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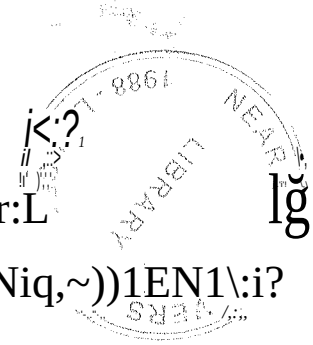

# DETERMINATION ON ATTITUDE AND BEHAVIORS OF THE STUDENTS FROM LIBYA AND TURKEY WHO STUDY IN UNIVERSITIES OF CYPRUS ABOUT ENVIRONMENTAL CONCERNS

MASTER THESIS


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May,2016

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# ABSTRACT

## DETERMINATION ON ATTITUDE AND DEHAVIORS OF THE STUDENTS FROM LIBYA AND TURKEY, WHO STUDY IN UNIVERSITIES OF CYPRUS, ABOUT ENVIRONMENTAL CONCERNS

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This research studies whether the environmental attitudes and behaviors of Libyan and Turkish students studying in the universities of Turkish Republic of Northern Cyprus are efficient or not. The study aims to get information about the relationship between these attitudes and behaviours of the students and the classes and departments they study in, and to make a general evaluation about efficiency and effectiveness of the environmental education in our country.

The participants are 300 Libyan and Turkish students studying in 2015-2016 academic years. This study, in which quantitative research method and relational screening model were used, was done by getting answers from the students to questions of the survey, which was used as a tool for collecting information, by giving the students enough time.

While gathering the data, environmental knowledge test, survey of attitude and behavior were used.The data obtained from the results of the survey were evaluated by using SPSS 20 program. Frequencies and percentages were utilized while analyzing the efficiency of Libyan and Turkish students' environmental education.

According to the findings obtained from the research, there has been found an meaningful differences in environmental attitudes among Libyan and Turkish students, studying in the universities of Northern Cyprus. However, no meaningful differences in their behaviors. It can be said that the students from

Libya have a higher attitude level than the students from Turkey. When we look at the answers, we understood that they have efficient environmental knowledge.

Key words: Environment, Environmental Education, Attitude, Behavior.

# ÖZET

## KUZEY KIBRIS ÜNİVERSİTELERİNDE EGİTİM GÖREN LİBYA VE TÜRK KÖKENLİ ÖGRENCİLERİN ÇEVRE SORUNLARINA YÖNELİK TUTUM VE DAVRANIŞLARININ SAPTANMASI

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Yüksek Lisans, Çevre Eğitimi ve Yönetimi A.B.D.

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Bu araştırma, Kuzey Kıbns'ta eğitim ve öğrenim gören Libya ve Türk kökenli üniversite öğrencilerinin çevre sorunlarına yönelik tutum ve davranışlarının yeterli olup olmadığını araştırmaktır. Üniversite öğrencilerinin sahip oldukları bu tutumlar ile öğrenim gördükleri sınıf ve bölümler arasındaki ilişki hakkında bilgi edinmek ve ülkemizde çevre eğitiminin verimliliği ve etkililiği hakkında genel bir değerlendirme yapmak araştırmanın amaçları arasındadır.

Araştırmanın evrenini, Kuzey Kıbrıs üniversitelerinde eğitim gören Libya ve Türk kökenli öğrenciler, ömeklemini ise, 2015-2016 yılında eğitim ve öğrenim gören 300 Libya ve Türk kökenli öğrenciler oluşturmaktadır. Nicel araştırma yöntemi ile ilişkisel tarama modelinin uygulandığı bu çalışma, bilgi toplama aracı olarak kullanılan anketlerin yeterli zaman verilerek öğrencilerin cevaplaması ile gerçekleştirilmiştir.

Verilerin toplanmasında, çevresel bilgi testi, tutum ve davranışanket formu kullanılmıştır. Anket sonuçlarından elde edilen veriler SPSS20 programında çözümlenmiştir. Libya ve Türk kökenli öğrencilerin çevre eğitiminin yeterliliğine ilişkin davranışlarının incelemek üzere frekans ve yüzdelerden yararlanılmıştır.

Araştırmada elde edilen bulgular, Kuzey Kıbrıs üniversitelerinde eğitim gören Libya ve Türk kökenli öğrencilerin çevreye yönelik tutumlarında anlamlı bir farka rastlanırken, davranışlarında anlamlı bir fark bulunamamıştır. Libya'lı öğrencilerin, Türkiye kökenli öğrencilere oranla da yüksek tutumlara sahip olduğu

söylenebilir. Bu bulgu genel olarak, Libyalı öğrencilerin çevreye yönelik tutumlarının daha yüksek olduğunu göstermektedir. Araştırmadaki katılımcıların çevresel bilgi sorularına verdikleri cevaplara bakıldığı zaman ise yeterli çevresel bilgiye sahip olduklarım görmekteyiz.

Anahtar Kelimeler: Çevre, Çevre Eğitimi, Tutum, Davranış.

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I express my sincere thanks to my dear instructor, mentor Dr.Fidan ASLANOVA who supported me in all kinds of matters while conducting this study, and always helped me, even in his busiest schedule, whenever I needed to realize my study in a best way, and always encouraged me for everything.

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Gouma Mohamed Ali ALMAROUS
Nicosia, May, 2016

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## ABBREVIATIONS

UNESCO: United Nations Educational, Scientific and Cultural Organization

UNEP: United Nations Environment Programme

IEEP: International Environmental Education Program

TRNC: Turkish Republic of Northern Cyprus

SPO: State Planning Organization

MEF: Ministry of Environment and Forestry

NEM: National Education Ministry

X: Arithmetic Average

N: Number Of People

(%): Percentage

P: Significance

## TERMINOLOGY

**ENVIRONMENT:** Environment is the whole of the physical, chemical and biological factors which have effect on the lives of living beings in a definite habitat Briefly, all the factors, affecting the lives of living beings, are their environment (Yücel, 2006).

**ENVIRONMENTAL EDUCATION:** Environmental education is an interdisciplinary lifelong approach which aims to raise a world population who are aware of the environment and related issues and who has knowledge, skill, attitude, motive, individual and social duty and responsibility which would contribute to the solutions for the environmental problems and would prevent the new ones from happening (Moselley, 2000).

**ENVIRONMENTAL KNOWLEDGE:** Knowledge is defined as "Intellectual outcome" or "something learned" which is obtained by thinking, judging, reasoning, reading, observing and experimenting (Balay, 2004).

**ENVIRONMENTAL ATTITUDE:** Attitude is a way of behavior an individual presents in different ways in any situation he/she confronts (Gezer ve Erol, 2006).

**ENVIRONMENTAL SKILL:** Environmental skill is the talent of using ones environmental knowledge and attitude an individual has while solving environmental problems (Kışahoğlu et al, 2010).

**ENVIRONMENTAL BERA VIOR:** Environmental behavior is the concrete indicator of an individual's environmental knowledge, attitude and skill, and his/her active participation in the activities which could contribute to solve the environmental problems (Kışahoğlu et al, 2010).

**LITERACY ABOUT ENVIRONMENT:** It is the whole comprehension, attitude, mental habits and observable behaviors people develop in order to

establish a positive bound with their environment or to establish sustainable relationship with biosphere (Roth, 1992).

TABLES

# CHAPTER I

# INTRODUCTION

During the last 30 years, environmental issues have become increasingly important for people throughout the world. The major environmental problems that the world faces are deforestation lose of biodiversity, ozone depletion, global climate change, pollution and over-consumption of natural resources (Kibert, 2000). Protecting the environment is important because long term consequences affect people's life significantly (Schultz, P.W., L. Zelenzy, 1999). Previous studies focused more on environmental awareness instead of trying to change people's attitudes and values about it (Pooley, J.A., M. O'Connor, 2000).

Social scientists have been measuring these components using several instruments. Many of these researchers believed that the knowledge and attitude are linked to each other where attitude is further connected to the behaviour (Flamm, 2006). The assumption believes on "if people become more knowledgeable about the environment and its associated issues, they will, in turn become more aware of the environment and its problems and, thus, be more motivated to act toward the environment in more responsible ways" (Fahlquist, 2008). National Advisory Council on Environmental Education declared the valuable goals of Environmental Education. These values included eliminating or minimizing the destruction of environment and highlight the necessity of help to save the environment. This goes logically trough teaching of public to actively participate in environmental programs where finally the environmental education promote the wise use of natural resources for sustainability. Other researches showed the modern and specific characteristics of environmental education.

The increase of the quality of the environment in order to achieve the sustainability, environmental education should not be limited only to schools where the topic is beyond the school approaches to show the environmental problems. He believed that environmental education can increase the attitude and knowledge about environment that is necessary to understand and solve problems (Department of the Environment and Heritage, 2005). Moreover, some researchers (Day, B.R., M.C. Monroe, 2000) believed that, environmental education as a tool helps people to

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understand and solve the environmental issues. Based on Tbilisi's declaration environmentaleducation should prepare opportunity for people in the participantion processes to solve environmental problems and create a sense and commitment among them than to their living environment (Yarkandi, A.H., N.H. Yarkandi, 2012). Furthermore, they recommended the environmental education as a goal to develop the curriculum. Hence, environmentaleducation is necessary to rebuild the current educational system (Courtenay-Hall,P., L. Rogers, 2002).

Environmental education helps to achieve awareness, knowledge, attitude and responsible behavior about environment. It has been defined and reviewed over the past twenty-five years. "It is generally agreed that environmental education is a process that creates awareness and understanding of the relationship between humans and their many environments-natural, man-made, cultural and technological. Environmental education is concerned with knowledge, values and attitudes where has its responsibility on environmentalbehaviour" (Hafezi, S., S.M. Shobiri, M.R. Sarmadi and Abass, Ebadi, 2013). As mentioned earlier there are some effective factors on environmental education components (awareness, knowledge, behavior and attitude) such as gender, age, political issues, parent's income and their educationallevel (De Le Vega, E., 2006)..

Sharma (2003) showed that specially the behavior involved various aspects of handling hazardous and controlled wastes in a sample of 642 United States Army soldiers'. Despite the strong Army culture in which the "chain of command is highly emphasized, intentions across behavior were primarily attitude driven. Furthermore, this attitude-behavioralintention link was mediated by variable levels of situational constraints. Behavior associated with high situational constraints reflected a strong attitude-intentional relation than those behavior under more volitional control.

Thote (2007) found that knowledge, attitude-behaviormodel describe that increase in knowledge will change attitude which will in turn influence behavior. Consequently environment-knowledgeand attitude have been frequently evaluated when attempting to determine the effect of outdoor education programme on the development of environmental responsibility. Programmers' are most likely to change behavior involves concrete, environmentally positive, action oriented

experiences, a relevant content and long term involvement support follow-up and reinforcement by role model.

**1.1. Problem**

What is the level of attitude and behaviors of the students from Libya and Turkey, who study in universities of Northern Cyprus, about environmental concerns? ls there any kind of relationship between attitudes of the students about the environment and demographic variables such as their grades, their departments, educational background of their parents, monthly income and gender?

Depending on the problem question mentioned above, the sub-concerns of the study are as follows:

1. What is the level of attitude and behaviors of the students from Libya and Turkey, who study in universities ofNorthern Cyprus, abat environment?

2. Is there any kind of relationship between the level of attitude and behaviors of the students from Libya and Turkey, who study in universities of Northern Cyprus, about environment and variables of gender?

3. Is there any kind of relationship between the level of attitude and behaviors of the students from Libya and Turkey, who study in universities of Northern Cyprus, about environment and variables of grade?

4. Is there any.kind of relationship between the level of attitude and behaviors of the students from Libya and Turkey, who study in universities of Northern Cyprus, about environment and the departments they study in?

5. Is there any kind of relationship between the level of attitude and behaviors of the students from Libya and Turkey, who study in universities of Northern Cyprus, about environment and the educational background of their parents?

6. Is there any kind of relationship between the level of attitude and behaviors of the students from Libya and Turkey, who study in universities of Northern Cyprus, about environment and the monthly income?

### 1.2. Aim of The Study

The aim of this study is to determine on the attitude and behaviors of the students from Libya and Turkey, who study in universities of Northern Cyprus, about environment. Moreover, the study also aims at obtaining information about the relationship between the attitudes they have and the grades and departments they study in, and carry out a general evaluation about the efficiency and effectivenes of environmental education in our country. It is also aimed at determining, in terms of demographic aspects, whether there is any relationship between attitude and behaviors of the students and gender, monthly income and educational background of their parents or not.

### 1.3.The Importance of The Study

There. are many international or national, volunteer or formal institutions giving importance to educational activities for getting through the environmental concerns all the world suffers. Lack of creating efficient awareness of environment has brought along the environmental concerns increasing day by day. Raising sensitive individuals, who have efficient awareness; and who know how to consume economically, is one of the aims of the environmental education (Erol, 2006).

Because the world we live in will be damaged less and its lifespan in a healthy way will be longer if we raise more aware generations up, the importance of the environmental education has re-emerged. The environmental education has great importance in paving the way required for solving the environmental problems. Therefore, the environmental education is a process which raise the determination values and skills, in taking an action to solvi environmental problems, as well as to raisie the individuals' awareness, and knowledge (Gezer, 2006).

Most of the environmental problems occur because of irresponsible envronmental behaviors. Inarguably, the most important factor affecting the behaviors is the attitude (Bradley vd, 1999). The family members living in natural environment have great effect on learning the environmental, social and cultural notions. Moreover, learning through these influences may be so negative that cannot be corrected by formal education.

