



## The Role of Environmental Education in the Development of Nature Awareness in Individuals

### *Bireylerde Doğa Bilincinin Gelişmesinde Çevre Eğitiminin Rolü*

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#### **Abstract**

*Scientific and technological developments, which see nature as an inexhaustible resource, have created serious pressures on natural resources, causing environmental problems. Environmental education has become increasingly important in schools due to the demand for natural resources and rapidly increasing environmental pollution. This study was designed to examine students' knowledge about the environment, their attitudes towards helping the environment, and their responsibilities in environmental protection in order to emphasize the importance of environmental education at the associate level. In the study, surveys were conducted to measure the environmental sensitivity of the groups of students who received environmental education at the associate degree level. The findings were examined through face-to-face interviews with the primary and secondary school administrators of the Ministry of National Education. Recommendations for environmental education policy paradigms in Turkey have been developed as a result of the article. As a result of taking part in the education process of environmental education for local students, it has been concluded that environmental education is best applied in a practical manner unique to the natural environment of the students. All studies have shown that individuals can gain knowledge through education in the development of environmental awareness.*

**Anahtar Sözcükler:** Environmental Awareness, Environmental Education, Educational Institutions, University Students

#### **Özet**

*Doğayı tükenmez bir kaynak olarak gören bilimsel ve teknolojik gelişmeler doğal kaynaklar üzerinde ciddi baskılar oluşturarak çevre sorunlarına neden olmuştur. Doğal kaynaklara olan talep ve hızla artan çevre kirliliği nedeniyle okullarda çevre eğitimi giderek önem kazanmaya başlamıştır. Bu çalışma önlisans düzeyinde verilen çevre eğitiminin önemini vurgulamak amacıyla öğrencilerin çevre hakkındaki bilgilerini, çevreye yardımcı olma konusundaki tutumlarını ve çevre koruma konusunda üstlendikleri sorumlulukları irdelemek amacıyla kurgulanmıştır. Çalışmada önlisans düzeyinde çevre eğitimi alan ve almayan öğrenci gruplarının çevre duyarlılıklarının ölçmesine yönelik anketler yapılmıştır. Elde edilen bulgular Milli Eğitim Bakanlığı ilkökul ve ortaokul yöneticileri ile yüz yüze görüşmeler yapılarak irdelenmiştir. Makalenin sonucunda çevre eğitimi paradigmaları çerçevesinde Türkiye'deki çevre eğitim politikalarına yönelik öneriler geliştirilmiştir. Araştırmanın sonucunda Türkiye'de çevre eğitiminin*

*eđitim öđretim süreci ierisinde yer alması ile öđrencilere yöresel ve özđün evre eđitimlerinin dođal ortam ierisinde uygulamalı bir şekilde verilmesi sonucuna varılmıřtır. Yapılan tüm alıřmalar bireylerdeki evre bilincinin geliřmesinde eđitimle kazandırılabilceđini göstermiřtir.*

**Anahtar Kelimeler:** evre Bilinci, evre Eđitimi, Eđitim Kurumları, Üniversite Öđrencileri

## **1. INTRODUCTION**

Rapid population growth in cities, which have become production centers after Industrial Revolution, causes many environmental problems (Öztürk and Iřınkaralar, 2019; Öztürk and Iřınkaralar, 2018) and puts pressure on living spaces (Gökkyer et al., 2015). However, we are responsible for all the people in the world, especially those who are the most difficult and the real owner of the future. Careful management of all living species and natural resources, which are among these responsibilities, is among the most important requirements of our time. Because our children need infinite richness that nature offers us. Transferring these riches to the future, enabling our children to live in health and happiness is only possible with the development of natural awareness in line with sustainable production and consumption activities.

Sustainable management of nature and natural resources is possible with a legal and administrative regulation at all levels, as well as nature and environmental protection training (Bookout, 2010; Brock, 2010). Environmental education, which is based on education to protect nature and natural resources, is closely related to the idea that environmental literacy will develop if children interact with nature regularly (Bixler et al. 1994).

