



## ACTIVE LEARNING IN ENVIRONMENTAL EDUCATION AND ITS CONTRIBUTION TO THE DEVELOPMENT OF CANDIDATE TEACHERS' POSITIVE ATTITUDES

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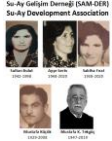
### Abstract

The major aim of this study is to specify the contribution of environmental education programs, supported by active learning, to the development of candidate teachers' positive attitudes. An experimental design controlled by pre/post-tests were conducted with an experimental group to investigate the subject question. In order to confirm the efficiency of the study, the knowledge level after the pre/post- tests results between the control and experimental groups was taken into consideration while doing the analysis and the test results were compared. 70 students studying in the Geography Department, NEU, in Fall 2012-13 participated in this study. The data were collected through "Environmental Attitude Scale", with 20 items in 5 Likert type and with certain questions concerning North Cyprus. The findings indicated to a significant difference for the post-test after the comparison of the pre/post-test of the Environmental Attitude Scale. This indicates that at the end of well - planned student- centered activities help increase their level of attitudes towards the environment.

**Keywords:** Environmental education, active learning, Environmental attitude scale, science of ecology.

### INTRODUCTION

Man, as the main actor, lived in the natural environment for thousands of years. Throughout this process, he ignored his integrity with the environment and caused a rapid deterioration for the sake of dominating the environment. The dead-end man is experiencing and his failure in understanding the situation is the main reason of the problem. There is no doubt that education and education systems, as the major determinants and formers of human behavior, play a great role in this prevailing situation. The environment and environmental education have become a crucial consideration in the world countries as well as in educational institutions. Technology on the one hand and parallel to countries' efforts in development, have left the globalizing world face to face with uncountable negative problems, which also urged the countries to take measures to preserve the environment. In a broad perspective, the environment and environmental education have become a point of consideration at the end of the past decade and have been introduced in programs of educational institutions, State and primary schools (pre-schools, primary schools, secondary and high schools) in many parts of the world. The functionality of education systems is closely based on input, process and output. The "input" dimension of environmental education deals with programs and equipping teachers with responsibilities towards the environment, the "process" dimension is to make programs work and the "output" dimension deals with sensibility, attitudes, behavior and approaches towards the environment (Mitsadalı & Aytekin, 2001). Environmental education is a crucial factor in raising people conscious of environmental issues. Similarly, students exhibiting positive changes in their consciousness, attitudes and behavior in environmental education indicate the quality and efficiency of education offered. Educating individuals in coping with environmental problems seems inevitable due to the fact that people are a great factor in the emergence of such problems. Meanwhile, teachers' role cannot



be denied when environmental education is at stake. Since Geography greatly deals with environmental locality and topics, both the subject and candidate teachers studying at Faculties of Education should particularly be informed about environmental issues. Globalization necessitates several innovations such as technological development and changes. Today's contemporary education systems respond to such innovations and changes to a great extent (Oskay, 2007).

Active learning is the process in which the learner has the responsibility for learning, is given the opportunity to make decisions and make arrangements and is urged to use intellectual abilities when dealing with such complicated educational issues (Açıkgöz, 2009). Environmental education, on the other hand, aims to raise individuals, at all levels of the community, sensitive towards and aware of environmental issues, acquiring behavioral changes, willing to protect natural, historical cultural, and social values and actively participating in and contributing to problem solving (Environmental Map, Turkey, 2004). In other words, environmental education equips individuals with ecological information and helps them develop attitudes and transform them into positive behavior. Environmental education also addresses learners cognitive, emotional, and psychomotor learning areas. Environmental education is the process of developing attitudes, value judgements, knowledge and skills and exhibiting environment-friendly behavior and experiencing the outcomes (Özpinar, 2010). Attitude is a combination of a consistent, perpetual type of attitude and thought inclination developed for an object, a situation or an event. Attitude cannot directly be observed, but it reflects to an individual's observable attitudes to which a meaning is attributed (Türkün, 1999). Aydın (2007), states saying that social psychologists define attitude as an inclination which combines individuals' imperceptible feelings, thoughts, and behavior towards an object, an individual or events. Attitude, an imperceptible individual experience, can be interpreted by analyzing behavior, which is categorized through "Attitude scales" (Öznur, 2008).

