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NEAR EAST UNIVERSITY  
INSTITUTE OF EDUCATIONAL SCIENCES  
ENVIRONMENTAL EDUCATION AND MANEGEMENT**

**BEHAVIORS AND ATTITUDES OF STUDENTS TOWARDS  
ENVIRONMENTAL ISSUES AT FACULTY OF  
AGRICULTURE IN NORTHERN CYPRUS**

**MASTER'S THESIS**

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**June, 2017**

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## **ACKNOWLEDGEMENT**

I would like to thank everybody contributing this study, especially to my precious adviser Dr. Fidan ASLANOVA who supported me during my Graduate Study, Assoc. Dr. Şerife GÜNDÜZ who helped me during my research phase and all students answering to my questionnaire of the research.

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## **ABSTRACT**

### **BEHAVIORS AND ATTITUDES OF STUDENTS TOWARDS ENVIRONMENTAL ISSUES AT FACULTY OF AGRICULTURE IN NORTHERN CYPRUS**

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**Master Thesis, Major Fields of Environmental Studies and Management**

**Thesis Advisor: Dr. Fidan ASLANOVA**

**June 2017, 98 pages**

This study was conducted in order to identify the attitudes towards environment and knowledge of students of Agriculture Department of Northern Cyprus Universities about the environment. A questionnaire of four sections was conducted with university students during the research. The survey was organized as; personal information at the first section, environmental knowledge test at the second section, attitudes towards environment at the third section and behavioral scales at the fourth section.

The research consisted of students studying in Agriculture Department in Northern Cyprus Universities in spring semester of 2015-2016 academic year, as the sample consisted of 114 female, 186 male, totally 300 students studying in fall semester of the same academic year.

The data obtained during the application were analyzed in SPSS 20.00 package program. Whether the attitudes and behaviors' of students towards environment differed in terms of independent variables of the research were investigated by using t-test for two variable features and Anova, Wilkis Lambda, Manova test for more than two features.

According to the findings of the research, the attitudes and behaviors' of university students towards environment do not differ according to educational level, income level of their parents and whether they received training about environment.

**Keywords:** Environment, Environmental Problems, Environmental Education, Environmental Attitudes and Behaviors.

## ÖZET

### KUZEY KIBRIS ÜNİVERSİTELERİNDE ZIRAAT BÖLÜMÜNDE EĞİTİM GÖREN ÜNİVERSİTE ÖĞRENCİLERİNİN ÇEVREYE YÖNELİK TUTUM VE DAVRANIŞLARI

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**Haziran 2017, 98 sayfa**

Bu çalışma, Kuzey Kıbrıs Üniversitelerinde Ziraat bölümünde eğitim-öğrenim gören öğrencilerinin çevreye yönelik tutumları ve davranışları ile çevre hakkındaki bilgilerini belirlemek amacıyla yapılmıştır. Araştırmada üniversite öğrencilerine üç bölümden oluşan anket uygulanmıştır. Anketin birinci bölümünde öğrencilerin kişisel bilgileri, ikinci bölümde çevre sorunlarına yönelik tutum ve davranış, üçüncü bölümde ise çevre bilgi testi yer almıştır.

Araştırmanın evrenini 2015-2016 eğitim-öğretim yılı bahar döneminde Kuzey Kıbrıs Üniversitelerinde Ziraat bölümünde öğrenim gören öğrenciler, örneklemini ise aynı yılda eğitim-öğretim yılı güz döneminde öğrenim gören 114'ü kız, 186'sı erkek olmak üzere toplam 300 öğrenci oluşturmaktadır.

Uygulama sonucunda elde edilen veriler SPSS 20.00 paket programı kullanılarak analiz edilmiştir. Öğrencilerin çevreye yönelik tutum ve davranışları araştırmanın bağımsız değişkenleri açısından anlamlı bir farklılık gösterip göstermediği iki değişkenli özellikler için t-testi, ikiden fazla olan özellikler için ise Anova, Wilks Lambda, Manova testi kullanılarak araştırılmıştır.

Araştırma bulgularına göre, üniversite öğrencilerinin çevreye karşı tutum ve davranışları, anne ve babalarının eğitim düzeylerine, ailenin gelir düzeyine ve daha önce çevreyle ilgili ders alıp almamalarına göre önemli farklılık göstermemektedir.

**Anahtar Kelimeler:** Çevre, Çevre Problemleri, Çevre Eğitimi, Çevreye Yönelik Tutum ve Davranışlar.

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## TERMINOLOGY

**Environment:** The media consisted of organic and inorganic matters where all creatures of the world live and which both affects and is affected by creatures (Alım, 2006).