## **2. CONCEPTUAL FRAMEWORK**

The environment in which we live has an international quality due to its own structure. It is easily observed that ecological elements such as water and air change qualities regardless of any country's borders. All living species that make up the animal community such as birds, fish, and mammals living in these environments live unaware of the political boundaries drawn by people (Keles, 2009). However, the rapidly increasing environmental problems have become threatening the lives of all living things. As long as we do not change our global behavior, ecological deterioration will cause significant destructions in nature. These disruptions are an important threat to the whole life (Wilson, 2002).

With the process that has become worrying for all the countries of the world, environmental sensitivity has started to increase significantly, environmental problems have become not only the problems of the advanced industrial countries, they have become common concerns for all societies. The behavior and actions of each individual have a significant impact on ecological systems. Behaviors are shaped by knowledge and education (Puk and Makin, 2006). However, when individuals internalize nature, sensitivity to nature is sustainable (Otto & Pensini, 2017). With this internalization, there will be a nature-sensitive attitude in our behaviors in our daily lives (McClelland, 1973). This situation brought humanity's search for a solution to this problem. One of these searches for a solution was to gain environmental awareness in individuals at an early age. Environmental education according to Palmer and Neal (1994);

- Developing the skills necessary to gain consciousness, understanding and understanding,
- Education and learning outside the classroom,
- It is defined as the protection of nature and targeting sustainable development

In this context, in order to raise individuals with environmental awareness, there is a need for teachers who can take measures to prevent problems and become models for students in environmental protection education. Environmental education is possible with the management of nature and natural resources. This education directly affects human behavior. Achieving positive

and permanent behavioral changes and ensuring the active participation of individuals in solving problems constitute the main goal of environmental education. Raising individuals who consume as much as they need, feel responsible for future generations, and who are sensitive to environmental problems and conscious should be among the aims of this education (Şimşekli, 2003).

In the permanent solution of environmental problems, a qualified environmental education and the environmental awareness gained by it play an important role especially in providing teachers and students in primary and secondary education institutions with environmental awareness (Dönmez, 2017). However, in environmental education, many factors are also effective in gaining positive behaviors to individuals (Öztürk and Enez, 2015). Some of these factors are: a) Environmental education program b) Sharing the subjects according to their education and training levels c) Working environments and d) The quality of trainers. In addition, socio-economic factors play an important role in the development of environmental awareness (Uzun et al. 2005).

According to Ballantyne and Uzzell (1994), nature-based learning gives students the opportunity to apply their theoretical knowledge "in the field", to discover real life, and to approach problems and events from a different perspective. In addition, while these trainings allow students to be sensitive to environmental issues, they also activate problem solving and decision making mechanisms (Montessori, 1966). According to Ratcliffe's (2007) research, experiences gained by doing or living increase the ecological knowledge levels of individuals. These learning can make people realize the effects of human on nature and how nature is affected by this process (Bullock, 1994). For this reason, the experience with nature changes the attitudes and behaviors towards nature (Palmberg et al., 1998), therefore, providing nature-experienced environmental protection trainings within the education curriculum is that both young people experience nature (nature trips, nature games, etc.) and they are more sensitive to nature. It is an important fact. The goal, methods and approaches of nature-based environmental protection education for children and adults should be determined and interpreted how environmental attitude can be changed (Jeronen et al., 2009).

The increasing environmental problems in the world started to draw attention in the field of science, education and politics since 1970s and many countries have developed programs for environmental education. In this context, the United Nations Conference on the Human Environment was organized in Stockholm in 1972 (UN, 1972). The conference declaration emphasized the attitude and behavior of people towards their environment, and the necessity of humanity to protect and improve the environment for present and future generations. At the end of the conference, "Humanity has to protect and improve the environment for the present and future generations." The statement emphasized the environmental behavior of individuals and emphasized the importance of environmental education. Following this conference, environmental education was handled for the first time at the "International Environmental Education Conference" held in Tbilisi in 1977 and the decisions taken at the conference are as follows (Özoğlu, 1993);

- Awareness and awareness of the environment and environmental problems,
- Providing information about the environment and environmental problems,
- To provide positive and realistic attitudes towards the environment,
- Improving and feeding the necessary motivation for the development and protection of the environment,
- Attention has been drawn to the development of skills and approaches in determining, understanding and solving the environment and environmental problems, ensuring participation in the formation, protection and solution of the environment.