A sound evaluation of attitude is connected with how it is defined. Every individual may exhibit an attitude towards his/her life experience, objects, other people around, and events (Aydın, 2007). Someone with certain types of behavior may be inclined to react positively or negatively. In this respect, regardless of positive or negative thoughts or behavior, an individual spends time thinking, showing interest, and being busy with related issues (Tezbaşaran, 1997). The structure of attitude is composed of cognitive, emotional, and behavioral components that cannot be considered independently. The cognitive element is the whole of knowledge, thoughts and beliefs an individual is expected to exhibit. Emotional element includes an individual's positive and negative feelings. According to Aydın (2007), the behavioral element expresses the behavior towards an event or an object. Attitude is an inclination to biased actions towards events and objects that emerge by an individual's learning experiences (Ülgen, 1994).

Tavşancıl (2002), categorizes attitude specifications as follows;

- An attitude is not innate, but is acquired
- Attitudes can vary from time to time
- Neutrality is not a must for attitudes towards events and objects
- Attitudes are ways of positive or negative behavior

Environmental science is a physical and social science dealing with the interaction among living creatures and the innate environment. In other words, it is a science studying the connection and relationship among natural elements and the community as well as how they are affected by each other (Yıldız Sipahyioğlu & Yılmaz, 2009).

## METHOD

The effect of environmental education program, supported by active learning, on undergraduate students was examined through quantitative research in which a pre/post- test controlled experimental design was

used. Büyüköztürk (2001); Karasar (2003) define the experimental research design as a process for which a controlled deliberate plan is developed by the researcher to get responses to the research questions or an area to specify the variables between cause-effect relationship to obtain the required data. The controlled group experimental pre/post-test design is the most frequently conducted research area and it particularly deals with experimental approaches. The most typical characteristic of this design is that there are experimental and control groups with an equality based on random selection among the groups (Cohen & Manian, 1994). In order to determine the effectiveness of the program the results of the pre/post tests need to be assessed together, in which the pre/post-test results are compared and, unless there is not a significant distinction, the differences among the averages are considered (Karasar, 2003). Data were collected through questionnaires. A questionnaire is an environmental inventory conducted to measure individual knowledge, attitudes and behavior towards the environment, views about geography courses in terms of their connection with the environment, and environmental knowledge of the working group. Keçeci (2010) developed the “Environmental Attitude Scale” to examine students’ attitudes towards the environment. The 5-likert type Scale was composed of 20 items as “Absolutely agree” 5pts. “Agree” 4pts. “Not sure” 3pts. “Disagree” 2pts. And “Absolutely disagree” 1pt. The items 1,2,3,4,8,10,11,18,19 and 20 were calculated in reverse order. The Cronbach Alpha (a) reliability coefficient of the Scale was calculated as .902 by Keçeci. Prior to its application, the “Attitude Scale” was subjected to an adaptation practice for North Cyprus and in the light of expert views, items 9 and 11 were excluded from the questionnaire. The reliability analysis was tried again and the Cronbach Alpha (a) coefficient was calculated as .913. The Environmental Attitude Scale scores by the experimental group were evaluated in terms of variables such as their gender, schools and departments they graduated, and parents’ education status.