### 1.4. Assumptions

1. It is approved that qualifications of the study group chosen for this research are appropriate.

2. The participants of this research have answered the questions frankly and candidly.

3. It is believed that the data obtained by going through the related literature is sufficient.

### 1.5. Limitation

This research was conducted in the limits mentioned below:

- The research is limited with the students from Libya and Turkey, who study in the universities ofNorthern Cyprus in the 2015-2016 academic years.

- The research is limited with 300 students from Libya and Turkey, who study in the universities of Northern Cyprus.

- The resources used in this research are limited with the ones that the researcher could reach.

### 1.6. Definition

Humans and the environment are always interracted with each other. Thus, most of the environmental problems are caused by the behaviors of the humans who are insensible about the environment (Kıyıcı et al., 2005).

It has become obligatory to raise the awareness of the people who have an effect on emergence of the environmental problems. And, this could be possible with an efficient environmental education (Altın, 2001).The environmental problems are all the factors which cause hitches in way ofliving and behaviors (Erten, 2004).

The environmental education should take in all segments of the society to enlighten and raise awareness of people about the environment, and to bring them in permanent behavioral changes. The main aim of the environmental education is to ensure the individual to comprehend his/her environment as a whole, to develop a critical view in his/her interaction with the environment, to become an aware,

sensible and outgoing "ece-citizen, and to become a "cosmopolitan" who protects his/her planet (Atasoy & Ertürk, 2008). The environmental education both relays ecological information, and enables the individuals to develop their attitudes against the environment and to tum these attitudes into behaviors (Erten, 2004).

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# CHAPTER II

# LITERATURE REVIEW

## 2.1. The Environment

It was in the early 1970s when the term "environment" started to be used commonly in societies' daily languages. Even if the term "environment" seems clear and simple at first look, actually, it has revealed that this term has a complex structure. Because the environmental problems increase day by day, definitions of this term ("environment") also increase by changing in accordance with different sciences. These sciences mostly take place in biology- sociology, also management science, pedagogy etc. (Daştan, 1999).

"Environment is the whole of concrete beings, events and energy" (Tont, 2001). "Environment is the whole of the physical, chemical and biological factors which have effect on the lives of living beings in a definite habitat. Briefly, all the factors, affecting the lives ofliving beings, are their environment" (Yücel, 2006).

Human, environment and society are the notions intagrated closely with each other. The environment means, in dictionary, "something surrounding or enclosing" (Marshall, 2000., Erjem, 2005).

"The environment is the surroundings or circumstances where living or non-living beings live and maintain their vital activities" (DPÖ, 2006).The environment is divided into two groups as living and non-living. The living environment is all the other living beings which affect, directly or indirectly, living beings and which share the same physical surrounding with them. On the other hand, the non-living environment is the concrete surroundings such as rocks, water etc. on or in which the living beings maintain their lives (Yücel, 2006).

The living elements of the environment are humans, plants, animals and micro-organisms. And the non-living elements of the environment are the natural beings or the beings created by the humans such as air, water, soil, geographical formations, buildings, bridges etc. (Yıldız, Sipahioğlu ve Yılmaz, 2000; Başal, 2005).

The environment of a living being is the surrounding where it maintains all its biological, social, cultural and economic activities. Shortly, the environment is the habitat where all beings live (Başal, 2005).

In addition to the environmental classification, there is also the classification based on the humans. Yücel has divided the environment into two groups as physical and social environments.The environment where all the living beings live in and perceive physically their own being, aspects and qualifications is the physical environment. The physical environment could be divided into two groups as natural environment (mountains, seas, rivers etc.) and artifical environment (cities, towns, dams etc.). The environment which has not affected by the humans in its creation is the natural environment; and the environment which has been changed by the humans in accordance with their purposes is the artifical environment (Yücel, 2006).

According to Görmez (2007), the environment is defined in two aspects: One is the natural environment which has not undergone any kind of change because there has not been any interference by the humans; and second is the artifical environment which has been created by the humans within the natural environment to utilize it during the process of social and economic evolution experienced from the beginning of the humanity to today. The environment is a whole of the mutual relationship and interaction with all the living beings as plants and animals. According to another definition, it is a surrounding where the humans maintain their social, biological and chemical activities (Keleş and Hamamcı, 2005).

The environment can be defined as all the external factors; as physical and social factors which affect the living beings and determine their formation and lives; and as all the factors which have effect on the lives of organisms (Tokay and Yüksel, 2003).

"The environment is the external surrounding where the living beings maintain their relations during their lives" (Ertürk, 1996; Başat, 2005). According to the definition by Aguesse, "the environment is the whole of physical, chemical and biological factors and social elements, which have immediate or long-term effects on the activities of humans and the living beings directly or indirectly" (akt. Erer, 1992).

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The humans, the environment and the society are notions having close relationship with each other. Because the environment is not only the world outside of our bodies, yet also the place we affect, we get affected, we shape, we intagrate with our inner worlds and at the same time, we realize ourselves (Kavruk, 2002). In a general meaning, the environment could be defined as a surrounding where the living beings live, and which they affect and are affected in different ways they are depended on by the vital circumstances. The humans are also a part of the environment, and they can maintain their lives thanks to it (Yıldız et al., 2005).

## 2.2 The Relationship Between The Environment and Humans

The environment, which started its existence with the first living being, is the surrounding where all the living beings are and maintain their lives. While realizing these activities, the living beings are always in interaction with the environment. In spite of all this interaction, the environment was not a problem for a long time. However, over time, rapid increase in world population, unplanned urbanization and industrialization, and the resources disappearing depended on all these reasons have caused to important environmental problems. After these environmental problems, there has been increase also in the efforts to find solutions to these problems, and over time, this has found the notion "environmental education" by focusing on the humans who are the main reasons of this problems (Ministry of ,Environment and Forestry (MEF), 2007; Çolakoğlu, 2010).

'I'he common point of all the important definitions of the environment is that there is a relationship between the environment and humans. However, there happens, over time, changes in ecological balance because of the interferences by the living 1:>eings, and these changes generally affect the environment in an irreversible way (Yüksek, 2010). The researches have revealed that the main reasons of the ¢nvironmental pollution are:

- Unplanned urbanization, choosing areas for industry and housing, wrong usage of land,

- lnefficience in infrastructures of the center of population (such as drinking water, tap water, sewer system, lack of drainage and clean-up system),

- Lack of clean-up and recycling facilities of the industrial organizations for solid, liquid and gas waste (lack of the infrastructure),

- Unconscious agricultural activities,

- Overpopulation.

Then, we cart say that the humans are the main reason for the ecological change. Therefore, it is quite vital to give people important responsibilities about protecting this balance (Yücel and Morgil, 1998). The most important step to make the humanity conscious is to give them environmental knowledge and attitude and this could be possible only by a proper environmental education.

**2.3 Environmental Concerns**

Since their existence, the humans have both been affected by the environment and destroyed it with their various activities. The revolutions in agricultural and medical fields have brought the role of the humans in the environment into the forefront in the past 200 years and this has caused rapid increase in population and correspondingly, various environmental problems.

It is believed that the reasons of the pollution, environmental degeneration and decline in the resources are the combination of rapid increase in population of the poor countries and excessive consumption in industrial countries. Populations damaging the environment the most live in industrial countries which have high rate ofresource consumption and high rate of waste production (Erdem, 2000).

In the 21st century, the environmental problems keep emerging with quite important dimensions and increasing rapidly. Each new environmental problem affects the humans and the societies a bit more. The acceleration and development of the industry and increase in the world population have caused to alimentation problem; and the increasing production caused the nature to be consumed quite rapidly.

Moreover, the ecological balance has been degenerated by the humans that it cannot endure all this any more. Thus, the humans need to be informed of, raised awareness of and educated about the environment and the environmental problems. The main environmental problems experienced today are rapid increase in population, unplanned urbanization, air pollution in the cities, pollution of the rivers, ineffectiveness in the distribution and consumpton of fresh water resources, global warming, almost destruction of natural life, climatic changes caused by the increase in carbondioxide, ozone layer depletion, greenhouse effect caused by the gases spread in the athmosphere, acid rains, increase in chemical wastes covering the coasts, beginning of the extinction of various plants and animals, nuclear pollutions, toxic wastes, mercury pollutions and desertification caused by the decline in green fıellds (Brown, 2000).

Because the environmental problems threaten all the·living beings in the world, all the biosphere, and especially, all the humanity and all the planet, it keeps its aspect of "being universal". And if we take into account also the idea that the environmental values are common property, any of the states can claim that the environmental damages remain in just only their own borders and do not affect the other countries. Likewise, they cannot prove that they do or can keep themselves out of the environmental problems occurring anywhere in the world. The global warming, rise of the ocean water gradually, ozone layer depletion, erosion, desertification, destruction of the seas and forests, extinction of the types of animals and plants affect all the countries directly or indirectly but absolutely. In this situation, the countries cannot deal with just their internal problems with the belief that they close their doors to this threats. Therefore, the matter of the environment is a vital and essential universial matter which is a common concern for all the countries, which obliges them to make shared decision, and which is related to the "the right to live", the most important human right. The environmental problems coming to the present by increasing incrementally confront with us as "the ecological destruction legacy" (Kennedy, 1993).

## 2.4 Environmental Education

Environmental education is an interdisciplinary lifelong approach which aims to raise a world population who are aware of the environment and related issues and who has knowledge, skill, attitude, motive, individual and social duty responsibility which would contribute to the solutions to the environmental problems and would prevent the new ones to occur (Moselley, 2000).

Environment has a very multidimensional, extensive and complex nature. Thus, environmental education is also multidimensional, extensive and complex. Because of this reason, the notion of "environmental education" changes from person to person, from organization to organization. At this point, there are various definitions ofenvironmental education. "Environmental education can be defined as developing environmental awareness in every segment of the society, bring the individual's behavioral changes sensible to the environment, permanent and positive, protecting natural, historical, cultural and socio-aesthetic values and providing participation actively in solving the problems" (MEF, 2004).

"Environmental education is an education which provides the humans to comprehend the environment, their roles in it, make them aware of all the factors affecting the environment as much as possible" (Uğurlu & Demirere, 2008). "Environmental education is the process of developing attitude, standard of judgement, knowledge and skills for the protection of the environment and it is also the process of displaying environment-friendly behaviors and achieving the results of all these" (Öztürk, 2008). As it is understood from all these definitions, informing and raising awareness of the environment, bringing the humans positive behaviors in about the protection of the environment, teaching that the environment sheuldnt be polluted and it should be protected are possible just with efficient and radical education (MEF, 2007; Bayazıt Hayta, 2006; Sülün, 2002). Hence, environmental education is actually aimed at the environmental attitudes, behaviors and awareness. Thus, in the research, the effect of the interdisciplinary approach on their students' attitudes and behaaviors about the environment has been examined.

There are two important movements having effect on the creation and development of the environmental education. These movements are environment and education movements. In parallel with these movements, natural studies, non-formal

education and education of protection, which have contributed to the development of the environmental education, have been also emerged. These educational movements have contributed greatly to the progress of environmental education (Marcinkowski, 2006). The importance given to environmental education has increased in the iate 20th century. The studies conducted, at first, in a local extend have been conducted in universial extend later.Thanks to the "conference about the environment of the humans" held firstly by UN in Stockholm in 1972, where environmental education has gained a universial dimension. The 5th of June, the beginning of this conference, is celebrated as "World Environment Day" all over the world.

In accordance with the conference in Stockholm, a survey, named "Resource Evalution for Environmental Education: Requirements and Priorities of The Memember Countries" was conducted by UNESCO Environment Office in 136 countries in 1975. According to the results of this survey, environmental education was inefficient in terms of quality and quantity. In order to remove this inefficiency, International Environmental Education Program-IEEP was applied in cooperation with UNESCO and UN Environment Program (UNEP). Again in cooperation with UNESCO and UNEP, Environmental Education Conference was held in Tiflis in 1977, the first conference in this field.

'fhe Manifesto and Proposals of Tiflis Conference determined, at the national and international level, the general framework of the environmental education and its qualifications, aims and pedagogical principles. In International Environmental Education and Raising Congress held in 1987, international strategies for environmental education, to be applied in 1900s, were detected within the scope of Tiflis Manifesto. In the UN Environment and Development Conference, held in Rio de Janeiro in 1992, IEEP was assigned to bring sustainable development to education, The UN Sustainable Development Commission held a conference named "International Environment and Community Conference: Education and Public .i\.wareness for Sustainability" in Salonica in 1997. The. principles of environmental education were clarified.

## 2.5. The Aims, Purposes and Principles of Environmental Education In Accordance With The Tiflis Manifesto

### 2.5.1 The Aims of Environmental Education

After the conference, the aims, purposes and principles of environmental education, approved in Tifüs Conference, were considered by many countries during the process of preparation of education programs. Because this conference was the first meeting held related to the environmental education at the inter-governmental level, the decisions taken were considered as universal. The Tifüs Conference is still available at the present time, and the manifesto of the conference is usually grounded on preparing education programs. The aims, purposes and principles of environmental education, which were approved during the Tifüs Conference, are mentioned below. The aims of environmental education are:

- Rising the awareness of economical, social, political and ecological solidarity in urban and rural areas.

- Providing opportunities for all the indivituals to obtain knowledge, standard of judgement, attitudes, responsibility and skills required for protecting and improving the environment.