Today, the environmental issue has gained a social, cultural and economic dimension and has increased the importance of environmental education in the sustainable development process (Stokes, 2001). It has been realized that awareness of the environment and environmental problems

will be developed with the help of nature-based environmental protection trainings to be taken first in the family and then at school. In the study developed with this awareness, the effects and gains of the environmental protection education given at the university level and the reflections of the education given on the individuals are examined.

### 3. MATERIAL and METHOD

#### 3.1. Work Area

Eskipazar district, dating back to the Roman period, is located 36 km from Karabük city center. Its surface area is 696 km<sup>2</sup> and its height above sea level has been an important transition point throughout history. It still has the state highway route that connects the cities of Istanbul and Ankara to the province of Karabük and the state railway route, which forms an important link between Zonguldak-Karabük-Ankara. Eskipazar Vocational High School in Karabük University, located in the district, is a place where students from different cities continue their education with nature by exam or direct pass (Bolat, 2011). The fact that the campus is located in the natural environment and that students are subjected to environmental protection education for a period is an important factor in choosing Eskipazar Vocational School as a study area (Figure 1).

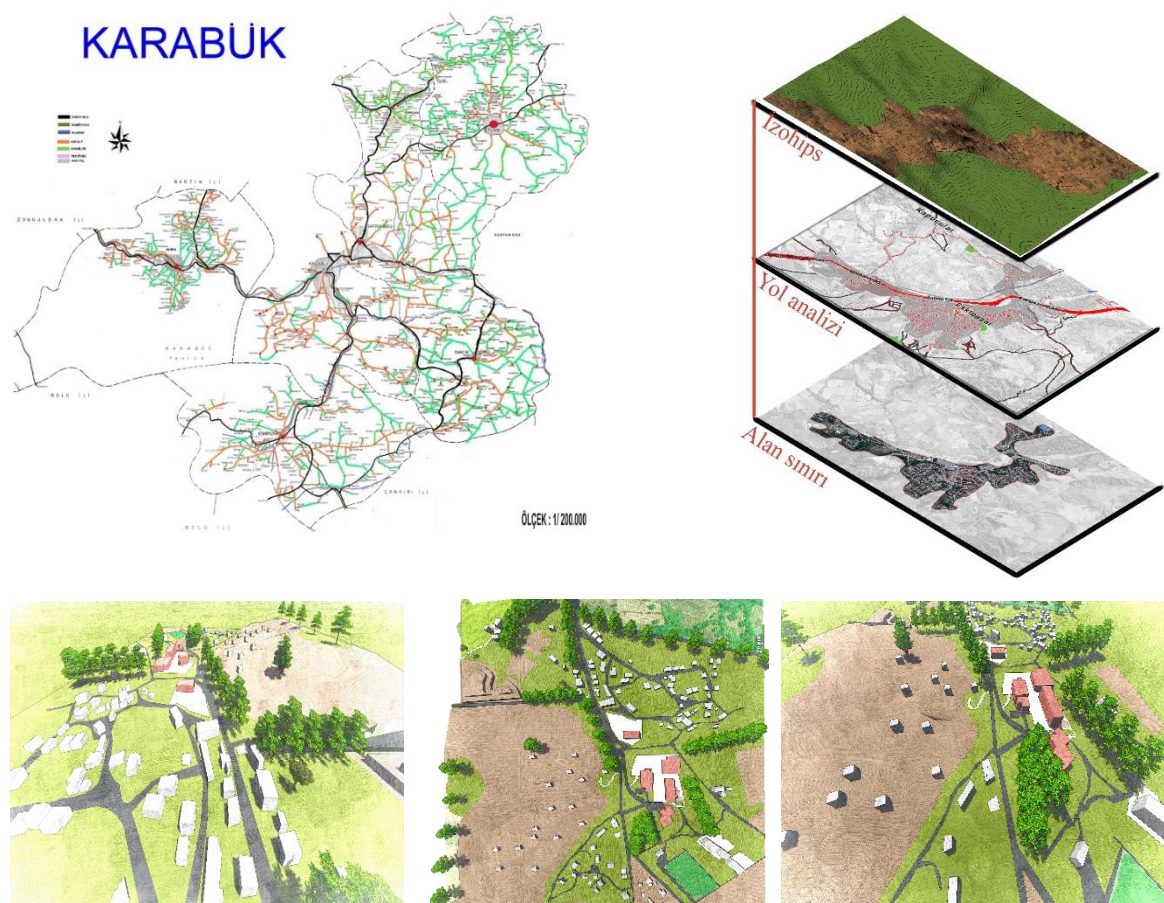


Figure 1. Map and 3d model images of Eskipazar Vocational School (URL 1) and its surroundings

#### 3.2. Data Collection and Evaluation

This study is discussed in two stages. The first stage of the study is aimed at determining the environmental sensitivities of two different groups of students who took and did not take environmental protection courses given to Eskipazar Vocational School students. The second stage consists of the examination of the environmental protection course, which is not included in the curriculum of the Ministry of Education, by the school administrators. In this context, studies on environmental awareness, environmental awareness and behavior change have been carried out

with students who have taken "Environmental Protection" course for a total of 14 weeks, 2 lessons per week in Eskipazar Vocational School. In line with these studies carried out at the Eskipazar Vocational High School, it includes the place and achievements of environmental protection education in the primary and secondary school curricula. The first stage of the study was conducted in the 2016-2017 academic year with a group of 220 students who received "Environmental Protection" education at the Eskipazar Vocational School of Karabük University and another group of students who did not receive environmental protection education.

The fiction of the study is based on the hypotheses mentioned below;

(A) Environmental education positively affects individuals' views on environmental sensitivities.