## FINDINGS

**Table 1.** The Pre/Post-test results of the Environmental Attitude Scale Administered to the Experimental Group

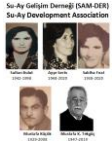
	X	N	SS	t	Df	p	Comments
Pre-test	62,756	37	5,2514				
Post-test	63,243	37	6,9418	,333	36	,741	p>.05 Meaningless difference

The independent t-test results between the pre/post-tests of the “Environmental Attitude Scale” administered to the experimental group in the active learning Environmental Education program are as shown in the Table above. As it can be observed in the Table, despite the increase between the environmental attitude scores before and after the educational program with the experimental group, a significant difference has not been noted.

**Table 2.** The Results of the Pre/Post-tests in Environmental Attitude Test Administered to the Experimental Group

	X	N	SS	t	Df	p	Comments
Pre-test	27,378	37	6,7013				
Post-test	30,405	37	5,4397	1,925	36	,042	p<.05 Meaningful Difference

The Table above (Table 2) reveals the independent pre/post t-test results of the Environmental Attitude Test administered to the experimental group. The results indicate that there is a positive significant difference ( $p=.042$ ). This finding is an indication of a change in students’ terminal behavior. An experimental design was conducted to 70 Geography department students at the Atatürk Faculty of Education, NEU. The efficiency of the program and the participants attitude towards the environment was examined through



Environmental Inventory. The results of the study are presented below. The state of experimental and control groups' experience in previous formal environmental education, Environmental Attitude Scale, and pre-test scores were compared. The results of the independent t-test of the participants with and without any experience in any formal environmental education did not show a significant difference ( $p=.912$ ,  $p=.327$ ,  $p=.594$ ).

**Table 3.** The Results of the Pre/post-tests in Environmental Attitude Test Administered to the Control Group

	X	N	SS	t	Df	P
Pre-test	63,0303	33	7,0466	1,754	36	,089
Post-test	60,8182	33	4,3836			p>.05 Meaningless difference

The Table above shows the results of the pre/post-test in Environmental Attitude Scale by the students exempted from active learning supported Environmental Education Program. The t-test analysis did not reveal a significant difference between the pre/post-test attitudes of the control group.

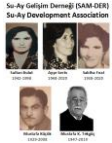
**Table 4.** A Comparison of the Pre/Post-test Results by the Experimental and Control Group in Environmental Attitude Scale

Attitude	X	N	SS	t	df	P	Comments
Pre-test <b>Experiment</b>	62,756	37	5,9210	,570	32	,133	p>.05 Meaningless difference
Pre-test <b>Control</b>	63,030	33	7,0466				
Post-test <b>Experiment</b>	63,243	37	6,6396	-,378	32	,708	p>.05 Meaningless difference
Post-test <b>Control</b>	60,818	33	4,3836				

The results in the Table above do not reveal a significant difference in the attitude levels in the pre/post-tests administered to both control and experimental groups. In order to specify any differences between the pre/post-test results of both the control and experimental groups, the Wilcoxon Non-parametric Labeled Marked Test was administered.

**Table 5.** A Non-parametric Analysis to Compare the Pre/Post-test Results by the Control and Experimental Groups in Environmental Attitude Scale

Point	Gradation	N	S.O	Z	P
Control pre-test pt.					
Experimental Pre-test pt.	Negative gradation	14a	14,50	232,00	,010b
Control Post-test pt.					
Experimental Post-test pt.	Negative Gradation	14a	15,61	218,50	,852b
Control pre-test pt.					
Experimental Pre-test pt.	Positive Gradation	16b	16,64	233,00	
Control Post-test pt.					
Experimental Post-test pt.	Equal	0			
Control pre-test pt.					
Experimental Pre-test pt.	Total	20			
Control Post-test pt.					
Experimental Post-test pt.	Positive Gradation	18b	17,19	309,50	



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Equal	0
Total	20

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As it can be observed in Table 28, the Non-parametric Wilcoxon Labeled Marked Test revealed a statistical difference ( $p=.045$ ) at  $p<.05$  level between the gradation averages in the pre/post-test scores by the students. The difference in the post-test was in favor for the experimental group. At the end of the educational program the students in the experimental group exhibited a significant positive behavior.