### 2.5.2 The Purposes of Environmental Education

While the target group in environmental education is all the individuals, the purpose is to develop sensible and positive attitudes and behaviors about protecting the environment (Tombul, 2006). These purposes, determined in the Tifüs Conference, are as follows:

- *Environmental Awareness:* It is to help the individuals and groups obtain awareness and sensibility towards the environment and environmental problems. Environmental awareness has intellectual, emotional and behavioral dimensions. In other words, environmental awareness comprises of the thoughts including all the decisions, principles and interpretations about the environment, the behaviors to transfer all these thoughts and the emotions related to all these (Türküm, 2006).

• *Knowledge;* Having knowledge about environmental issues helps to obtain basic concepts about environment, to comprehend the interaction between the environment and the humans and how to solve the environmental issues and problems.

• *Attitude;* It provides the students to obtain standard of judgements, participation and motivation to protect and develop the environment.

• *Skills;* It helps to obtain required skills for solving, searching and defining the environmental issues and problems.

• *Participation;* It provides the use of knowledge and skills, obtained about environmental issues and problems, in solving the problems.

• *Environmental Awareness;* It is the sensibility and interest of the individuals against environmental problems. Environmental awareness has been defined as "the reaction of the individual or society against the environmental problem they encounter" (Altın, 2001).

Individuals should be engrained in the environmental knowledge and awareness from the very young ages. The more the new generations are raised as environment friendly from the time of kindergarten, the more the protection of our environment will be guaranteed.Thus, this environment friendly individuals will have more chances to make progress in their career and to be successful. Houses, local community and schools are the three main areas where environmental education is provided. All the efforts made in these areas should be in mutual relationship which enables the solutions to be produced depending on environmental awareness, and also, enables the environmental problems to be comprehended. The protection of the delicate balance between the environment and the humans is under the responsibility of the humans (Dinçer, 1999). The more the mass media gives importance to the environmental issues, the more these issues will stick into the humans' minds. However, this would be available only when the environmental issues are treated profoundly and by seeking solutions instead of being treated with

its sensational aspects just when an environmental disaster happens (Yumlu, 1998; Balkan Kıyıcı et al., 2005).

### 2.5.3 The Principles of Environmental Education

• The environment shoul be addressed as a whole comprising of the elements such as natural and artifical and as technological and social (economic, political, cultural, historical, moral and aesthetic).

• There should be a lifetime education process about the environment, starting from the kindergarten level to all educational grades.

• All the related parts from each discipline should be performed with an interdisciplinary approach which gathers all of them up in a balanced and holistic way.

• The main environmental problems should be dealt with from local, regional and interlational aspects in order to make the students have a vision about the environmental conditions in different geographical regions.

• Historical and cultural dimensions should also be taken into account while focusing on existing and potential environmental conditions.

• The importance and necessity of local, national and international cooperation, in taking measurements and producing solutions for the environmental problems, should be highlighted.

• Within the plans made for the development and growth, environmental dimension should be taken into account.

• It should be provided that the students have roles in planning their own educational lives, they should be given opportunity to make their own decisions and to accept the consequences of the decisions they make.

• Environmental awareness, knowledge, skills for producing solutions and forming the standard ofjudgement should be relayed in a way which could apply to

all age groups. The aspect of environmental awareness of the students for their own society at an early age should be strongly emphasized.

- The students should be helped in seeking the real reasons for the environmental problems.

- The complexity of the environmental problems and, thus, the importance of critical thinking and skills for problem-solving should be emphasized.

- It is important to utilize various learning environments and educational approaches for learning/teaching the environment from the environment itself by especially emphasizing applied activities and first-hand experiences.

According to the Tiflis Manifesto, the principle has been approved that environmental education should be a kind of education which is dealt together with the fields such as culture and economy; which continues lifelong, adopts interdisciplinary and proximodistal approach, provides opportunity to use high level thinking skills, is learned by experiencing, and provides transfer of what have been learned.

In most of the studies focused on environmental education, two main aims of environmental education have been emphasized. These aims can be summarized as development of literacy of the individuals about the environment and development ofresponsible behaviors towards the environment (Erdoğan, 2009).

## 2.6 Literacy about the Environment

Most of the notions used in the environmental education are not merely objective things, but abstract notions and images depend on the concrete emerging in human mind. Thereby, environmental education is full of notions, of which contexts are difficult to define, because of its structure. These notions belonging to the social dimension of the humans cannot be measured as concrete objects, and they cannot be standardized. Moreover, because all of them are based on defining, they get affected by beliefs and value-judgements of the individuals. They are open to wrong and careless usage. It is possible because of all these facts that have not been reached any kind of agreement on the context of literacy about the environment and

what the standards of it are. Thus, the literacy about the environment has still been discussed (Anderson, 2007, Dauidi & Heimlich, 1997; Roth, 1992; Schneider, 1997; Kışalıoğlu et al., 2010 etc).

The notion of "literacy about the environment" was first used by Charles E. Roth in 1968. Roth defined the literacy about the environment as the level of knowledge and awareness of the individual. After that, Orr (1992) stated that the literacy about the environment is that the relationship of the humans and societies with their natural environment is understood extensively. According to Orr, an individual, who has literacy about the environment, knows the effect of science, technology, culture and agricultural activities on functioning of the natural systems; and he/she makes reliable environmental decisions which would maintain the sustainability of the environment (Orr, 1900 akt.; Kışalıoğlu et al., 2010).

When the various evaluations, made on the aspects an individual is required to have, are analyzed, it reveales that the common points emhasized are the environmental knowledge, attitude and responsible environmental behaviors (Kışalıoğlu et al., 2010).

Roth (1992) determined also the stages and levels of the literacy about environment besides to the sub-dimension of the literacy about the environment. Roth (1992) stated that the literacy about the environment comprises of 4 stages:

- *Awareness:* In this stage, the individual starts to be aware of the relationship between the environment and the humans and how important this relationship is for the maintenance of life. The individual has either cognitive aspect or affective aspect, or both of the aspects.

- *Anxiety:* In this stage, the individual gets anxious that some of the problems emerging as a result of degeneration of the relationship between the nature and the humans would damage the nature.

- *Comprehension:* In this stage, the individual has knowledge about the possible results of the relationship between the nature and the humans today and in the future. Thus, the individual can offer solutions about the environmental problems and can make some decisions.

- *Attitude:* The individual, in this stage, provides to decline the negative effects of the environmental problems by using his/her available knowledge to change the environmental attitudes.

## 2.7. Environmental Attitude

Attitude is a way of behavior an individual presents in different ways in any situation he/she confronts with. As it is known, because the attitudes are not innate but acquired by the individuals by learning, they can be changed and improved. However, changing and improving attitudes may require a long process. Parents, teachers and friends have important roles in developing attitudes (Gezer and Erol, 2006).

A permanent and unchangeable belief, emotion and tendency, which cause us to behave always in the same way (positively, negatively or neutral) against certain people, objects, events or organizations, can be defined as "attitude" (Öncül, 2000).

According to İnceoğlu (2004), attitude is predisposition of a cognitive, emotional and behavioral reaction the individual reorganizes towards himself/herself or any object, social matter or event in his/her surrounding, depending on his/her experience, motivation and knowledge. And the environmental attitude is defined as learned tendency which coincides with the environment, and which appears as presenting positive or negative behaviors (Pelstring, 1997).

The attitudinal factor of the literacy about the environment is defined as, at any level, the individual's consideration of the moral and ethical values of the society while making environmental decisions and presenting responsible environmental behaviors, as well as his/her awareness of the environment and environmental problems (Kışalıoğlu et al., 2010).

According to Erten (2005), environmental attitude is all the negative or positive behayiors and thoughts the individuals present against the beneficial behaviors, such as fear, anger, uneasiness, value-judgements and availability for the solutions of environmentalproblems. With reference to the definitions, it can be said that the notion of environmental attitude involves in both the thought about the environment and responsible behaviors against the environment. The studies show that it is

necessary to have environmental knowledge in order to have a positive environmental attitude. The individual could take more positive steps, with the help of his/her prior knowledge, in his/her attitude, behavior and decisions about the environment as a conscious individual.

## 2.8 Environmental Knowledge

The term "knowledge" originates from the Latin word "informato" and used in the meanings of "to shape", "to form" and "to inform". As a general meaning, knowledge is defined as "intellectual outcome" or "something learned" which is obtained by way of thinking, judging, reasoning, reading, observing and experimenting (Balay, 2004).

And environmental knowledge is defined as the environmental problems, solutions for these problems, developments in the ecological field and knowledge about the nature (Erten, 2005).

The knowledge factor of the environmental literacy is not just about ecological knowledge. It also includes knowing the definitions of important environmental terms, comprehending the aspects of environmental incidents and of the relationship between these incidents and natural systems (Kışalıoğlu et al., 2010).

## 2.9 Environmental Skills

In a general meaning, "skill" is an individual's talent or ingenuity of successing in a work depended on his/her inclination or learning capacity and finalization an operation in accordance with an aim. "Skill", in the dictionary of educational terms, is defined that an individual can overcome a work easily and ingeniously by making physical or mental effort.

And environmental skill is the talent of using his/her knowledge and attitude while solving the environmental problems (Kışalıoğlu et al., 2010).

## 2.10. Environmental Behavior

Environmental behavior is the concrete indicator of an individual's environmental knowledge, attitude and skill, and his/her active participation in the activities which could contribute to solve environmental problems (Kışalıoğlu et al., 2010).

As determined in the Tiflis Conference, raising individuals, who present responsible behaviors towards the environment, up is one of the main aims of environmental ed.ucation. The responsible environmental behaviors can be classified in 5 groups as follows (Hsu, 1997; McBeth & Volk, 1997 akt.; Erdoğan, 2009):

*1) Eco-Management:* The behaviors the humans present directly towards solving and preventing the environmental problems.

*2) Consumer/Economic Action:* The behaviors the humans present towards solving and preventing the environmental problems by using financial support or financial pressure.

*3)1ndividual and Public Persuasion:* The persuasion behaviors the humans presenttowards solving and preventing the environmental problems.

*4) Political Action:* The political performance the humans present towards soJving and preventing the environmental problems.

*5) Legal Action:* The behaviors the humans present towards their support to exişting laws or they offer new laws for solving and preventing environmental problems.

**2.1**1. International Studies on Environmental Education, Environmental **Kn**owledge, Attitude and Behavior

**Ti**kka, Kuitunen and Tynys (2000); They examined the effect of the students' educational background on their attitudes, knowledge and activity level towards the environment. According to the findings obtained, it was revealed that the female students have more responsible attitude towards the environment compared to the male ones; the students who take biology lessons got the higher marks for both their behaviors and knowledge and these students are more willing to participate in the activities related to the nature than the others. The other result of this study was that the ones who have interest in technology and economy show more negative behavior towards the environment and they have less interest in the environment.

**Uljaş (2001),** He researched the effects of social identity and values on the environmental attitudes and behaviors in his study called "The Effect of The Social Identity on The Environmental Attitudes and Behaviors". The scale, in which there are significations related to local and global problems, was performed on 416 people. In the conclusion of the research, it was confirmed that acceptance of the values of the group which the individual feels he belong in could direct his environmental perception, attitudes and behaviors. Social identity could have effect not only the individual's interest and attitudes towards the environmental issues but also his attitudes Şama (2003).

**Kalibourno et al. (2001),** He conducted a research called "Analyzing The Dominant Social Paradigm in The Environmental Attitudes of University Students in Regard To The Cultures". The research was conducled on 386 students from the universities of USA, UK and Denmark. The results of the research and the suggestions are: There is a meaningful relation between economical, political, technological dimensions of the dominant social paradigm and the students' environmental attitudes. The higher the dominant social paradigm points are, the lower the perception related to the environmental issues is. Environmental attitude points change from country to country. This is because every country has a different socio-cultural structure.

**Şimşekli (2001),** in his study named "The Evaluation of The Activities Conducted in The Schools in Bursa Chosen for The Project Named "Applied Environmental Education in Terms of Contribution of The School Director and The Attendant Teachers". He analyzed the activities conducted in Bursa, during 2000-2001 school year. By analyzing the reports prepared by the directors of 14 schools chosen for the project and the official reports prepared during the supervision, the effect of the activities on creating environmental awareness in children was researched. It was observed that it is one of the factors which makes the environmental education difficult that the teachers do not have efficient awareness of the environment.

**Bradley, Waliczek & Zajicek (2001),** in their studies on environmental attitudes and knowledge of high school students, they conducted a survey and test questions to the students before and after giving them a 10-day long environmental education course. After the course, there was detected important differences in both the level

of the students' knowledge and their attitudes. There was detected increase in the rate of%22 in students' knowledge level about the matter.

**Legault and Pelletier (2002),** They analyzed the change in attitudes, motivations and behaviors of Canadian students towards ecology after performing an 8-month long environmental education program. They also analyzed the possible effects on developing the changes in attitudes, motivations and behaviors of their families towards ecological situations. At the end of the research, no any meaningful difference in ecological attitudes of the students was found , and the effects of the research on the students and their families were found quite weak.

**Mo**rgil etc. **(2002):** They researched the effect of the project-based learning method on the knowledge and awareness of the students towards the environmental subjects within science lessons. They applied a pre-test to the 6th graders in an elementary school, and then, they asked the students to prepare a project about the environment and present it in class. After completing the project activity, the last test was applied to the students. In the test applied to the students at the beginning of the study, it was detected that the level of students' environmental knowledge was not efficient. However, it was observed that there was an important increase in the students' knowledge levels after applying the project-based learning method and making the students prepare projects.