(B) Environmental education develops environmental awareness in individuals.

The research was carried out with a 15-question questionnaire prepared for the content of "Environmental protection" and interviews with selected principals of the Ministry of Education. *Have the university students received any education to enable them to connect with nature and understand the cycle of nature with the prepared questionnaires, Do the students show sensitivity to the extinct natural resources? Will the environmental protection education they receive at the university change the students' approach to nature? answers to questions were sought. Surveys are handled under 3 main headings as I: Air pollution, II: Water pollution and III: Soil pollution. For air pollution; Have you trained up to associate degree level in air pollution? Would you prefer to use public transportation instead of using individual vehicles to avoid air pollution? Would you prefer to use renewable energy sources (sun, wind, etc.) instead of fossil fuels (oil, gas and coal, etc.) used for heating in the spaces, Would you inform the people around you about the damages of air pollution and warn them to pollute the air less? and do you pay attention to doing activities that will reduce air pollution until you take an environmental education course? For water pollution; Are you aware that you pollute clean water resources? Do you store chemicals such as oil waste and paint? Have you noticed that the human species will also encounter various diseases and disappear? For soil pollution; Have you trained up to associate degree level on soil pollution? Do you inform people around you about the damages of soil pollution and warn them to be more sensitive about soil pollution? Are you aware that your domestic waste pollutes the soil so much? Did this training make you an environmentally conscious individual? Have you noticed that not only people but also all living things need a healthy environment and that every creature has the right to live?* In line with the environmental sensitivity achievements of university students, it was carried out in 6 different schools (Doğuşçay Primary School, Reşadiye Zihni Derin Secondary School, Kurtuluş Primary School, Atatürk Secondary School, Hasan Yardım Vocational and Technical Anatolian High School, Ali Metin Kazancı High School). Different age groups, existing student capacity and participation in environmental protection projects were taken into consideration in determining the schools. In this direction, face-to-face interviews were conducted with school administrators between 15 minutes and 30 minutes, and the audio was recorded. In the interviews, 5 different questions about environmental education were asked and the questionnaire results were evaluated as% data by examining the tables.

#### 4. FINDINGS

Findings obtained in the study include (i) examining the environmental protection education given to students of Karabük Eskipazar Vocational High School and (ii) the adequacy and achievements of environmental protection education in the curriculum of schools affiliated to the Ministry of National Education.