## DISCUSSION, CONCLUSION, and SUGGESTIONS

This study examined the efficiency of the Environmental Education Program supported by active learning in attitudinal changes. The program was developed by the researcher for graduate programs. An environmental design was conducted to 70 students studying Geography at NEU. The efficiency of the program was evaluated through Environmental Inventory which showed the participants' attitudes towards the environment. The findings obtained are presented below. The state of experimental and control groups' previous experiences in environmental education, the Environmental Attitude Scale, and pre-test scores were compared, but a significant difference was not noted ( $p=.912$ ,  $p=.327$ ,  $p=.594$ ). This shows that the ones with environmental education experience did not receive a sound input. Yavuz (2006) conducted a study in "An Evaluation of the Effect of Project Based Learning Model on Chemistry Students' Attitudes Towards and Knowledge of Environment" and gave a "readiness" test to the participants. The result of the pre/post-test revealed a significant difference in favor of the post-test of readiness. This was assumed to be a result of insufficient education in environmental issues.

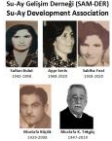
In their study, Atasoy & Ertürk (2008) investigated primary education students' attitudes towards and knowledge about the environment. They came to the conclusion that these students had a low -level environmental attitudes and pointed to the reason of ineffective course contents to equip them with knowledge and attitudes. The scores of the pre/post-test scores in the Scales were compared.

The results of Environmental Attitude Scale pre/post-tests revealed a significant difference between environmental attitude scores before and after the educational programs. In a similar Yavuz (2006), argued that students' views, attitudes, and behavior were directly proportional with the amount of input they received about the environment. Tahiroğlu, Yıldırım & Çetin (2010) investigated the effect of environmental education activities through values education methods on the attitudes of Primary Education 7<sup>th</sup> year students' attitudes towards the environment. The researchers came to the conclusion that the results of the post-test given to control and experimental groups, shoed a significant difference in favor of the experimental group.

The connection between Environmental Attitude Scale pre/post-test scores by the students exempted from Educational Education program supported by active learning was examined. A significant difference was not observed in the scores in pre/post-tests administered to the control group ( $p=.045$ ).

The pre/post-test scores by the active learning and the exempted participants were compared. The analysis indicated a significant difference in favor of the experimental group. In this regard, the anticipated development of terminal attitudes, behavior, views and consciousness were reached through the active learning Environmental Education program.

The universe is face to face with the danger of extinction of the environment. Therefore, effective measures are urgently needed for the betterment of this situation. Preserving the environment is only possible with people conscious and aware of the issue, and this can be achieved by education. A significant difference in the pre-test scores by the students with previous experience and the ones with no experience in environmental issues was not noted. It is obvious that, when writing formal education programs, integrating



environmental issues into other units, teacher-oriented and based on memorization, does not equip the students with sound information. Environmental education should be offered by experts as a unique, weekly applied, student-oriented subject.

An experimental design was conducted in this study. It is strongly suggested that new studies designed as correlation need to be done to specify attitudes towards the environment and their interrelation or collaborating, comparing the situation with other countries and adapt them as models and start new researches.

It is strongly believed that individuals with high perception and conscious level, developing positive attitudes, and actively contributing to environmental issues will lead the movement. Today, due to population growth, there is more demand for energy make fossil-based fuel more crucial. Parallel to this, it is inevitable that urbanization will cause to bigger environmental problems. World countries, aware of the danger, have adapted “Sustainable Development Policies” and are looking ways to develop more without harming the environment. In the light of these realities, human beings become the focus of these events and educating people in environmental issues seems to be a “must”.

In conclusion, from birth to death, in every stage of education offered to people, efforts in studies to do with the environment should include awareness, educationalists and researchers should be motivated and all the researchers done should be considered for application.

### **Ethics and Conflict of Interest**

The author declares that the study has not unethical issues and that research and publication ethics have been considered carefully.

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