**Zhao et al. (2003):** Ecological and environmental water requirement has been one of the research foci of eco-hydrology in the world. Research on ecological and environmental water requirement of river systems has been specially emphasized abroad. In some researches, minimum or optimal flow has been determined according to relations between the protected fishes and physical and flow regimes of rivers using hydrological or hydraulic methods. Since 1990, ecological water requjrement of the river system has been estimated on the concept of ecologically acceptable flow regimes to maintain the integrity of eco-system. In China, the research on ecological water requirement can be separated into two phases. From 1988 to 1998, ecological water requirement and relative concepts began to be recognized. Since 1998, the concepts have been developed and put into application though it is still far to go. For further research, to develop the theories of ecological water requirement estimation and the transitions mechanism between different

temporal-spatial scales of ecological water requirement utilizing isotope and RS teÇhniquesare importantresearch fields.

**K**ô ve Lee (2003) studied on the perception of science teachers in elementary schools teaching environmental problems taking place in the curriculum of the scJenee lesson. They utilized both survey and interview techniques to analyze the teachers' perception on the subject. The results of the study revealed that the teachers' attitude towards environmental education, their skills about teaching environmental education, their faith in that the science is suitable for teaching environmental education were related to their methods they use while teaching environmental education. The more the teachers have positive attitudes towards environmental education, and the more they believe that science is suitable for teaching environmental education, the more they are tend to teach environmental education.

**Şahin et al.** (2004) made a research about detecting the efficiency of student-centered environmentaleducation in the universities. The preservice teachers were exposed to an efficient environmental education training with a lesson which was carried out by a different approach where just the student was active. In this study carried out with special case approach, the environmental education lesson was performed with an approach which is prepared just by the creative skills of the students in the biology teaching and it was performedjust with a classical method in main course teaching. At the end of the term, the students were asked about the subjects they were taught such as acid rains, greenhouse effect, ozone layer and protective filter, and they were asked to state their views about the methodology of the lesson. The views of the students about the methodology of the lesson were evaluated as qualitative and quantitative. It was seen that in the student-centered lessons, the meanings of the terms were learned more efficiently. It was recommended that this lesson should be given with student-centeredmethod to all the students studying in the universities.

**Sem**erjian et al. (2004), emphasized the necessity and the benefits of inter-disciplinary approach in environmentalengineering and environmentalscience with their research. In the research carried out in Beirut American University, they prepared environmentalscience program inter-faculties, and analyzed the attitudes

of the students .in this new curriculum. As a result, it was stated that the environmental engineers and the scientists need help, in social and political subj¢cts, about determining the environmental policy related to their own majors.

**Öznacar (2005),** in his study, researched the effect of teaching the subjects such as biological variety, environmental pollution and erosion to the 5th graders by using the method based on constructive learning theory on the academic success and permanence. While applying the constructive learning theory, it was tested whether there were meaningful differences between the academic success and permanence points of the experimental group who was applied the methods such as meaningful learnfaig, project-based learning, cooperation-based learning and the control group who was applied traditional method. The research was conducted on the 5th graders studying in a public school with sub-socio economic level, named Şehit İlbey Gülbey Primary School, in one of the counties of Adana during 2004-2005 school year. The students who participated in all the lessons within the research were accepted as the test subjects, and just the points of these students were analyzed.

In thr.s;way, 34 students from the experimential group and 29 students from the traditipnal teaching group-in total 63 students were used as the test subjects. The experiment took 4 weeks during 25 lessons. As the evaluation instrument, the research developped a test named "Profıency Test about Biological Variety, Environmental Pollution and Erosion" of which aspects of reliability and availability were completed, and applied to both groups as pre-test, post-test and permaıience test. The results of the research showed that there is a meningful differenee, for the good of constructive learning theory ($p<0.0001$), between constructive learning theory and traditional teaching in terms of academic success and permanence.

**Papanagou et al. (2005),** he conducted their study named "Environmental Education for Wetland Ecosystems" on primary school students in Greece. Within the study, 61 students and 8 teachers were applied aquatic ece-system education program developed by the researchers. The education program comprises ofthe photos related to Messolongi aquatic eco-system, study leaves, videos and guide books prepared for the students and teachers respectively. At the end of the study, the students and the teachers stated that the education program is positive. Most of

all detected that environmental attitude of the students and their knowledge about the aquatic eco-system increased.

**Sho**beiri,. Omidvar and Prahallada (2006), in their research named "The Effect of The Gender and School Type on the Environmental Behaviors of The Teachers in India, and Iran", they reported the environmental behaviors of the primary school teachers from India and Iran. 103 teachers were chosen from Mysore of India and Tehran of Iran with random sample method. The sample comprises of 500 males and 499 females. They applied this by using Taj Environmental Attitude Scale developed by Hassen Taj. According to the results, there were critical differences between the environmental education levels of the teachers from India and Iran. Furthermore, there was found an important difference in their environmental attitudes in both groups divided in accordance with their genders. The country and the principals (school management type) are not effective on the teachers' environmental attitude.

**Sarıka**ya (2006), analyzed the effect of problem-based learning approach and learning cycle on teaching the environmental subjects. Sarıkaya (2006) conducted this research with the aim of determining methods that cause increase in academic success and the students approach against these interactiveteaching methods. In the study, three groups were determined as randoms who were applied traditional teaching, problem-based learning and learning cycle. All the students from each group were taught by the researcher. Statistical evaluations showed that problem-based learning method was more effective than the other two on the students' academic success.

**Said et al.** (2007) aimed to analyze environmental terms knowledge of the elementary school students in Malasia. The students were applied surveys, developed by the researchers, measuring their environmental awareness and term knowledge. At the end of the study, it was seen that environmental awareness of the students was high but their environmental terms knowledge was low. It was confirmed that the students obtained environmental knowledge particularly, by the help of resources such as TV and the Internet.

**Küçükcankurtaran (2008),** studied the effectiveness of using the Internet in environmental education. He emphasized that the students should confront with the complex structure of the environment and they should have skills to seek for solutions about the human-driven problems; and he stated that the students should be active with the help of animations and simulations in order to obtain these skills.

One of the studies about pre-school period was conducted by Taşkın and Özgür (2008). They applied group interviews on pre-school students and they asked the students about the term of the environment and the environment they want to live in. In the study, the 6-years-old students, who have different socio-economic background and who live in different areas, perceive the term of the environment differently. While the children of the families with high income are aware that the term of the environment is a global or domestic problem, the children of the parents with low income are not aware of the term. In the light of this findings, it was emphasized that an environmental education program should be applied to the students who do not have a systematic environmental education program in order to make up their deficiencies.

**Çökçe (2009)** stated that the newspapers could be utilized in order to reach the aims 9f environmental education. In this study, it is explained how to use newspapers inside the class in applying environmental education activities with the prospective teachers, and the views of the teachers about utilizing the newspapers in .~nvironmental education. 88 teachers from Anadolu University Education Faculty :M[ain Course Teaching Department and Social Sciences Teaching Department participated in the study. In this study, open-ended questionaire method was applied. The data was evaluated with induction analysis. According to the results of the study, the usage of newspapers in learning-teaching environment has various positive effects on environmental education and students' self-improvement.

**Güler (2009)** aimed to determine what kind of effects environmental education based on ecology has on the views of the teachers about the nature and environmental education. In the direction of this aim, with qualititative research method, research data was gathered by interviewing the participants on the first and last day of the nature education. The teachers stated that their knowledge and skills were ineficient before the environmental education. They said that they had

multiple knowledge about environmental education after the nature education. The teachers determined that there were many activities they could use while sharing their experience with the students and the ones around them and while making them aware of the environment awareness. Also, they emphasized the importance and need of using the nature as a lab.

Özdemir (2010), named his environmental education program as "The Effect of Environmental Education Based on Nature Experience On The Perception and Behaviors of The Primary School Students Towards Their Environment". He focused on determining the effects of the program on the primery school students' perception and behaviors towards their environment. The research was carried on 20 second graders studying in a primary school in Muğla-Akkaya during 2006-2007 school year by using experimental design. The data was gathered by using the "environmental perception scale" and the "environmental behavior observation form" developed by the researcher, making the student write a "story" and evaluating them. As the result of the research, it was determined that in addition to their environmental values and their awareness of degeneration of these values, the students had concrete worries about their environment and they react this and also there was an increase in their responsible tendency towards the environment.

Gülay and Ekici (2010) named their study as "The Analysis of Ministry of Education Pre-school Education Program in Terms of Environmental Education", and aimed to analyze the aims, acquirements, terms, specific days and weeks taking place in The Ministry of Education Pre-school Education Program in terms of environmental education. When the program was analyzed in a general meaning, according to the experts' views, there was no aim and acquirement about environmental education in physico-motor and language fields within aims of development section of the pre-school education program; and the aims about the environment in the field of socio-emotional, cognitive and self-care skills had a place comprising of just %25,9 of all the aims within the program. It was clarified that the acquirements about the environment comprised of %15,5 of all the acquirements. Moreover, it was seen that %29,0 of the terms and %26,3 of the specific days and weeks within the program were about environmental education.

Seçkin, Çetin and Yalvaç (2010), in their study, they gave an effective environmental education to the prospective teachers with an environment lesson carried on in a different approach. In the study, the environmental education lesson was carried out with an approach prepared totally by the students' creative skills in the department of biology, and with the classical method in the department of main course teaching. At the end of the term, the views of the students were evaluated quantitively and qualitatively. It was seen that the student-centered lessons were more effective on learning the terms in a meaningful way.

Sarkar (2011) researched the environmental attitude of primary school students in Bangladesh by using the standardized environmental attitude scale within their study named "The Environmental Attitudes of the Primary School Students: The State of the Environmental Education in Bangladesh". The study comprised of 125 questions on a likert type scale. In this study conducted to 400 students, it was revealed that the environmental attitude of the girls is higher that the boys' both in the cities and in the villages. Especially, the girls from villages have higher environmental attitude compared to the ones from cities. With this study, the differences of the environmental attitude and behaviors of teenagers from Bangladesh and the need for reveal the relationship between them were discussed.

Aslanova (2012), in a similar study, tried to define the level of knowledge of students of Baku State University, Biology Fakulty on environmental education. The results showed that knowledge levels of Baku State University' Students on environmental problems (58,25%) is higher than Azerbaijani students {52,88%) studying at Near East University. While verifying attitude levels on environmental awamess, attidudes of Azerbaijani students studying at NEU were 3,34% (69,2%), but attitudes of Baku State University Students were 3,34% (66,8). Although there are significant difference among two groups from statistical point of view, thıs differernce is not higher than environmental knowlede. Siginificeant difference among two groups was observed in 38 questions from 63 questions on environmental knowledge from statistical point of view.

Yousuf and Bhutta (2012) aimed to reveal whether there was any difference between male and female students' attitudes about the environmental issues (such as air and water pollution, excessive consumption of the resources, global climatic

changes etc). In their study, "The Attitudes of the Elementary School Students from Karachi, Pakistan about Environmental Issues", 151 students from public schools, 161 students from private schools (in total 312 students) participated. The data was analyzed by using non-parametric equivalent oft-Test. The results showed that there was not any meaningful difference between the attitudes of male and female students towards environmental issues. The results of the study have provided an important perspective to the attitudes of male and female students about environmental issues against public and private school disciplines.

**Gündüz et al., (2015)** aimed to evaluate the difference between the environmental consciousness levels of high school students studying in North Cyprus, Turkey and Azerbaijan. Face-to-face interviews were carried out to the informational level of students under the heading "environmental sensitivity". Sample date of the research is composed of high school students studying between the academic period 2012-2013 in Northern Cyprus, Turkey and Azerbaijan. The formal content analysis method was used for the analyzing of the data collected. The results of the study showed that environmentally conscious individuals always try to stop nature's unfortunate destiny. One of the best ways to raise this consciousness is to direct the youths toward trustful educational institutions. Results showed that the studied countries failed at being sensitive to environmental issues. The study goes further to describe these environmental problems. Environmental education is essential in these three countries, therefore, a complete educational program starting from preschool and various campaigns should be introduced and implemented.

# CHAPTER III
# METHODS

This section deals with, the explainations about the model, population and sample, data gathering tool, applying the data gathering tool and data analysis of the study which has been conducted to determine "the attitude and behaviors of the students from Libya and Turkey, who study in universities of Northern Cyprus, about environment".

## 3.1. Research Model

In the study conducted to determine the attitude and behaviors of the students from Libya and Turkey, who study in universities of Northern Cyprus, about environment, "scan model" was used.

Scan researches were conducted with the aim to gather data about significant aspects of a group (Büyüköztürk et al., 2009). According to Karasar (1999), scan models are the research approaches aiming to describe a situation, happened in the past or still happening, as the way it is.

## 3.2. Participants And Sample

The population of the study comprises of the university students from Turkey and Libya studying in the universities in Northern Cyprus. The sample of this study comprises of300 university students from Turkey 150 and from Libya 150 studying in the universities in Northern Cyprus in the 2015-2016 academic years.

Tablet. The Status of The Participants

| Participants | No. of The Students |
|---|---|
| Libyan students | 150 |
| Turkish students | 150 |
| Total | 300 |

## 3.3. Data Gathering Tool

In this research, the "Personel Information" "Environmental Awareness Knowledge Test", "Environmental Conscious Attitude Test" and "Environmental Conscious Behavior Test" was used as the data gathering tool.

