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EXAMINATION OF THE EFFECT OF THE ENVIRONMENT EDUCATION APPLICATION ON THE ENVIRONMENTAL ATTITUDES OF PROSPECTIVE PRESERVICE PRE-SCHOOL TEACHERS

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Abstract:
The purpose of this study is to investigate the effect of Activity Based Environment Education Program on the environment motivation of prospective presevice pre-school teachers. Experimental design with pre-test and post-test control group was used in the research. 40 prospective teachers (20 of them are in experimental group, 20 in control group) attending to Pre-School Education Department in Education Faculty of Amasya University participated in this research. Activity based Environment Education was given to the prospective teachers in the experimental group three times a week for 8 weeks. The data was obtained through 'Motivation Scale Towards Environment' 'developed by Pelletier et al. (1998). The data was analysed by using covariance analysis (ANCOVA) and t-test. At the end of the study, a significant difference between the motivation scores against environment of experimental and control groups was found. Results show that the Activity Based Environment Education Program has a positive effect on the environmental motivation of the experimental group.

Keywords: environment education, pre-school, preservice teacher, child

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1. Introduction

Dealing with agriculture as human beings has changed the direction of life in the world. With the development of the pesticides, the production in agriculture has increased and famine all over the world has disappeared. The population of the world has increased related to these developments but new problems have raised. Human beings have changed their life styles to earn more and to live better. On the other hand, along with the industrial revolution, industrial societies emerged who uses natural resources extremely. As a result, the habitats such as the continents, sea, and the atmosphere have been largely affected and the ecological balance of the world has changed and new environmental problems have appeared all over the world. Today, global warming, changes in the climate, acid rains, ozone depletion, desertification, extinction of forest, decrease in bio-diversity, increase in population and environmental pollution are the most important global environmental problems in the world (Kışlalıoğlu and Berkes, 2007). These problems seriously threaten the lives of the human beings and the other living things today. However, these environmental problems are not taken into consideration in many countries except by environmental groups and some government programs.

The reason of why environmental problems are so complicated is based on not only the unawareness and the ignorance of the societies and shaping and directing nature for their own profit, but also the lack of enough knowledge about the environment. In this context, developing attitudes towards environment and acquiring enough knowledge about it will be effective in the elimination of inattention to the environment (Erol, 2005, Özkubat and Demiriz, 2013, Pelletier et al. 1998).

The attitudes and behaviours of the people towards environment lie in the basis of the environmental problems. It is necessary to educate people about the environment and make them acquire new behaviours towards the environment where they live. Struggling with the existing environmental problems is only possible with people who get environmental education and have consciousness about environment. Because the environmental education given to the people helps the protection and sustainability of environment (Daştan, 1999). Thus, environmental consciousness is described as to improve awareness among people about protecting the natural environment (Başal, 2003). Of course, teachers working at different levels of education and training should have responsibility for improving this awareness.

All living and non-living creatures have to live together in the world. All living creatures involve in positive or negative interaction consistently with their environment in order to survive. Accordingly, while the environment is defined as the sum of the

biological, chemical, physical, climatic and geographical factors that are effective in a living environment, (Gökmen, 2007), according to Yıldız et al. (2000), environment is a unit of space where living creatures are connected by vital bonds, affecting or influencing each other in various ways. Another description about, environment is the physical, chemical and biological factors in which living creatures are affected, shaped and determining their life styles (Tokay and Yüksel, 2003). There are many different descriptions about environment in the literature. Even though the environment concept is seen as a simple, it appears to be a very comprehensive and complex concept when it is put into in the practice.

Environmental education is necessary to remain our planet as a place where people live in comfort and to leave it to the next generations. For this purpose, students and teachers who are the fundamentals of the teaching system should be educated in this direction (Ünal et al. 2001). The importance of environmental education is based on protecting education the nature and natural sources. Hence, this education should start at pre-school period and continue through their all lifelong. Environmental education is introduced to students at different levels in our education system. "Environmental Education" concept gained a global dimension with the conference entitled United Nations Conference on the Human Environment held in Stockholm in 1972. According to Vaughan et al. (2003), environmental education is a continuous learning process that provides people to become aware about the events happen around them and to help them acquire new knowledge, skills, values and experiences about solving environmental problems that may arise in future. Environmental education is an interdisciplinary approach that continues all life to educate people who are aware of environmental problems with adequate knowledge, skills, attitudes, motivation and responsibility to contribute to the existing problems and prevent the occurrence of new problems (Moseley, 2000). Environmental education should be integrated into curriculum and addressed to all learners in each stage of formal education. Also, environmental education should include lifelong learning to raise a society who has necessary knowledge, abilities, attitudes, motivation and responsibility in order to be aware of environment, its problems, concern about them, solve these problems and take precautions to prevent new educational problems (UNESCO, 1977).

