipality, Social Society, Governer and Nobody. The themes, the conceptual codes under the codes and the frequency of themes' usage are shown in table 6.

Table 6. The Views of the Students About Who can solve the problems of Burdur Lake

Themes			
Municipality (f: 66)	Social Society (f: 35)	Governer (f: 16)	Nobody (f: 13)
Mayor	Environment Protection Associations People Ourselves	Government	

The students said that Municipality can solve the problems about Burdur Lake mostly. So, they gave a big responsibility to the local administration. It's important that they see secondly Social Society Associations and themselves. They think that the effect of governor and central administration is less. A small part of the students think that nobody can solve the problems.

### 5.6. Thoughts of the Students About Their Responsibilities for Burdur Lake

Thoughts of the students about their responsibilities for Burdur lake have been analysed. According to this analyses, there have been four themes: "Preventing Pollution, Saving, Warning and I don't know". The themes, the conceptual codes under the codes and the frequency of themes' usage are shown in table 7.

Table 7. Thoughts of the Students About Their Responsibilities for Burdur Lake

Themes			
Preventing Pollution (f: 63)	Saving (f: 24)	Warning (f: 22)	I don't know (f: 16)
I don't pollute I don't litter I keep clean I clean	Planting rose I built dams I consume little water	Warning signs Poster	I don't know

When we study the thoughts of the students about their responsibilities for Burdur Lake, most of them said that they should prevent pollution. Some of these expressions are below:

A-2: Throwing litter into the bin.

A-19: I don't throw litter, I don't pollute, I keep clean.

B-4: I can clean the litter near the lake with a broom.

B-41: The only thing I can do is keeping my environment clean, I wish I were stronger. I would flow the water of oceans into the Burdur Lake.

C-26: I wouldn't leave dirty.

C-38: I take care well there. I don't throw dirty things and plastics.

Some of the students think that they should save Burdur Lake as a responsibility against it. Sample expressions of this kind of students are below:

A-35: By planting roses.

B-29: I would open all the dams.

C-33: I do whatever could be done.

Some students think that they should warn the society as a responsibility against Burdur Lake. Sample expressions of this kind of students are below:

A-7: I can protest, posters.

B-40: I can tell my thoughts.

C-16: I would like my state to increase the water.

Few of students said that they don't have any ideas about their responsibilities against Burdur Lake.

## **6. Discussion, Results and Solutions**

At the end of this study, according to the findings we got about the meanings the students gave for environmental issues, most of the fifth-grade secondary school students that joined to the study understand the concept of "environmental issues" as pollution. Next, they name this concept as cleaning, garbage, negation and damaging the environment, nature and natural disasters. This could be explained like that. Students notice the pollution around their close environment and they feel bothered for that situation. That's why the concept of pollution is frequently used. In Yardımçı and Bağcı Kılınc's (2010) research it has been seen that students indicated environment problem as the direct human-induced problems such as rubbish, exhaust gas. As noted in this study, it can be said that students consider the problems which effect themselves directly.

Students stated mostly the garbage problem, secondly pollution and finally nature issues about what they thought as a problem in the environment they live. Similar findings can be seen in the studies that Yalçinkaya and Çelikbaş (2013) did, pollution is seen as the most important problem. On the other hand, according to the data in "Turkey's Environmental Issues and Evaluating Report" that Ministry of Environment and Urbanisation issued in 2012, Burdur's first problem is seen as damage of natural environment. Moreover, it is seen that the problems about the lake which are in nature issue theme are known little by the students. According to these results, it is understood that they don't see the problems of Burdur Lake, that takes place very close to children, as an important problem. We can infer a result from this situation that students don't know their environment well and they are not interested in the events around them. In their study Sağır, Arslan and Cansun (2008) stated that although the most of the students have education related to environment, their participations to activities about environment are at very low rate. Also in the same study it is indicated that students are at very low rate in recognition of environment problems where they live and getting solution to environment problem in there. These results support the findings of these studies. It is possible to say that an environment education can be given to the students with some nature experiences and the students can find opportunities to know their close environment while giving this education. As a parallel to this, Vaske and Koprin (2001) and Özdemir, (2010) stated in their study that long touches with the environment effect children's environmental information and perceptions positively. In addition Farmer and the others (2007) specified that after a year of study which based on nature experience fourth grade students have a positive attitude to environment. According to all these results it can be considered giving environmental education to students who interact with nature could be beneficial.

When we look the results about what Burdur Lake reminds students, it is understood that it reminds them natural beauty mostly. Secondly, pollution and thirdly shrinking and marshiness. Similarly, the concept of pollution, natural beauty and drying of the lake are seen in the description categories, that was done by Demirkaya (2005), of the way Burdur Education Faculty students understand the Burdur Lake. It is seen that students are aware of the fact that Burdur Lake is shrinking, that is one of the biggest problem of it, and it should be told that this situation will effect the nature beauty of the lake in the future.

When we study the thoughts of the students about the problems of Burdur Lake, it is seen that students focus on the things like waste, garbage and bad smell. It is possible to think that students give these answers being effected by their own lifes and their close environment. And students also stressed on the fact that the lake is shrinking in the question of this study. When we study the views of the students about who can solve the problems of Burdur Lake, it is firstly municipality, and secondly social society and thirdly governer. It is seen from these results that students not only think the government officials, especially local administrations would be effective but they also rely on the social society organizations about the solution of the problem. It is possible to say that students tend to rely on an authority against problems.

When we look at the thoughts of the students about their responsibilities for Burdur Lake, they mostly think preventing the pollution. Secondly, they have the thought of warning people. Since the students don't exactly know the Burdur Lake, they see the solutions in their close environment and they make a connection with pollution. Özdemir (2010), in his study, said that the awareness of the students who attended the environment education application based on nature experiences about the environmental values their value degradation increased. Also in

the study of Yardımcı and Bağcı Kılıç (2010) it is seen that due to the students see the environmental problem as a trash, they focus on trash problem for he solutions of environment. In the light of these results , it can be said in the students' education relating to nature ,giving education based on experience can be more effective and developing project to get deep information can be more effective.

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