### 3.4. Scoring Scale Classification Of The Substance

The levels of knowledge of the university students participating in this research about environmental education were revealed and interpreted in regards to the survey questions.

### 3.5. Data Analysis

The data obtained from the surveys were evaluated in computer environment by using SPSS 20.0 program. While determining their awareness level change according to their genders about the attitude and behaviors of the students from Libya and Turkey, who study in universities of Northern Cyprus and participated in this study, about environment, unrelated t-test was used; and while determining their awareness level change according to their educational background, ANOVA, Scheffe, MANOVA, tests were used.

### 3.6. Validity and Reliability of The Survey

This survey was conducted on 300 people in total. In this study, it was detected that coefficient of Cronbach Alpha in attitude scale was 0,849; coefficient of Cronbach Alpha in behavior scale was 0,862. Because of the fact that the reliability of this survey is over %70. It was confirmed that the attitude scale and the behavior scale are reliable.

Table 2. Reliability of The Attitude Scale

| Cronbach's Alpha | N of Items |
|---|---|
| 0,849 | 21 |

In Table 2, current basic pecentage about the reliability and the validity of the attitude scale is shown.

Table 3. Reliability of The Behavior Scale

| Cronbach's Alpha | N ofltems |
|---|---|
| 0,862 | 17 |

In Table 3, current basic pecentage about the reliability and the validity of the behavior scale, which provides the data, is shown.

# CHAPTER IV
# FINDINGS AND COMMENTS

In this chapter, the findings obtained after the research have been shown in the tables and they have been explained. The findings of sub-problems have been explained respectively. Especially, the attitudes and behaviors of the students from Libya and Turkey, studying in the universities of Turkish Republic of Northern Cyprus, against the environment were compared. There have been made comments by factoring in whether the attitudes and behaviors of these students against the environment differ or not.

## 4.1. Demographic Aspects

In this chapter, the findings and the interpretations about the problems related to the demographic aspects have been stated.

Table 4. Distribution of The Sample by Age

| | | Frequency | Percent(%) |
|---|---|---|---|
| Age | 18-22 | 148 | 49,3 |
| | 22-26 | 50 | 16,7 |
| | 26-30 | 102 | 34,0 |
| | Total | 300 | 100,0 |

In Table 4, it is seen that %49,3 of the participating students were between the ages 18-22; %16,7 of them were between the ages 22-26; and %34,0 of them between the ages 26-30.

Table 5. Distribution of The Sam~ Gender

| | | Frequency | Percent(%) |
|---|---|---|---|
| Gender | Female | 114 | 38,0 |
| | Male | 186 | 62,0 |
| | Total | 300 | 100,0 |

This sample was comprised of 300 people as seen in Table 5. %38 of the participants were females and %62 of the paticipants were males. The number of the males was more than the number of the females.

Table 6. Distribution of The Sample by Nationality

| | | Frequency | Percent (%) |
|---|---|---|---|
| Nationality | TR | 38 | 12,7 |
| | TRNC | 119 | 39,7 |
| | Libya | 143 | 47,7 |
| | Total | 300 | 100,0 |

In Table 6, it is shown that %12,7 of the students were from Turkey; %39,7 ofthe students were from Cyprus; and %47,7 of the students were from Libya.

Table 7. Distribution of The Sample by Class

| | | Frequency | Percent(%) |
|---|---|---|---|
| Classes | 1 | 57 | 19,0 |
| | 2 | 102 | 34,0 |
| | 3 | 107 | 35,7 |
| | 4 | 34 | 11,3 |
| | Total | 300 | 100,0 |

In Table 7, it is shown that %19,0 of the students were 1st graders; %34,0 of the students were 2nd graders; %35,7 of the students were 3rd graders; and %11,7 of the students were 4th graders.

Table 8. Distribution of The Sample by Faculty

| | | Frequency | Percent(%) |
|---|---|---|---|
| Faculty | Ataturk Education Faculty | 161 | 53,7 |
| | Engineering | 73 | 24,3 |
| | Medicine | 33 | 11,0 |
| | Economics and Administrative Sciences | 16 | 5,3 |
| | Architecture | 8 | 2,7 |
| | Communication | 9 | 3,0 |
| | Total | 300 | 100,0 |

As it is seen in Table 8, %53,7 of the participating students were from Ataturk Education Faculty; %24,3 of the students were from Faculty of Engineering; %11,7 of the students were from Faculty of Medicine; %5, of the students were from Faculty of Economics and Administrative Sciences; %2,7 of the students were from

Faculty of Architecture; and % ,0 of the students were from Faculty of Communication. When looked at Table 8, it is seen that the number of participating students from Ataturk Faculty of Education is more than other faculties.

Table 9. Distribution of The Sample by Department

| | | Frequency | Percent(%) |
|---|---|---|---|
| Department | Primary School Teaching | 22 | 7,3 |
| | Classroom Teaching | 44 | 14,7 |
| | Guidance and Counseling Psychology | 37 | 12,3 |
| | Social Studies Teaching | 27 | 9,0 |
| | Geography Teaching | 19 | 6,3 |
| | Intelligence Children Teaching | 13 | 4,3 |
| | Computer Engineering | 16 | 5,3 |
| | Information Systems Engineering | 19 | 6,3 |
| | Mechanical Engineering | 13 | 4,3 |
| | Electrical and Eectronic Engineering | 6 | 2,0 |
| | Civil Engineering | 19 | 6,3 |
| | Midical Biochemistry | 21 | 7,0 |
| | Microbiology | 11 | 3,7 |
| | Business Administration | 11 | 3,7 |
| | International Business | S | 1,7 |
| | Interior Architecture | 8 | 2,7 |
| | Total | 300 | 100,0 |

As it is shown in Table 9, %7,3 of the participating students were from the department of Primary School Teaching; %14,7 of the students were from the department of Classroom Teaching; %12, of the students were from the department of Guidance and Councseling psychology; %9 of the students were from the department of Geography Teaching; %4,3 of the students were from the department ofIntelligent Children Teaching; %5,3 of the students were from the department of Computer Engineering; %6,3 of the students were from the department of Information Systems Engineering; %4,3 of the students were from the department of Mechanical Engineering, %2 of the students were from the department of Electrical and Electronic Engineering, %6,3 of the students were from the department of Civil Engineering; %7 of the students were from the department of

Medical Bio-chemistry, %3,7 of the students were from the department of Micro-biology, %3,7 of the students were from the department of Business Administration, %1,7 of the students were from the department oflnternational Business, %2,7 of the students were from the department of Interior Architecture. It is seen, in the distribution of the sample, that the number of the students who study in the department of Classroom Teaching is more than the others.

Table 10. Distribution of The Sample by Educational Bacground of the Fathers

| | | Frequency | Percent (%) |
|---|---|---|---|
| Father | Elementary | 41 | 13,7 |
| | Secondary school | 29 | 9,7 |
| | High school | 35 | 11,7 |
| | College | 80 | 26,7 |
| | University / Faculty | 104 | 34,7 |
| | Master / Doctorate | 11 | 3,7 |
| | Total | 300 | 100,0 |

As it is seen in Table 10, %13,7 of the students' fathers have educational background at the level of primary school, %13,7 of the students' fathers have educational background at the level of elementary school, %9,7 of the students' fathers have educational background at the level of secondary school, %11,7 of the students' fathers have educational background at the level of high school, %26,7 of the students' fathers have educational background at the level of college, %34,7 of the students' fathers have educational background at the level of university, and %3,7 of the students' fathers have educational background at the level of postgraduate or doctorate. In the distribution of the sample, the number and the rate of the elementary school graduates are lower than the college graduates. In other words, the number and the rate of the college graduates are more.

Table 11. Distribution of The Sample by Educational Background of the Mothers

| | | Frequency | Percent(%) |
|---|---|---|---|
| Mother | Elementry | 62 | 20,7 |
| | Secondary school | 37 | 12,3 |
| | High school | 62 | 20,7 |
| | College | 76 | 25,3 |
| | University / Faculty | 58 | 19,3 |
| | Master / Doctorate | 5 | 1,7 |
| | Total | 300 | 100,0 |

As it is seen in Table 11, %20,7 of the students' mothers were from educational background at the level of elementary school, %12,3 of the students' mothers were from educational background at the level of secondary school, %20,7 of the students' mothers were from educational background at the level of high school, %25,3 of the students' mothers were from educational background at the level of college, %19,3 of the students' mothers were from educational background at the level of university, %1,7 of the students' mothers were from educational background at the level of postgraduate or doctorate. In the distribution of this sample, it is shown that the number of the ones who are postgraduates or doctorate graduates is the least compared to the ones who are university graduates.

Table 12. Distribution of The Sample by Monthly Income

| | | Frequency | Percent(%) |
|---|---|---|---|
| Monthly Salary | Less than 1000 | 39 | 13,0 |
| | Between 1000-2000 | 79 | 26,3 |
| | Between 2000-3000 | 67 | 22,3 |
| | Between 3000-4000 | 54 | 18,0 |
| | More than 4000 | 61 | 20,3 |
| | Total | 300 | 100,0 |

It is seen in Table 12 that %12 of the students' family income is less than 1.000 TL, %26,3 of the students' family income is between 1.000-2.000 TL, %22,3 of the students' family income is between 2.000-3.000 TL, %18,0 of the students' family

income is between 3.000-4.000 TL, and %20,3 of the students' family income is more than 4.000 TL.

**Table 13. Answers to The Test of Environmental Knowledge**

| | Frequency | Percent(%) |
|---|---|---|
| 1. Which one of the following are not the result of air pollutionresult of air pollution? | 179 | 59,7 |
| 2. Which of the following can be done to reduce air pollution? | 53 | 17,7 |
| 3.Which of the idea of promoting the use of bicycles to reduce direct and indirect reduce the environmental problems? | 157 | 52,3 |
| 4.Which of the following will not be considered as one of the causes of air pollution? | 224 | 74,7 |
| 5. Which of the followings or which are the result of amount of $CO_2$, Cfl1 and $O_3$ gas increases in the atmosphere? | 123 | 41,0 |
| 6. Which of the following cannot be represented as one of the causes for acid rain? | 144 | 48,0 |
| 7. Which of following or which are knows as greenhouse gases? | 89 | 29,7 |
| 8. Which one or which ones of the following is the result of the greenhouse effect? | 84 | 28,0 |
| 9. The use of pesticides is effective as a priority to whichever of the following forms of pollution? | 44 | 14,7 |
| 10. Which of the following items we use in our daily basis does not use CFC gas? | 43 | 14,3 |
| 11. What do we understand by CFCs (Chlorofluorocarbon)? | 155 | 51,7 |
| 12. Which of the following are not considered as soil pollutants? | 185 | 61,7 |
| 13. Which of the following is not a way to prevent soil pollution? | 120 | 40,0 |
| 14. Which is or which are being mixed in the air after we start our car in the morning in our garage? | 97 | 32,3 |
| 15. Which of the following or which are considered as the factors which cause water pollution? | 90 | 30,0 |
| 16. Which of the following behaviours may pollute the water which you drink or you use to do at home that you live in? | 41 | 13,7 |
| 17. Which of the following is not one of the events that caused the erosion? | 33 | 11,0 |
| 18. Which of the following is the main reason for the accumulation of excess nitrogen in the soil? | 53 | 17,7 |
| 19.Which of the following water pollutants can be harmful when mixed into the atmosphere from the exhaust of vehicles according to fuel type used? | 144 | 48,0 |

| | | |
|---|---|---|
| 20.Which of the following is a sign of medical waste? | 57 | 19,0 |
| 21.Which is following or which are is not likely to be generated from recycling? | 164 | 54,7 |
| 22.Which of the following is not the material to be disposed in paper recycling bins? | 24 | 8,0 |
| 23.Which of the following are not the benefits to a country verging towards to renewable energy sources? | 165 | 55,0 |
| 24.Which of the following material property can be disposed in the glass piggy bank? | 40 | 13,3 |
| 25.Which of the followingindicates that a substance is made from a recyclable packaging? | 57 | 19,0 |
| 26.Which of the following is not the alternative energy sources? | 253 | 84,3 |
| 27. Which of the following which are or may be the measures that can be taken to prevent noise pollution in the surrounding area? | 150 | 50,0 |
| 28.Which of the following material property cannot be disposed in the glass piggy bank? | 22 | 7,3 |
| 29. Which of the following natural energy source does not contain sulfur component gases? | 145 | 48,3 |
| 30. Which of the following or which are,can beraw to biomass energy? | 26 | 8,7 |
| 31.Which of the following statements best describes the formation of acid rain? | 138 | 46,0 |
| 32.Which of the following or which are, can be an alternative energy sources? | 74 | 24,7 |

According to the results shown inTableJ3, it can be said by taking the answers into consideration that the participants in this study have efficient environmental knowledge.

### 4.2. The Findings Depending on Sub-problems

#### 4.2.1.The Findings According to First Sub-Problem

What is the level of attitude and behaviors of the students from Libya and Turkey, who study in universities of Northern Cyprus, about environmental problems? Within the first sub-problem, the level of attitude and behaviors of the participants was tried to be detected. If there are more than 2 sub-groups of a coefficient which will be analyzed, Anova analysis will be used as the method. In order to analyze which groups have differences between each other as the result of Anova analysis; sub-tests such as Turkey, LSD or Sheffo will be used if the data shows normal distribution. In this study, Scheffe test was preferred (Büyüköztürk,2002). In order to compare all the possible linear combinations among the groups, the Sheffo

method was developed, and this method is regarded as a type, the most flexible and conservative one, of post hoc which can control a error margin when there is a great number of the groups required to be compared, and which does not pay regard to the hypothesis that number of observations may be equal in the groups (Scheffe, 1953; Scheffe, 1959).