Environmental education is especially important in pre-school period. Because, knowledge and love about environmental and attitudes towards environmental begin to take shape among students in pre-school period. In many studies has been also found out that the gaining environmental attitudes during these periods is important in developing a positive attitude towards the environment in the next life of the individual (Smith, 2001, Taşkın and Şahin, 2008, Gülay and Ekici, 2010). Environmental education

in the pre-school period provides interaction with outer world of child and supports them to grow up healthy. As children know the living and non-living things quite well, they become respectful to both themselves and other living things around them (Wilson, 1996). The other objective of the environmental education is to increase the interaction of children with nature to prevent environmental problems that may arouse in the future, to raise active individuals who will participate in the solution of environmental problems (Hsu, 2004, Morgil et al. 2005). According to Geray (1997) and Kabaş (2004), an individual should be educated as a person who understands the nature around himself, who has a critical point of view in the interaction with the environmental and who has consciousness about the environmental problems (Büyüktaşkapu et al. 2011). Thus, environmental consciousness of child will improve, they will become sensitive towards nature and they will contribute to the establishment of environment that is viable and sustainable (Roth, 1992; Hsu, 2004).

Pre-school teachers have important role in the establishment of environmental awareness among the students. Here are the some important hints for pre-school teachers to establish this awareness: to support existing curiosity and enthusiasm of children about environment with different educational activities, to organize different trips, in order to make them know living and non-living things in their environment, to establish environmental awareness, by including books and stories in their daily events, to dramatize environmental issues within the program, to do environmental arrangements with various pictures and three-dimensional objects in an attempt to increase knowledge and awareness of children about environment, to teach them the importance of saving energy and water, to let them watch cartoons about environment, to feed plants and domestic animals to gain responsibility and love of living things, to organise various activities to acquire personal hygiene. In other words, teachers should be good models for their students to establish environmental awareness through observations, visual materials and with their own behaviours and attitudes (Dinçer, 1999; Daştan, 1999; Kavruk, 2002). It is very important that the teachers at this level should have adequate knowledge, attitude and behaviours about environment. Children at pre-schools accept adult people around themselves as role models and they improve their observations and imitate what the others do. Thus, individuals who are taken as role models by children influence their behaviors and values towards environment in a positive way and increase their motivation about environment.

Increasing the environmental education in the curriculum depicts the deficiency of the teacher's knowledge about environmental problems. Although it is known that there is a need for the preparation of teachers who will have consciousness about environment, a few researchers have mentioned about it. The academic studies in Israel

prepare teachers and educators about environmental awareness from pre-school period up to 10th grade. The important point in preparing teacher training program is to make the students understand the importance of the environment and educate them as people who are responsible for the environment (Peer et al. 2007). When considered that attitudes and behaviours acquired in the early childhood period affect their entire life, it is clear that the environmental consciousness given at those ages are very important for the students. At this point, the main purpose of the pre-school teachers is to educate their students about protecting and using the environment. It is crucial for the prospective teachers to get enough education about environmental problems and consciousness when it is thought that the environmental consciousness among students starts at an early age and in the school (Fegebank, quoted by Başal, 2005). In this study, it is aimed to improve the attitudes of the pre-school prospective teachers towards environment with different activities.

2. Material and Methods

2.1. Research Model

In the research, ''Activity based Environment Program'' was used for the prospective teachers as it is aimed to support the attitudes of the preservice pre-school teachers towards environment. To reach the aim, experimental design with pre-test post-test control group was used. Design with pre-test and post-test group is a strong design often used in behavioral science that provides statistical support to the researcher to test the effect of the experimental operation on the dependent variable and to interpret the obtained data in terms of reason result (Büyüköztürk, 2009). The dependent variable of the research consists of the attitudes of the preservice pre-school teachers towards environment and the independent variable is the ''Activity based Environment Education Program''.

2.2. Study Group

The final year students of Pre-school department of Amasya University were involved into the research. The prospective teachers in the experimental group were chosen deliberately as they took environment education course in the curriculum.

