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Analysis of Science Teacher Candidates' Environmental Knowledge, Environmental Behavior and Self-Efficacy through a Project called "Environment and Energy with Professional Science Education"

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Abstract

Environmental education can be defined as raising environmental consciousness among every segment of society, bringing for the awareness to environment-friendly, permanent and positive behavioral change. Individuals who are environment-friendly, aware of the environmental problems and seeking solutions when needed can be educated by the teachers who have sufficient knowledge and experience and know the importance of environmental education. In line with this purpose, then a true project titled as 'Environment and Energy with Pro-Fe(Science)ssional Education' has been put into action. As stated in the feedback of the participants, it has been of the opinion that this project is remarkable and useful in regards with supporting applied training and practice. In this context the purpose of this study is to identify the effect and permanence of the TUBITAK (Scientific and Technological Research Council of Turkey) project titled as 'Environment and Energy with Pro-Fe(Science)ssional Education' on environmental knowledge, environmental behavior and self-efficacy beliefs of environmental education. The study based on quantitative research was carried out in accordance with pre-test, post-test and retention test design. Participants of this study consist of 37 teacher candidates selected through purposeful sampling among 286 students, who applied to the project held between the dates 17th-23rd June, 2014. As data collection tools, "Environmental Knowledge Test" developed by Kışoğlu (2009), reliability co-efficient of which is calculated as (α) 0.64 and "Environmental Behavior Scale" with (α) 0.79, and "Self-Efficacy Beliefs Through Environmental Education Scale" developed by Özdemir (2009) with 0.76 were used. SPSS programme was used to analyze the data and One-way ANOVA for independent variable was applied to demonstrate the differences between the means cores. LSD was used for multiple comparison test. Data analyses reveal that there is a significant difference in favor of post-test and retention test as a result of pre-test, post-test and retention test analyses of the Environmental Knowledge Test, Environmental Behavior Scale and Self-Efficacy Beliefs Through Environmental Education Scale. In the other words, it has been observed that with the environmental education project, statistically significant increase was found in the participants' environmental knowledge scores, environmental self-efficacy beliefs scores and environmental behavior scores. This case asserts

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that activities carried out and applied training are effective and permanent. It is expected that teacher candidates will use this experience in their professional and future life.

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1. Introduction

The simplest definition of the environment can be defined as the external environment where all living creatures lived and maintained their relationships in the lifelong (Çepel, 1992: 38; Erturk, 1994: 6; Ministry of Environment, 1998: 1).

Environmental problems which began to threaten humanity and the planet, especially in the latter half of the 20th century makes you feel better the feeling have emerged new perspectives on human-nature relationship and interpretations. In particular, environmental problems, and these problems' threatening the rate of interest to our lives the concept of environment has increased. Environmental problems which being able to pull up to the start of the industrial revolution, today they are the most widely spoken in any area and has become one of the popular topics (Parlak, 2004).

The starting point for finding solutions to environmental problems, begins with to accept and to create awareness for environmental problems of individuals. To this awareness in individuals knowledge, values and to develop positive attitudes towards the environment should be added. Education, as it is in every respect also for the environment is the first way at the point of awareness, consciousness and should be consulted in the development of a positive attitude. The person who does not receive the necessary training and not to have awareness about the environment surrounding the future of society is not to be expected to act with a sense of safety.

Environmental Education, by increasing environmental awareness of the individual and society to behave sensitive to the environment as well as providing after environmental problems occur, then people's individual or as an organization, decision-making process to participate by providing the solution of environmental problems, they will contribute to the solutions of these problems. In this framework the main goal of environmental education is to bring awareness to the community of a new human type, morality and consumption consciousness is to train human model as consuming as needed, feeling of responsibility toward future generations, sensitive to environmental issues in conscious.

By these researches, environmental education and nature-based experience in various aspects of the application are set to be effective and with the educational experiences in nature passed a strong relationship between children's perceptions of the environment is emphasized in particular. In this context, Kals and his friends, (1999) has determined that positive impact the nature of environmental education experience carried out mainly for students' emotional closeness to nature, interests and behavior. Bogner (1998) and Bögeholz (2002), has shown that a positive impact of the non-school environmental education program to increase students' environmental knowledge and actions towards the environment.

Demirsoy, emphasizes the importance of field studies by words "TUBITAK project participants to nature education, when they look at the bottom of a flower by bending they begin to understand the mechanics of nature. Even to save a person like that is very important. In this way, the first time in Turkey, a real sense, what is nature conservation, how to be a scientist and natural philosophy, is being taught by practicing in the field." (Yanık, 2006).

The purpose of nature education passes from forming in reaching ways of to be successful individuals who make up society favorable attitudes, behaviors, thoughts, and consciousness. Several studies on the subject in the literature were found (Ürey & Yeşiltaş, 2009; Aslan, Sağır & Cansaran, 2008; Erol & Gezer, 2006).

For a quality environmental education, teachers who are role models in all levels of education as well as training generations by using teaching methods and the techniques should be required to increase their knowledge and awareness of our individual priorities. While teaching stay in life to transfer personal experience and to share acquired knowledge from the field studies and activities the fun as well and is very important for both teachers and students.

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