Tablo 14. Anova Test about The Level of Attitudes of the Students from Libya and Turkey towards The Environment

| Attitude | Sum of Squares | df | Mean Square | F | p | Explanation | |
|---|---|---|---|---|---|---|---|
| Between Groups | 882,182 | 2 | 441,091 | 3,22 | ,041 | p<.05 | Difference |
| Within Groups | 40612,734 | 297 | 136,743 | | | | exist |
| Total | 41494,916 | 299 | | | | | 3-2 |

1: TC :X:=57,02 2:'IRNC :X:=55,58 3:Libya :X:=59,25

As it is seen in Table 14, there was found a meaningful difference in the attitudes of the students from Libya and Turkey, but there was found no meaningful differences in their behaviors.

Table 15. Anova Test about The Level offiehaviors of the Students from Libya and Turkey towards The Environment

| Behavior | Sum of Squares | df | Mean Square | F | p | Explanation | |
|---|---|---|---|---|---|---|---|
| Between Groups | 169,851 | 2 | 84,925 | 0,564 | ,569 | p>.05 | Di:fference |
| Within Groups | 44700,094 | 297 | 150,505 | | | | Exist |
| Total | 44869,946 | 299 | | | | | |

1: TC :X:=57,02 2:'IRNC :X:=55,58 3:Libya :X:=59,25

It is shown in Table 15 that there is a meaningful difference in attitudes(p=,041) of the students from Libya and Turkey, but there was no meaningful difference in their behaviors (p=,569). When the difference found in the attitudes was analyzed in accordance with Scheffe test, it was found that the attitude level of students from Libya (:X:=59,25) was higher than the students attitude from TRNC (:X:=55,58). It

can also be said that the attitude level of the students from Libya was higher than the students attitude from Turkey (:X:=57,02). In a general meaning, all these findings show that the sfudents from Libya have the highhest attitude level than the others.

4.2.2. The Findings According to Second Sub-Problem

Is there any kind of relationship between gender parameters and level of attitude and behaviors of the students from Libya and Turkey, who study in universities of Northern Cyprus, about environment? As the second sub-problem, it was focused on finding whether there was any kind of relationship between the gender parameters and the level of attitude and behaviors of the participants towards the environment. In the situations that two independent parameters affect on dependent parameters more than one, two-way MANOVA is used. It is used to define the common effect (wilks lambda) of the independent parameters more than one on the dependent parameters (Büyüköztürk, 2002). In this study, also, two-way MANOV A was used because twô independent parameters affect the dependent parameters more than one.

Table 16.The Level of Relationship Between The Levels of Attitude and Behaviors Towards The Environment & Gender Parameter,Manova Test

| Source | Variable | Sum of Squares | Sd | Mean Square | F | p | Explanation |
|---|---|---|---|---|---|---|---|
| Gender | Attitude | 862,977 | 1 | 862,977 | 6,394 | ,012 | p<.05 |
| | Behavior | 245,999 | 1 | 245,999 | 1,629 | ,203 | p>.05 |
| Nationalty | Attitude | 994,769 | 2 | 497,384 | 3,685 | ,026 | p<.05 |
| | Behavior | 295,933 | 2 | 147,966 | 0,979 | ,377 | p>.05 |
| YxC | Attitude | 488,837 | 2 | 244,418 | 1,810 | ,165 | p>.05 |
| | Behavior | 112,135 | 2 | 56,067 | 0,371 | ,690 | p>.05 |
| Error | Attitude | 39680,151 | 294 | 134,966 | | | |
| | Behavior | 44397,456 | 294 | 151,011 | | | |
| Total Correct | Attitude | 41494,916 | 299 | | | | |
| | Behavior | 44869,946 | 299 | | | | |

[wilkis lambda A= ,986, F=l,057, p=318 (p>,05)]

In Table 16, it is seen that the common effect between the level of attitude and behaviors of the students, studying in the universities of Northern Cyprus, towards environment and the genders of Libyan and Turkish students was not meaningful [wilkis Iambda A= ,986, F=l,057, p>,05]. However, it was found that the attitudes of the students differ meaningfully according to gender (p=,012, p<,05). Yet, there was found no meaningful difference in behaviors (p=,203, p>,05). At the results of Scheffe test which was conducted in order to find out where this difference occured, it was understood that this difference occured between the students from TRNC and the students from Libya. When we analyzed the distribution of this difference by gender, it was discovered that female students(:X:=56,25) and male students (:X:=54,75)from TRNC have lower attitude level compared to female students (:X:=60,45) and male students (:X:=58,86) from Libya.

4.2.3. The Findings According to Third Sub-Problem

Is there any kind of relationship between class parameters and level of attitude and behaviors of the students from Libya and Turkey, who study in universities of Northern Cyprus, about environment? As the third sub-problem, it was focused on finding whether there is any kind of relationship between the class parameters and the level of attitude and behaviors of the participants towards the environment, or not.

Table 17.The Level of Relationship Between The Levels of Attitude and Behaviors Towards The Environment & Class Parameter, Manova Test

| Source | Variable | Sum of Squares | sd | Mean Square | F | p | Explanation |
|---|---|---|---|---|---|---|---|
| Class | Attitude | 1345,809 | 3 | 448,603 | 3,509 | ,016 | p<.05 |
| | Behavior | 237,578 | 3 | 79,192 | 0,524 | ,666 | p>.05 |
| Nationalty | Attitude | 12,276 | 2 | 6,138 | 0,048 | ,953 | p>.05 |
| | Behavior | 164,584 | 2 | 82,292 | 0,545 | ,580 | p>.05 |
| YxC | Attitude | 2022,583 | 6 | 337,097 | 2,636 | ,017 | p<.05 |
| | Behavior | 812,520 | 6 | 135,420 | 0,897 | ,497 | p>.05 |
| Error | Attitude | 36818,770 | 288 | 127,842 | | | |
| | Behavior | 43458,436 | 288 | 150,897 | | | |
| Total Correct | Attitude | 41494,916 | 299 | | | | |
| | Behavior | 44869,946 | 299 | | | | |

[wilkis lambda x= ,938, F=l,726, p=,048 (p<,05)]

As it is seen in Table 17, when the common effect between the level of attitude and behavior of the studens studying in the universities of Northern Cyprus towards the environment and when the class of the Turkish and Libyan students was analyzed, [wilkis lambda /ı.= ,938, F=l,726, p=,048, p<,05] it was seen that the interaction between class*nationalty has meaningful effect on the attitudes. However, there was seen no effect on the behaviors. As it is seen, again, in Table 17, there is a meaningful difference on the attitudes in class*nationality combination (p=,017, p<,05). Yet, there is no difference in behaviors (p=,497, p>,05). When we analyzed the results Scheffe test which was conducted in order to find out between which nationality groups this difference occured, it was seen that this difference occured between the students from TRNC and the students from Libya (p=,034, p<,05).

Furthermore, there was found a meaningful difference just between class parameter and attitudes (p=,016, p<,05). According to the results Scheffe test which was conducted in order to find out between which groups this difference occured, it was observed that there was a difference between the students from Libya and TRNC studying at 2nd, 3rd and 4th grades.It was observed that the 2nd graders from TRNC (X:=51,01) and the 2nd graders from Libya(X:=59,00) have lower attitude levers than the 3rd graders from TRNC (X:=60,571) and the 3rd graders from Libya (X:=59,67), and also the 4th graders from TRNC (X:=64,88) and the 4th graders from Libya (X:=60,25). However, when it is analyzed in a general way, it is seen that the more the grade levels are, the more the attitudes of the students from TRNC and Libya increase.

According to another finding, it was discovered that the attitude level of the students from TRNC was lower than the students' attitudes from Libya.On the other hand, it was found that the 3rd graders from TRNC have lower attitude levels than the other 3rd graders. According to this finding, it is concluded that all the students (from all grades/classes) from TRNC have the lowest attitude level among the others.

4.2.4. The Findings According to Fourth Sub-Problem

Is there any kind of relationship between the departments the students study in and level of attitude and behaviors of the students from Libya and Turkey, who study in universities of Northern Cyprus, about environment? As the fourth sub-problem, it was focused on finding whether there is any kind of relationship between the departments the students study in and the level of attitude and behaviors of the participants towards the environment, or not.

Table 18. Level of Relationship Between The Levels of Attitude and Behaviors Towards The Environment & The Departments They Study In, Manova Test

| Source | Variable | Sum of Squares | sd | Mean Square | F | p | Explanation |
|---|---|---|---|---|---|---|---|
| Department | Attitude | 2643,327 | 16 | 165,207 | 1,330 | ,178 | p>.05 |
| | Behavior | 1631,323 | 16 | 101,957 | 0,675 | ,817 | p>.05 |
| Nationalty | Attitude | 59,703 | 2 | 29,851 | 0,240 | ,785 | p>.05 |
| | Behavior | 151,064 | 2 | 75,532 | 0,500 | ,607 | p>.05 |
| YxC | Attitude | 569,234 | 10 | 56,923 | 0,458 | ,916 | p>.05 |
| | Behavior | 1366,478 | 10 | 136,647 | 0,904 | ,529 | |
| Error | Attitude | 33657,426 | 271 | 124,197 | | | |
| | Behavior | 40931,258 | 271 | 151,037 | | | |
| Total Correct | Attitude | 41494,916 | 299 | | | | |
| | Behavior | 44869,946 | 299 | | | | |

[wilkis lambda A= ,956, F=,615, p=903 (p>,05)].

In Table 18, it is shown that the common effect between the level of attitude and behavior of the studens studying in the universities of Northern Cyprus towards the environment and the classes Turkish and Libyan students study in was not meaningful [wilkis lambda A= ,956 ,F=,615 ,p=903 (p>,05)]. Also, there wasn't found any kind of meaningful differences betwen the departments of all the students in general meaning and their attitudes (p=,l 78 p>,05) and their behaviors (p=,817 p>,05).As a result of these findings, it is clear that there are no meaningful relationship and difference between the students' attitudes and behaviors and their departments.

4.2.5.The Findings According to Fifth Sub-Problem

ls there any kind of relationship between the educational backround of the parents and level of attitude and behaviors of the students from Libya and Turkey, who study in universities of Northern Cyprus, about environment? As the fifth sub-problem, it was focused on finding whether there is any kind of relationship between the educational backround of the parents and the level of attitude and behaviors of the participants towards the environment, or not.

Table 19.Level of Relationship Between The Levels of Attitude and Behaviors Towards The Environment & The Educational Background of The Fathers, Manova Test

| Source | Variable | Sum of Squares | sd | Mean Square | F | p | Explanation |
|---|---|---|---|---|---|---|---|
| Father education | Attitude | 594,629 | 5 | 118,925 | ,871 | ,501 | p>.05 |
| | Behavior | 584,072 | 5 | 116,814 | ,792 | ,556 | p>.05 |
| Nationalty | Attitude | 351,064 | 2 | 175,532 | 1,286 | ,277 | p>.05 |
| | Behavior | 49,981 | 2 | 175,532 | ,169 | ,844 | p>.05 |
| YxC | Attitude | 1675,299 | 10 | 167,529 | 1,227 | ,272 | p>.05 |
| | Behavior | 2210,075 | 10 | 221,007 | 1,498 | ,139 | |
| Error | Attitude | 38488,499 | 282 | 136,484 | | | |
| | Behavior | 41589,038 | 282 | 147,478 | | | |
| orrectTotal C | Attitude | 41494,916 | 299 | | | | |
| | Behavior | 44869,946 | 299 | | | | |

[wilkis lambda tı= ,917, F=l,240, p=,215 (p>,05)]

As it is seen in Table 19, the common effect between the level of attitude and behavior of the studens studying in the universities of Northern Cyprus towards the environment and the educational background of their fathers was not meaningful [wilk is lambda ẋ= ,917, F=l,240,p=,215 (p>,05)]. Moreover, it is also shown in Table 19 that there is no meaningful difference between the educational background of the students' fathers and their attitudes (p=,501 p>,05) and their behaviors (p=,556 p>,05). As a result of these findings, it is understood that there are no meaningful relationship and difference between the students' attitudes and behaviors and the educational background of their fathers.

Table 20. Level of Relationship Between The Levels of Attitude and Behaviors Towards The Environment & The Educational Background of The Mothers, Manova Test

| Source | Variable | Sum of Squares | sd | Mean Square | F | p | Explanation |
|---|---|---|---|---|---|---|---|
| Mather education | Attitude | 1140,060 | 5 | 228,012 | 1,729 | ,128 | p>.05 |
| | Behavior | 208,745 | 5 | 41,749 | ,281 | ,923 | p>.05 |
| Nationalty | Attitude | 491,973 | 2 | 245,986 | 1,865 | ,157 | p>.05 |
| | Behavior | 167,889 | 2 | 83,944 | ,566 | ,568 | p>.05 |
| YxC | Attitude | 2343,871 | 10 | 234,387 | 1,777 | ,064 | p>.05 |
| | Behavior | 1998,500 | 10 | 199,850 | 1,348 | ,204 | p>.05 |
| Error | Attitude | 37181,503 | 282 | 131,849 | | | |
| | Behavior | 41800,818 | 282 | 148,229 | | | |
| Total Correct | Attitude | 41494,916 | 299 | | | | |
| | Behavior | 44869,946 | 299 | | | | |

[wilkis lambda x= ,900, F=2,105, p=,068 (p>,05)]

In Table 20, it is shown that the common effect between the level of attitude and behavior of the students studying in the universities of Northern Cyprus towards the environment and the educational background of their mothers was not meaningful [wilkis lambda /\= ,900,F=2,105, p=,068 (p>,05)]. Furthermore, it is also shown in Table 20 that there is no meaningful difference between the educational background of, in general meaning, all the students' mothers and their attitudes (p=,128 p>,05) and their behaviors (p=,923 p>,05). As a result of these findings, it is understood that there are no meaningful relationship and difference between the students' attitudes and behaviors and the educational background of their mothers.