The students in the control group were chosen among the ones who did not take this course. In determining the sampling, homogenous sampling method which is one of the purposive sampling methods was used. In this method, individuals who have identified certain qualities should be selected and involved to the research (Ekiz, 2013). There are 20 students in the experimental group and 20 in the control group. It was

taken into consideration that prospective teachers both in the experimental group and control group have similar features. The statistical results for such a case are given in Table 2. "Activity based environment Education Program" prepared by the researchers was applied to the experimental group. The prospective teachers in control group carry on their routine education methods. The prospective teachers have not received any environment education beforehand. The symbolic outlook of the used model is displayed in Table 1 (Büyüköztürk, 2009). The presence of pretest in the model helps know the similarity level of groups before the experiment and correct the post test results. In this model, pre-test and post-test measurement results are used together to figure out how "X" is effective (Karasar, 2009).

Table 1: Model with control group with pre-test and post-test

Pre-test			**Post-test**	
GE	R	O1	X	O3
GC	R	O2		O4

GE: Experimental group, GC: Control Group, R: Unbiased of forming the groups; X: Independent variable level (Micro Teaching Application); O1, O2: Pre-test Application, O3, O4: Post-test Application

The dependent variable of the research is the environmental attitudes of the pre-school department preservice teachers and the independent variable is the environment education program.

2.3. Instrument

"Motivation Scale Towards Environment" developed by Pelletier and et al. (1998) and "Activity based Environment Education Program" were used as data obtaining tools.

A. Motivation toward the Environment Scale (MTES)

It is a likert type scale developed by Pelletier et al (1998). MTES is a "Motivation Scale Towards Environment" which was developed for the purpose to evaluate the motivation types of the pre-school presevice teachers towards environment. The scale is evaluated by 7 likerts and it checks the motivation of the individuals about showing good behaviour to environment. The scale consists of 21 items with 6 sub-scales and evaluates the environment motivation levels of the individuals. The reliability and the validity of the scale were evaluated by Özkubat and Demiriz (2013). Cronbach alpha reliability coefficient of the scale was found as .87.

B. The preparation and the application of the activity based environment education program

Before the activity based education program have been prepared, basic concepts about environment and ecology were taught to prospective teachers theoretically in 6 sessions during 18 hours by the researchers such as basic concepts about ecology and environment, ecosystem, food chain, food cycle, energy pyramids, matter circulatory, life styles among living things, local and environmental pollution (soil, water, air, radiation, noise etc.) and solutions, acid rains, ozone depletion, greenhouse gases, global warming and climate changes, renewable energy sources and recycling. Then, the prospective teachers were given topics about the sub-categories of determined topics and they were asked to perform activities using experiments, concept maps, analogy, role-play, drama and watching short films. Before the activities, prospective teachers were given guidance. Prospective teachers were divided into 8 groups and each group performed their activities in 8 weeks. Prospective teachers performed activities such as ecosystem, food chain, growing plant, raising animals, personal cleanliness, science experiments, saving energy and water and recycling of waste materials. These activities were recorded by camera and later prospective teachers were let to watch them in order to do question and answer application and to internalize the subject.

Before the classes, MTES was applied to the prospective teachers in the experimental and control groups as pre-tests. When the applications were over, post-test was given again to the prospective teachers in the experimental and control groups to obtain the data.

2.4. Data Analysis

Test of normality was done to determine the effectiveness of the experimental activity. Parametric techniques were used as the result of the statistical operation and skewness kurtosis values of the experimental and control groups were between -1,+1 interval. Covariance Analysis (ANCOVA) was used for the comparison of pre-test and post-test. ANCOVA provides to examine the effect of a factor in the research or a variable related to the factors out of dependent variables or the investigation of the statistics of the variables (Büyüköztürk, 2009).

3. Findings

Before applying "Activity Based Environment Education Programme" to the prospective students in the experimental and control groups, the answer whether there

is a meaningful difference between the points of the experimental and control groups from MTES was sought. Independent samples t-test was used to compare the pre-test scores of experimental and control groups. Independent sampling t-test is used to determine the average scores of two sampling groups (Büyüköztürk; 2009). The table below displays the t-test results of the prospective teachers in both groups related to the pre test scores obtained from MTES.