#### **4.1. Investigation of Environmental Protection Education for Karabük Eskipazar Vocational School Students**

47% of the participants of the survey study conducted in Eskipazar Vocational High School for the students who have taken environmental protection education course and students who have not taken the course are female and 53% are male students. In this study, the environmental sensibilities and attitudes of the students towards natural resources were examined under 3 main headings (I: Air pollution, II: Water pollution and III: Soil pollution).

86.4% of the students who participated in the study after taking the environmental protection course, 59% of the students who did not receive environmental protection education, to avoid the air pollution at home, workplace, etc. It has been observed that it prefers to use renewable energy sources (solar, wind, etc.) instead of fossil fuel (oil, gas and coal) to heat the spaces. 72% of the students who received education and 43.6% of the students who did not receive education stated that they preferred to use public transportation instead of using an individual vehicle in order not to cause air pollution. In addition, 96.5% of the trainees stated that they would inform the people around the harms of air pollution and warn them to pollute the air less, while 62.3% of the students who did not receive education would warn.

When the attitudes of the participants who received environmental protection education were examined, 77.3% of the participants who did not receive training stated that they were aware that the water resources were rapidly disappearing, 70% of them would be more frugal in water consumption, 88.4% of the participants who received training They stated that they would warn people around them to be sensitive about water pollution in order to reduce it.

When the attitudes of the participants towards the soil pollution were questioned, 68.6% realized that after receiving environmental protection education, they realized that they became a more concerned and sensitive individual to the environment, that a healthy environment needs not only people but all living things, and that every living being has the right to live, 88%, They stated that they would inform the people around the 2 of them about the damages of soil pollution and warn them to be sensitive to soil pollution.

However, it was observed that only 7.4% of the students received education to understand the environment, nature and nature cycle, and 92.6% did not receive any education about nature and the environment until they reached the associate degree level. When we observe the change in individuals receiving environmental education, it is concluded that 14-week environmental education creates environmental sensitivity on students. This result shows that giving environmental education to individuals throughout their education life from an early age is important in terms of sustaining natural resources. In this regard, giving environmental education within the curriculum of the Ministry of National Education and examining the content of this education is discussed in 3.2.

#### **4.2. Integration of Environmental Protection Education to the Ministry of National Education Curriculum**

The managers participating in the interview emphasized that environmental protection education in schools affiliated to the Ministry of National Education is given only in science, life science and social studies courses, and it is not at a sufficient level. It was also stated that environmental protection education should be a course in itself. However, it was especially emphasized by the participants that environmental awareness should first be given in the family. It was observed that students in schools affiliated to the Ministry of National Education did not receive 66.4% of environmental protection education and 83% of environmental education, landscape

architecture day and forestry weeks were not supported by any seminars or panels during the education process (Table 1).

**Table 1.** Interview results with school principals regarding environmental protection education in Ministry of National Education Schools

| Questions for environmental protection education in Ministry of National Education Schools  | Listed answers | School Principals |   |   |   |   |   | Thoughts on Questions  |
|---|----------------|-------------------|---|---|---|---|---|--|
|   |                | 1                 | 2 | 3 | 4 | 5 | 6 |  |
| 1. <b>Question:</b> Is your school students provided environmental protection education during the education period?  | Yes            |                   | ✓ |   |   | ✓ |   | <i>“Environmental education in schools affiliated to the Ministry of National Education is taught as a separate subject, not under the subject of life studies and social sciences”.</i>                                     |
|   | No             | ✓                 |   | ✓ | ✓ |   | ✓ |  |
| 2. <b>Question:</b> Are there seminars on environmental protection in your school on days such as environment day, landscape architecture day and forestry week?                      | Yes            |                   | ✓ |   |   |   |   | <i>“Although the number of seminars given to increase environmental education awareness is quite low, applied seminars are thought to be more permanent”.</i>  |
|   | No             | ✓                 |   | ✓ | ✓ | ✓ | ✓ |  |
| 3. <b>Question:</b> Do you think that this training would create environmental sensitivity for students if environmental education was given within the scope of seminars or lessons? | Yes            | ✓                 | ✓ | ✓ | ✓ | ✓ | ✓ | <i>“Certainly environmental sensitivity will be created. The trainings to be provided will both increase the sense of responsibility of the students and help create a sense of compassion.”</i>                             |
|   | No             |                   |   |   |   |   |   |  |
| 4. <b>Question:</b> Do you think that the activities carried out by teachers about environmental awareness are effective on students?   | Yes            | ✓                 | ✓ | ✓ | ✓ | ✓ | ✓ | <i>“The effect of teachers who are environmentally conscious or have the necessary sensitivity on their students is an undeniable fact. Leadership in environmental education is the work of teachers after the family.”</i> |
|   | No             |                   |   |   |   |   |   |  |