4.2.6. The Findings According to Sixth Sub-Problem

Is there any kind ofrelationship between monthly income of the family and level of attitude and behaviors of the students from Libya and Turkey, who study in universities of Northern Cyprus, about environment? As the sixth sub-problem, it was focused on finding whether there is any kind of relationship between monthly income of the family and the level of attitude and behaviors of the participants towards the environment, or not.

Table 21. Level of Relationship Between The Levels of Attitude and Behaviors Towards The Environment & Monthly Income of The Family, Manova Test

| Source | Variable | Sum of Squares | sd | Mean Square | F | p | Explanation |
|---|---|---|---|---|---|---|---|
| Salary | Attitude | 1278,935 | 4 | 319;733 | 2,358 | ,062 | p>.05 |
| | Behavior | 204,153 | 4 | 51,038 | ,336 | ,853 | p>.05 |
| Nationalty | Attitude | 693,746 | 2 | 346,873 | ,559 | ,079 | p>.05 |
| | Behavior | 240,677 | 2 | 120,338 | ,794 | ,453 | p>.05 |
| YxC | Attitude | 1134,178 | 8 | 141,772 | 1,045 | ,402 | p>.05 |
| | Behavior | 1120,430 | 8 | 140,053 | ,924 | ,497 | |
| Error | Attitude | 38630,447 | 285 | 135,545 | | | |
| | Behavior | 43215,83 | 285 | 151,634 | | | |
| Total Correct | Attitude | 41494,916 | 299 | | | | |
| | Behavior | 44869,946 | 299 | | | | |

[wilkis lambda /ı.= ,954, F=,850, p=,628 (p>,05)]

In Table21, it is shown that the common effect between the level of attitude and behavior of the students studying in the universities of Northern Cyprus towards the environment and the monthly income of their families was not meaningful [wilkis Iambda A= ,954,F=,850, p=,628 (p>,05)]. Also, it is shown in Table 21 that there is no meaningful difference between the monthly income of the students' families and their attitudes (p=,62 p>,05) and their behaviors (p=,853 p>,05). As a result of these findings, it is understood that there are no meaningful relationship and difference between the Turkish and Libyan students' attitudes and behaviors and the monthly income of their families.

# CHAPTERV

# CONCLUSION AND RECOMMENDATIONS

In this section, the results and interpretations, discussions about these results and the recommendations developed will be mentioned. The results and the recommendations are explained below in accordance with the research findings.

## 5.1. Results of The Research

In this research, attitudes and behaviors of the students from Libya and Turkey, who study in the university of Northern Cyprus, towards the environment were analyzed. At the end of the research, the results mentioned below, have been specified in 6 clauses, AND have been obtained:

- While there has been seen a meaningful difference in the attitudes of the students from Libya and Turkey, studying in the universities of Northern Cyprus, towards the environment (p=,041), there has been found no meaningful differences in their behaviors (p=,569). When the difference found in the attitudes was analyzed in accordance with the Scheffe test, it has been seen that the students from Libya (X:=59,25) have higher attitude level towards the environment than the students from TRNC (X:=55,58). Likewise, it can be said that the students from Libya have higher attitude level than the students from Turkey (X:=57,02).According to these findings, it is seen that, in a general meaning, the students from Libya have the highest attitude level. By taking this result as a basis, it can be said that the behaviors of the students is not at the desired level even if they have high level of attitude towards the environment. One of the most important indicators of this is that there are just a few students who are willing to take environmental lessons and to participate in the activities of environmental organizations. Because similar results have been obtained from many researches conducted on with the university students (Yılmaz vd, 2002; Erol, 2005; Altın, 2001; Yücel ve Morgil, 1999, Çabuk ve Karacaoğlu, 2003), it is revealed that the environmental education in our country to increase awareness of the environment needs to be practiced more efficiently. Educational programs which can draw the students' attention towards the environment and environmental problems should be developed; and problem solving ability of the students should be improved in

addition to the positive environmental attitudes and behaviors towards the environment. Because this will not only improve their solution finding attitude in an active way for the problems, yet also have an important role in their decisions they will need to make during the efforts for evaluating environmental effect in their future jobs.

• It was seen that the common effect between the level of attitudes and behaviors of the students, studying in universities of Northern Cyprus, towards the environment and the genders of Turkish and Libyan students was not found meaningful [wilkis lambda !ı.= ,986, F=l,057, p>,05]. However, it was discovered that there is a meaningful difference in the attitudes of the students according to their genders (p=,012, p<,05). This result has parallels with the results of many researches analyzing the effect of gender on the environmental attitudes (Sadık & Çakan, 2010; Çınar & diğerleri, 2010; Sadık & Sari, 2008; Uzun & Sağlam, 2006; Erol, 2005; Yilmaz vd., 2004; Eagles & Demare, 1999; Shari, 1999; Grifford, Hay & Boros, 1983). In the study of Şama (2003) which has similar results, it is found that the environmental attitude points of both males and females are higher than the environmental behavior point avarage; and it was also found that both groups cannot make behavior out of their thoughts. Some of the environmental attitude researches, carried out at differend education levels, support this results (Meydan ve Doğu, 2008; Arslanyolu, 2010; Aydın, 2010; Sağır, Aslan ve Cansaran, 2008). Yet, in most of the researches carried out about this matter, the gender has had effect on the environmental attitude of the students (Ekici, 2005; Tuncer ve diğerleri, 2005; Deniş ve Genç, 2007; Çubuk ve Karacaoğlu, 2003; Erol ve Gezer, 2006; Şama, 2003; Aydın ve Çepni, 2010; Gökçe ve diğerleri, 2007; Baş, 2010; Atasoy, 2005; Özpınar, 2009; Sağır, Aslan ve Cansaran, 2008; Bodur, 2010; Özden, 2008; Kahyaoğlu ve diğerleri, 2008; Ek ve diğerleri, 2009; Çabuk ve Karacaoğlu, 2003).

• When the common effect between the class the students study in and the level of attitudes and behaviors of the students, studying in the universities of Northern Cyprus, towards the environment was analyzed, [wilkis lambda tı.= ,938, F=l,726, p=,048, p<,05] it was seen that the effect of the interaction on attitudes was meaningful. Furthermore, there was also a meaningful difference just between the class parameter and the attitudes (p=,016, p<,05). According to the results of

Scheffe test conducted in order to find where this difference occurs, it was observed that there is a difference among the 2nd, the 3rd and the 4th graders from TRNC and Libya. However, when it is analyzed in a general matter, it is seen that the more the level of class is, the more the attitudes of the students from TRNC and Libya increase. On the other hand, according to another finding, the 2nd graders from TRNC have lower attitude level compared to the 2nd graders from Libya. Likewise, the 3rd graders from TRNC have lower attitude level than the other the 3rd graders. According to this finding, it is concluded that the students from TRNC have the lowest attitude level among all the grades. Atasoy (2005), Alp et al. (2006) and Baş (2010) did not detect any kind of difference between the environmental attitude and class parameter in their researches. On the other hand, Deniş & Genç (2007), Sağır et al. (2008) and Çeken (2009) detected a meaningful difference in inter-classes in terms of environmental attitude.The results of all these researches are parallel with the results of this research.

• The common effect between the class at which Turkish and Libyan students study and the level of attitudes and behaviors of the students, studying in the universities of Northern Cyprus, towards the environment was not found meaningful [wilkis lambda lı= ,956 ,F=,615 ,p=903 (p>,05)]. When Table 18 was analyzed, there was found no meaningful differences between the departments the students study in and their attitudes (p=,l 78 p>,05) and their behaviors (p=,817 p>,05). According to this finding, it is revealed that there are no meaningful difference and relationship between the attitudes and behaviors of Turkish and Libyan students and their departments. In his study, Arslanyolu (2010) found that the class level has no effect on the students' attitudes and behaviors towards the environment. Whereas, it is known that raising individuals who are sensible and aware is the most efficient way to find permanent solutions for environmental problems (Aslan, Uluçınar-Sağır ve Cansaran, 2008). A qualified environmental education shoul be started from pre-school period; and it must be aimed to maintain this education program in an efficient way at every stage individuals go through, all along primary school, secondary school and university, by organizing it in parallel with physical and mental development process (Ak, 2008). Although some researches support this (Aydın, 2010; Sağır, Aslan and Cansaran, 2008);

environmental attitudes of most students have differed according to their class level (Çabuk ve Karacaoğlu, 2003; Özpınar, 2009; Baş, 2010; Meydan ve Doğu, 2008; Arslan yolu, 2010; Aydın ve diğerleri, 2011; Çelen ve diğerleri, 2002; Özden, 2008; Bodur, 2010; Aydın ve Kaya, 2011).

• The common effect between the educational background of the students' fathers and the level of attitudes and behaviors of the students, studying in the universities of Northern Cyprus, towards the environment was not found meaningful[wilkis lambda /\= ,917, F=l,240, p=,215 (p>,05)]. As it is seen in the Tables (19 and 20 p. 46 - 47), there was found no meaningful differences between the educational background of the students' fathers and their attitudes (p=,501 p>,05) and their behaviors (p=,556 p>,05). According to this finding, it is understood that there are no meaningful differences and relationships between the educational background of Turkish and Libyan students' fathers and their attitudes and behaviors. The common effect between the educational background of the students' mothers and the level of attitudes and behaviors of the students, studying in the universities of Northern Cyprus, towards the environment was not found meaningful, either [wilkis lambda /\= ,900, F=2,105, p=,068 (p>,05)]. When the results were analyzed, it was seen that there is no meaningful differences between the educational background of the students' mothers and their attitudes (p=,128 p>,05) and their behaviors (p=,923 p>,05). According to this finding, it is understood that there are no meaningful difference and relationship between the educational background of Turkish and Libyan students' mothers and theri attitudes and behaviors. While some of the researches support this result (Gökçe et al., 2007), some researches do not. (Özdemir, 2003; Baş, 2010; Özpınar, 2009). On the other hand, in some other researches, it was found that the educational background of the parents has different effects on the students' environmental attitudes and behaviors. It is thought that this difference is because of the roles of the parents in social life. Some researchers have explained this difference by saying, "While the mother worries about the matters related to welfare and health of the family (these matters are related to the quality of local environmental conditions such as water, air, solid waste etc.), the father worries about financial and economic matters of the family."(George ve Southwell, 1986; Dietz, Stem ve Guagnano, 1998).

• The common effect between the monthly income of the parents and the level of attitudes and behaviors of the students, studying in the universities of Northern Cyprus, towards the environment was not found meaningful [wilkis lambda /\.= ,954, F=,850, p=,628 (p>,05)]. As it is seen in Table 21 (p. 49), there was found no meaningful differences between the monthly income of the parents and the students' attitudes (p=,62 p>,05) and the students' behaviors (p=,853 p>,05). According to this finding, it is understood that there are no meaningful difference and relationship between the monthly income of Turkish and Libyan students' parents and the students' attitudes and behaviors. Atasoy (2005), Erol (2006), Gökçe et al. (2007), Kesicioğlu and Alisinanoğlu (2009) found, in their studies, no differences between the economical level and the environmental attitudes. There is similarity between this study and our study.

• When we look at the answers the participants gave to the questions about efficient environmental knowledge, it is seen that they have efficient environmental knowledge. In a study which has a similar result with this, Sadık and Sarı (2007) state that the reason why the students have environmental knowledge and view is because the chances they get to participate in environmental activities such as trips, experiments, researches etc.

**5.2. RECOMMENDATIONS**

In accordance with the findings obtained and the results concluded from the research, the recommendations below have been made:

• Because there is not efficient research about the environmental attitudes in primary school level, similar researches should be done with different sample groups.

• In order to determine the teachers teaching methods about the environmental subjects which are not efficient or which are not focused enough in the primary school curriculums, researches should be done.

- The Environment Club, one of the social clubs aiming to provide the students to participate actively in the environmental matters, should be brought into force in order to enable positive environmental attitude.

- For a research about this matter, the views of parents, students and teachers should be listened to, and comparisions should be done.

- The parameters (gender, school, class level, age, educational background of the parents, monthly income of the family etc) which have effects on environmental sensibility of the students should be researched in detail.

- Some kinds of researches, required for providing the young students to gain positive environmental attitude, for making the parents, teachers, schools aware of not only the importance of early environmental education, but also the importance of the environmental issues, concerns and the individual responsibility in solving the environmental problems, should be done.

- The students should be taken to environmental trips or they should be encouraged to participate actively in environmental activities by giving suitable duties about garden arranging such as planting trees etc.

- The students should be encouraged much more to participate in scientific activities about the environment such as panels, seminars, conferences etc.