Table 2: T-test results related to the pre-test points that prospective teachers in the experimental and control groups get from MTES

Measurement Tool	Group	N	X	SS	sd	t	p
MTSE	Experimental	20	101.35	19.28	38	.164	.992*
	Control	20	100.35	19.38			

*p>.05

When the table 2 examined, it can be seen that there are not meaningful differences between the experimental and control groups related to the points that they got from MTES (p>.05). In the studies with experimental and control groups, the closeness of the group scores to each other has a capital importance in terms of the effectiveness of the training program (Kaptan, 1998).

As it is seen in the Table 3, ANCOVA results to determine whether there is difference related to the "Activity Based Environment Education Program" towards environment between the experimental and control groups participated in the research.

Table 3: ANCOVA post-test results related to the corrected pre-test points that the prospective teachers in the experimental and control group get from MTES

Measurement Tool	Variance Source	Sum of the squares	sd	Average of the squares	F	p	η2
MTES	Pre-test	11131.135	1	11131.135	96.498	.000	.723
	Group	**1441.365**	**1**	**1441.365**	**12.496**	**.001**	**.252**
	Mistake	4267.965	37	115.350			
	Total	16961.600	39				

It can be seen that there is a statistically meaningful difference between the pre-test and corrected post-test points of the participant prospective teachers [F=12.496; p<0.01; η2= .252] from MTES. The prospective teachers in the experimental group got higher points than the prospective teachers in the control group who did not participate in the education program. This finding proves that the environmental education program applied on the experimental group is effective.

4. Discussion and Conclusion

One of the most important duties of the societies is to bring new generation the necessary attitudes, values, knowledge and skills in order to review and change the current course and also offer them a healthy, fair and sustainable future. Environment education is necessary to reach these goals. Environment education is a shared study among students, teachers and societies on environmental problems to come up with new solutions (Davis, 1998). The increase on environmental education in the education system proves that there is deficiency about environmental knowledge of teachers. Although it is known that, there is a need to raise teachers who are aware of the environment factor, only a few researchers give importance to the preparation of teachers. The academic studies in Israel prepare the teachers and the students from pre-school to the 10th grade. The need for preparing teacher education program is to maintain the importance of the environment factor among the prospective teachers working at different school types (Peer et al. 2007). In this study, it is aimed to improve the attitudes of the prospective teachers towards environment and enable them to provide better educational opportunities to their students during their career.

The findings of the research prove that activity based environment education program affects the attitudes of the prospective teachers towards environment in a positive way. Also, such a finding supports the researches carried on different sampling groups. Bradley and others (1999) searched the effect of the environment subject taught in high schools on the knowledge and attitudes of students. The results of the experimental studies indicate that they increase the knowledge level of the students and make positive effect on their attitudes. Similarly Pooley and O'Connor (2000); Alvarez et al. (2002); Kışoğlu (2009) found that while they were studying with university students, the environmental education provided positive effects on students' environmental attitudes after receiving environmental education. The mentioned studies seem to support the effectiveness of the experimental activities.

An effective environment education has to be given to every student for the protection and transmission of all the richness of the nature. Both students and teachers who are the parts of the education system should be more conscious for this purpose. Within this study, prospective teachers were enlightened about environment and it provided the best applications about environment education. Pre-school teachers have a great responsibility to raise their students who are aware of the environment because their students spend most of their time with them. Pre-school students are highly sensitive towards environment. It is observed that students of this period display similar attitudes and behaviours of their teachers. As known, students gain behaviours

and experiences from the people they accept as role models (Surbrook, 1997). The activities done in this research help prospective teachers to make their students have an awareness towards environment in their professional career. In Ozturk's (2013) environmental study which was done in order to raise the environmental awareness of prospective teachers, it can be seen that their environmental awareness, attitudes and behaviours towards environment and knowledge about environment was increased. Similarly, Keleş et al (2010) carried on a project entitled "Ihlara Valley (Aksaray) and Nature Education in its Surrounding" and observed that nature education program made great effect on the attitudes and behaviours of the individuals towards environment. Getting knowledge about environmental issues, helps people how to solve problems about the environment, to realize the relationship between humans and the environment and to learn the basic concepts about environment (Altın, quoted by, Kabaş, 2004). Related to the findings obtained from the research, similar environment education program can be carried on a different sampling group. Besides this, an environment education program with different activities can be developed and applied to the pre-school students. Parents can be included into the program and child-parents gaining can be evaluated in two ways. Courses about environment education should be done practically. Results we got from our study support this situation. Likewise, Yılmaz and Gültekin (2012) emphasize that practices should be given in environmental education

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