**Expert Group:** (1: Doğuşçay Primary School; 2: Reşadiye Zihni Derin Secondary School; 3: Kurtuluş Primary School; 4: Atatürk Secondary School; 5: Hasan Yardım Vocational and Technical Anatolian High School; 6: Ali Metin Kazancı High School)

However, they stated that when environmental education is given as a separate course or in the form of seminars, this education will create environmental sensitivity in students. The participants also expressed the view that environmentally sensitive teachers would be more effective on students (Tables 1 and 2).

**Table 2.** Administrators' Views on Environmental Protection Education in Schools Affiliated to Ministry of National Education (MoNE)

| To the Ministry of National Education Affiliated Schools    | Face-to-face Interviews for Environmental Education in Schools   |
|---|--|
| Doğuşçay Primary School                                     | <i>"Environmental education has an important place in developing environmental protection awareness. How to include an environmental protection course while reducing the number of courses in the MoNE curriculum! Students are actively working in the hobby garden in our school. In addition, teachers can actively manage this process by participating in environmental trips with students."</i>  |
| Resadiye Zihni Derin Secondary School                       | <i>"Environmental problems need to be explained to students programmatically today. The content of environmental protection education taught in different courses decreases as the class progresses and loses its competence. As the TEMA foundation now prefers to stay in the background in education, the number of activities in schools has started to decrease. Activities carried out through activities rather than seminars will be more permanent and responsible."</i>  |
| Kurtuluş Primary School                                     | <i>"Projects for environmental protection are carried out, but individual participation (enthusiastic students) yields more successful results. A sustainable environmental model can be created with the individual awareness created. Environmental awareness that cannot be achieved in adults can be given with the education of the next generation."</i>   |
| Atatürk secondary school                                    | <i>"We are trying to integrate our school garden, which is under the pressure of construction, with the environment. We try to create environmental awareness through active student practices in the hobby garden created by our teachers. But sadly, the TEMA foundation does not organize an event at our school anymore."</i>  |
| Hasan Yardım Vocational and Technical Anatolian High School | <i>"In line with the waste collection activities carried out by the Ministry of Environment and Urbanization, the Undersecretariat of Maritime Affairs is fighting the pollution in the Black Sea and joint projects are carried out with TÜBİTAK. A patent application has also been filed against the vampire butterfly. Benefit gardens are created by our related teachers and environmental studies are carried out effectively. Civil Society Organizations do not support our school. Students are encouraged by giving cleaning and waste collection awards in the classrooms. In our school, environmental awareness is tried to be given to the students within the scope of photography courses."</i> |
| Ali Metin Kazancı High School                               | <i>"The zero waste project carried out at national level is supported by our school. We supported the project in our parents as well as our students and started to develop projects for collecting oil and batteries."</i>  |

### CONCLUSION and SUGGESTIONS

This study contributes to the understanding of the role of environmental education in developing an environmentally friendly lifestyle. In this study, the importance of both environmental commitment and environmental knowledge in environmental education is emphasized. Today, policies, deterrent prohibitions and sanctions that cannot go beyond changing the attitudes of people towards the environment, although they provide temporary solutions, are not sufficient to prevent environmental problems. These problems are directly felt by living things (Deriabo, 1996). For this reason, fundamentalist policies are required for environmental awareness and sustainable use of natural resources. Environmental education, which is one of these policies, plays an important role in creating environmental awareness in individuals from a young age with its application-oriented education method. However, environmental education is one of the best methods against environmental problems today (Potter, 2010). In order to find sustainable solutions to environmental problems, many countries of the world have prepared and implemented environmental education programs so that individuals can act on the spot and make appropriate decisions about the problems (Hart, 2007). However, environmental education, which is not included in the curriculum of our country in a sustainable way, has also caused individuals to be inadequate in terms of sustainable environmental approach. The tendency to be an ecological friend in childhood continues for a lifetime. Therefore, environmental education should be given to the child carefully (Evans, et. Al., 2007). When the individual internalizes the nature-sensitive lifestyle,