- Non-govermental organizations related to the environmental matters should be promoted much more.to the students.

- The volunteer environmental organizations should check out their own activities, and they should take measures to provide more efficient activities. Also, these organizations should be promoted to the students and they should organize environmental activities together with the schools and the students.

- In order to develop the environmental attitudes of the students, the students should be provided an environment, which appeals to their feelings, to apply what

they have learned. The gardens and the buildings of the schools should be designed in a way which evokes the natural feeling.

- In order to increase the environmental knowledge of the students and to develop their environmental attitudes, formal and informal programs should be checked out, and they should be arranged in a more efficient way.

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*Appendix-I.*

PERSONAL INFORMATION FORM

Dear Students,

Thank you for your participation. This survey is related to a scientific study. As a result, you will not be given any grades. Therefore, pleace do not write your name. Please read the questions carefully and answer them sincerly. The survey should take no longer than 20 minutes to complate.

*Master Student:*
Gouma Mohamed Ali Almarous

Class:..... Age.:.....

Faculty: .....
Department: .....
Gender: Female0 Male0
Nationality: TRO TRNCD LibyaD

The population of the area where you live: Less than 500 DBetween 500-2,000 OBetween2,000-5,000 OBetween5,000-10,000 OBetween 10,000-20,0000 Between 20,000-50,000 0 More than 50,000 0

Education status of your mother:

Elementary 01
Primary School 02
Secondary School 03
High School 04
University / Faculty0S
Master / Doctorate06

Education status of your father:

Elementary 01
Primary School 02
Secondary School 03
High School 04
University / Faculty0S
Master / Doctorate06

What is your family's monthly income? Who are involved?

Less than l,OOOTL D Between 1,000 TL- 2,000TL 0 Between 2,000 - 3,000TL D
Between 3,000 -4,000TL 0 More than 4,000 TL D

Please tick the appropriate option in the following question:

I.Have you received any environment lessons before?

YesDl No02

2.Do you actively join in any environmental groups (foundations, associations, voluntary organizations and ete.) to work?

Yes Dl Naine:..... No D

*Appendix-Z.*

## J-Environmental Awareness Knowledge Test

| NO | Name Surname: Female: ( ) Male: ( ) |
|---|---|
| Bl | Which one of the following are not the result of air pollution?<br>a) Historical and artistic architectural tissues are being destroyed<br>b) Related respiratory disorders occurs In living organisms<br>c) Climate change occurs<br>d) The ozone layer thickens and breaks down<br>e) Plant leaves are damaged |
| B2 | Which of the following can be done to reduce air pollution?<br>a) To choose public transport for journeys<br>b) To bum garbage'sin a vacant land<br>c) To drive to short distances<br>d) Use low-calorie coal at home<br>e) To burn stubbles in the field |
| B3 | Which of the idea of promoting the use of bicycles to reduce direct and indirect reduce the environmental problems?<br>1. Water pollution 2. Air pollution 3.Soif pollution 4.Noise pollution<br>a) Only2 b)land2 c)2and4 d}Only4 e) 1, 2, 3 and 4 |
| B4 | Which of the following will not be considered as one of the causes of air pollution?<br>a) Exhaust fumes from cars<br>b) Fumes from factory chimneys<br>c) Plant respiration causing CO2 into the atmosphere<br>d) Incineration of waste recycling<br>e) Widely useof coal stove in the house |
| BS | Which of the followings or which are the result of amount of CO2, CH4 and 03gas increases in the atmosphere?<br>1. Change of climate 2. Depletion of the ozone layer 3. Greenhouse effect<br>a) Only 1 b) Only 3 c)l and 2 d) 2 and 3 e) 1, 2, and 3 |
| B6 | Which of the following cannot be represented as one of the causes for acid rain?<br>1. The nitrogen oxides coming from chimneys of industry organizations<br>2. The gases resulting from combustion of fossil fuels<br>3. Gases caused by exhaust of vehicles<br>4. Gases resulting from decay of plants and organisms<br>a) Only4 b) 1 and4 c) 1, 2 and 3 d) Only 1 e) 2 and 3 |
| B7 | Which of following or which are knows as greenhouse gases?<br>1. CO2 2. CH4 3. CFC 4. NO 5.Water vapor 6. CI2<br>a) Only 1 b) 2, 3 and 4 c) 1, 2, 3, 4 and 5 d) 1, 2, 4 and 6 e) 1 and 4 |

**B16**

Which of the following behaviours may pollute the water which you drink or you use to do at home that you live in?

1- Using detergent to wash laundry and to wash dishes in washing machine
2- Using detergent to wash laundry and to wash dishes by hand
3- Burn coal stove to heat
4- Throwing batteries in the trash

a) Only 3 b)2 and 3 c)2,3 and 4 d)l and 3 e)l, 2, 3 and 4

**Bl7**

Which of the following is not one of the events that caused the erosion?

a) Burning the sloping fieldsto open it to agriculture
b) Overgrazing and Unconscious use of pastures
c) The destruction of forests
d) Soil contamination with the chemical
e) Incorrect handling of agricultural land

**B18**

Which of the following is the main reason for the accumulation of excess nitrogen in the soil?

a) Over planting oflegumes
b) Reduction of green vegetation
c) Improper use of fertilizers
d) Direct use ofnitrogen by living things
e) The destruction of forests

**B19**

Which of the following water pollutants can be harmful when mixed into the atmosphere from the exhaust of vehicles according to fuel type used?

a) Nickel b)Copper c)Chrome d)Lead e)Aluminium

**B20**

Which of the following is a sign of medical waste?

a)  b)  c)  d)  e) 

**B21**

Which of the following or which are is not likely to be generated from recycling?

a) Paper and Cardboard
b) Glassware
c) Metallic materials
d) Plastics and derivatives
e) Cotton fabrics and derivatives

**B22**

Which of the following is not the material to be disposed in paper recycling bins?

a) Newsprint
b) Paper and cardboard packaging
c) Used books
d) Carbon paper
e) Cardboard boxes

| | |
|---|---|
| B23 | Which of the following are not the benefits to a country verging towards to renewable energy sources?<br>a) Reduction of greenhouse gas emissions<br>b) Reducing energy efficiency<br>c) Reducing the dependency on oil and gas imports<br>d) Reduction of air pollution<br>e) Reduction of energy needs |
| B24 | Which of the following material property can be disposed in the glass piggy bank?<br>a) Crystal glass<br>b) Mirror glass<br>c) Porcelain and ceramic<br>d) Colored soft drink bottles<br>e) Light bulb and fluorescent lamps |
| B25 | Which of the followingindicates that a substance is made from a recyclable packaging?<br>a)  b)  c)  d)  e)  |
| B26 | Which of the following is not the alternative energy sources?<br>a) Geothermal b) Sun c) Natural gas d) Wind e) Wave |
| B27 | Which of the following which are or may be the measures that can be taken to prevent noise pollution in the surrounding area?<br>1. hnproving light rail systems and road traffic restrictions<br>2. Metro lines to be built entirely underground<br>3. Reforestation of the surrounding transit roads<br>4. Small industrial enterprises within the cityto move to industrial zones<br>a)l and 2 b) Only 2 c) 1, 2 and 4 d) 2 and 3 e)l, 2, 3 and 4 |
| B28 | Which of the following material property cannot be disposed in the glass piggy bank?<br>a) Windowpane<br>b) Colored glass soft drink bottles<br>c) Colourless glass beverage bottle glass<br>d) Glass<br>e) Glass preserves and jams jars |
| B29 | Which of the following natural energy source does not contain sulfur component gases?<br>a) Natural gas b) Coal c) Petroleum d) Fuel-oil e) Lignite coal |
| B30 | Which of the following or which are,can berawto biomass energy?<br>1. Vegetable waste<br>2. Oil seeds<br>3. Animal waste<br>4. Fiber plants<br>5. Carbohydrates<br>a) Only3 b} I and 3 c)l, 3 and 4 d)l and 4 e)l, 2, 3, 4 and 5 |

| | |
|---|---|
| **B31** | Which of the following statements best describes the formation of acid rain?<br>a) Some gas is formed by damaging the ozone layer<br>b) NOx is formed by the merger of CO2 gas<br>c) Results of the reaction of the NOX and SOX gases with atmospheric moisture<br>d) Formed of SOX gas with particles merging with the atmosphere<br>e) It occurs when NOX and SOX gases reacts with 02 |
| **B32** | Which of the following or which are, can be an alternative energy sources?<br>1. Coal 2. Natural gaz 3. Hydraulics 4.Geothermal 5.Hydrogen<br>a) Only 1 b) 1 and 2 c) 2, 3, 4 and 5 d)3, 4 and 5 e)4 and 5 |

*Appendix-S*

## II-Environment Conscious Attitude Test

| NO | The extent to which you agree with the statements below | I strongly disagree | I don't agree | Barely agree | I agree | I totally agree |
|---|---|---|---|---|---|---|
| Tl | I see the disappearance of animal and plant species as a permanent threat to the future of humanity. | | | | | |
| T2 | Throwing the used papers into the garbage makes me sad. | | | | | |
| T3 | I am afraid that the air I breathe could affect my health. | | | | | |
| T4 | The deterioration ofnature and depletion of many species day by day makes me sad. | | | | | |
| TS | I'm afraid one day we will not find clean water to drink | | | | | |
| T6 | I am afraid to think in the future most of the people will be sick because of air pollution. | | | | | |
| T7 | I do not intend to do anything to keep the seas, lakes and rivers clean. | | | | | |
| TS | I'd like to do something to prevent more deterioration of nature. | | | | | |
| T9 | I would like to do something as an individual towards keeping the air clean. | | | | | |
| TIO | It this continues fossil fuel supplies will run out in the very near future. | | | | | |
| Tll | In my spare time, I find it helpful to deal with animals and plants. | | | | | |
| T12 | I would like to work as volunteers and contribute to cleaning the polluted area (Lakes, rivers, forests and seas) | | | | | |
| T13 | If I had a car I would not want to drive more than 100 km to pollute the environment. | | | | | |
| T14 | I find it useful to purchase recycled material required to use for school. | | | | | |
| T15 | I would like to see my friend buy me an environmentally hazardous organic gift. | | | | | |
| T16 | Ifl had a car, I would not want to use for a very short distance. | | | | | |
| T17 | Saving lamp in each room of the house would be a very good use. | | | | | |

*Appendix-4*

## III Environmentally Conscious Behavior Test

| NO | The extent to which you agree with the statements below | I never do it | I barely do it | Sometimes Ido it | Ido it often | Ido it very often |
|---|---|---|---|---|---|---|
| Dl | We separate the unused paper in our house and we notify or call the place for collection. | | | | | |
| D2 | I make sure that the book and file paper I purchased is made from recycled paper. | | | | | |
| D3 | I normally throw away the used batteries into the garbage cans | | | | | |
| D4 | I normally throw away the used bottles into the bottle piggy bank | | | | | |
| D5 | Me and my family give our used our old furniture or old books to those who need or collecting institutions or organizations. | | | | | |
| D6 | We are very careful about making energy saving at home or in the institution I work. For example; keeping the electric lamps on for no reason, keeping the radio and television on for no reason, while the heating is on we do not want to keep the doors and windows open. | | | | | |
| D7 | We usually chat with friends over environmental pollution. | | | | | |
| D8 | I would be very careful for unnecessarily use of light, radio and television. | | | | | |
| D9 | I attend frequently to conference or any meetings for the protection of the environment. | | | | | |
| Dl0 | I write letters to a newspaper or journalists, politicians or any other authorized people for the prevention of environmental pollution. | | | | | |
| Dll | My family and I use energy saving light bulbs. | | | | | |
| D12 | I force my family and the people around me to use biofuels for both their car or home. | | | | | |
| D13 | When I buy gifts that are organic and harmless to environment. | | | | | |
| D14 | To those who want to buy white appliances, I urged them to buy A class white appliances. | | | | | |
| Dl5 | Me and my family or group of friends use either one of our carsor public transport to protect the environment. | | | | | |
| D16 | I look around for recycling bins to throw away my used papers. | | | | | |
| D17 | My family and my friends frequently talk about the benefits and importance of alternative energy sources of wind and solar enerzy etc. | | | | | |
| DIS | When there is a broken glass at home; we throw it to the kitchen trash disposed along with vegetables and fruit peels. | | | | | |
| D19 | I follow the Internet, television, newspapers for the news ofthe use and expansion of alternative energy sources. | | | | | |
| D20 | Me and my family wash fruits and vegetables in a bowl in the kitchen. | | | | | |
| D21 | Me and my family save the water we use to wash fruits to re-use it for toilet and bathroom cleanliness or for watering plants. | | | | | |

# CURRUCULUM VITAE

My name is Gouma Mohamed Ali ALMAROUS. I was born on 09.12.1982 in Libya in Kasr-khiar city. In 1997 I started high school and of completed in 1999-2000. I got my high Diploma in fall 2000 in the filed of Medical and Health technology, Environment Section. I obtained a High Diploma degree in spring 2004. I got a job at the end of 2005 as teaching assistant at the same Higher Institute where I graduated from. In 2013 I left my country to complete my education and get a master's degree. Here I had the opportunity to travel to the Republic of North Cyprus to receive a good education in this country. My master's study began in (2013-2014) in the field of Science and Environmental Education Management. In my first year in Cyprus I studied English language for one year to improve my English. Then I started my study in Environmental Education Management in Near East University.