he both adopts a natural lifestyle and causes less harm to the natural environment (Schultz, 2002). Today, we face a series of almost overwhelming challenges, both nationally and globally. These difficulties include constantly deteriorating our environment, the destruction and depletion of natural resources. An educated population and competent workforce are required to deal with all these challenges. We can say that education, environmental protection should be the critical element of a sustainable national strategy (Potter, 2010).

Since the future of our planet is in the hands of today's children, tomorrow's adults, the "environmental education investment" to be made to children should be considered as an investment in our world. In the hypothesis that Bogner and Wiseman (1999) put forward, the idea that one of the most important factors in protecting the individual is nature education, coincides with the findings obtained from this study and confirms the hypotheses discussed in the study. Aaron (2009) emphasized that thanks to the observations and discoveries made in natural areas, students' perceptions of nature have improved and students who interact with nature have started to talk about natural elements instead of artificial elements. It shows us the role and effect of education in the sprouting and settling of environmental awareness in children, and the transformation of nature love and environmental protectionism into permanent behaviors and lifestyles. Environmental education will also enable individuals to become environmental literate by taking an active role in environmental protection, making decisions and displaying appropriate behaviors (Makki et al. 2003). This environmental awareness gained at an early age can also prevent environmental problems. For this reason, it is important for both our country and a livable world to raise individuals who consume as much as they need, feel responsible for future generations, and are sensitive to environmental problems. In his study in Puk and Makin (2006), the idea that ecological consciousness is very low and the creation of a curriculum for creating ecological consciousness coincides with the result of this study. All individuals who receive and are not environmentally aware are aware that they are adversely affected by climate change in the world. However, despite this awareness, they could not fully develop their sensitivity to environmental pollution and even could not display an attitude towards environmental protection.

Raising individuals who explore their environment with curiosity and respect nature will also reduce the pressure on the environment. When the results of the study were examined, it was seen that environmental protection education given at associate level created a serious environmental sensitivity on students in a short period of 14 weeks. The continuity of these trainings for a longer period of life will also make individuals more sensitive to nature and natural resources. For this reason, it will change individuals' view of nature by giving nature-based environmental protection trainings longer and in more detail. Environmental-based environmental education will increase students' attention to ecological issues while developing their natural relationships with nature (PalMBERK, 2000). In addition, according to PalMBERK (2000), nature experiences increase students' self-confidence while increasing their desire to spend time in nature. The contribution of nature education in raising environmentally conscious individuals has been seen in 180 different studies (Erentay & Erdoğan, 2009; Erdoğan, 2011). However, Keleş et al. (2010) stated that nature education programs with prospective teachers have a significant impact on individuals' environmental awareness, attitudes and behaviors and provide permanence. In addition to the curriculum, environmental education can be supported by students' participation in scientific activities such as environmental symposiums and panels. In addition, school administrators stressed that non-governmental organizations should take an active role in the environmental education process. Because, in the previous years, they stated that the activities of TEMA foundation towards creating environmental awareness in schools were effective on students.

## The Role of Environmental Education in the Development of Nature Awareness in Individuals

The physical conditions of educational institutions, which provide individuals with professional knowledge and skills, also play an important role in the development of environmental awareness. For this reason, landscape designs in which green texture is dominant and students can spend time intertwined with nature should also be included. Protecting and improving the environment, which is the trust of the next generations, is possible with the responsible behavior of individuals. Families have an important role in raising sensitive individuals who are environmentally conscious and "environmental protection" should be given as a compulsory course in the education curriculum.

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