**Environmental Problem:** When it is mentioned about environmental problem or pollution, it comes to mind both the issues emerging from pollutants like air, water and soil and issues emerging from other ecological problems like noise, acid rain, erosion and climate changes (Yıldız et al., 2000).

**Environmental Education:** It is a continuously learning process among disciplines which provides knowledge, ability, value and experience for solving environmental problems in order to let individuals develop susceptibility and awareness towards their environment and leave it healthy and clean for the next generations by having them identify the values, attitudes and concepts regarding the environment (Vaughan, Gack, Solórzano, Ray, 2003).

**Consciousness:** Make awareness about the importance of environment and environmental problems.

**Knowledge:** Giving perspectives about the environment and environmental problems.

**Attitude:** Developing environmental awareness and increasing motivation for participating in activities of protection and development.

**Ability:** Bringing skills that are necessary for identification and solution of environmental problems.

**Participation:** Supporting and encouraging active participation of every segment of society in solving the environmental problems (Pandey, 2006).

**Environmental Attitude:** Ensuring the gain for individuals and societies obtain certain value judgements and sensitivity for active participation desire for protecting and improving environment (Ünal & Dımışkı, 1999).

**Environmental Behavior:** It is a measurement showing how much an individual is prepared to protect the environment actively, and it is the perception environmental issues and opinion about them of that individual (Yeung, 2002).

## **ABBREVIATIONS**

**IEEP:** International Environmental Education Program

**TRNC:** Turkish Republic of Northern Cyprus

**EA:** Environmental Actions

**SPSS:** Statistical Package for the Social Sciences

**X:** Arithmetic Average

**N:** Number of People

**(%):** Percentage

**P:** Significance

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# **CHAPTER I**

## **INTRODUCTION**

As of the first periods of history, the fact that human being has benefited from the natural resources and the efforts to improve life conditions has shown a continuous increase and diversification in the direction of technological developments (İncekara and Tuna, 2010). Governments all around the world make effort to make their population reach better life standards through economic growth (Cevher-Kalburan, 2009).

This process has continued to our date by multiplying. 20th century is the one in which human being progressed majorly in science and technology. This breakthrough increases life standards of people, even we can see that we are beyond the dream of people lived in the previous century. It is undoubtedly the environment most affected by this development. The environment is defeated by the power fight of economy and people have not given up attacks that will destroy them (Atasoy and Ertürk, 2008), they have began to exhaust both themselves and the nature (Tahiroğlu, Yıldırım and Çetin, 2010).

Generally there is a susceptibility towards environmental problems both individually and socially, and this susceptibility is increasing. The fact that social values have important role in understanding of individual and social environmental issues and in their solution has been known for a long time (Schultz, 2002a, 2002b). The situation emerging from the structure of environmental issues causes students not to understand adequately the events causing environmental problems. The fact that environmental events are not understood accurately forms the core of environmental problems.

Many researchers indicate that the root cause of environmental problems is the developing industry and increase in population rapidly (Aydın and Kaya, 2010). For this reason, one of the main problems of this century we live in is the environmental problems. Education for environment, international cooperation in solution of environmental problems common policy and mutual collaboration among governments are accepted as a prior condition in 21st century. Because it will not be enough to save the earth or themselves in long period and that only a few countries have achievements on this issue without making common and simultaneous environmental policies among countries; without determining common policies and sanctions that will satisfy both



developed and developing countries in solution of global environmental issues; without spreading the mentality of education for environment in all countries (Atasoy, 2005).

Many societies particularly European Union put forward many projects and try to take precautions in order that people could live more healthy environments in today's world where several doomsday scenarios are produced (Alim, 2006).

Today, one of the solutions taken into consideration for protecting the environment comes environmental education. Environmental education comprises all of the society. In this regard, environmental education could be described as developing environmental awareness in all societies, providing permanent and positive behaviour changes towards environment and protecting natural, historical, cultural, socio-aesthetic values, providing active participation and taking place in the solution of problems (Budak, 2008; Bilgili, 2008). The education of protecting the nature and natural resources is the core of environmental education. The aim in environmental education is to make people not only be aware of the environment but also make them volunteer participants by increasing their abilities on environment issue (Şüyün, 2010).

The negative way of the specialization of students in a certain field at higher education is that they become stranger to the perception of any social problem taken by the society. Accordingly, well-educated students will fulfill a certain task, however; they will go away from abilities and talents of solving complicated problems that society faces (Boyer, 1998). Especially, in order to have success in studies of solving environmental problems the importance of tending primarily to education among disciplines as well as special fields at higher education (Probert, 2002).

That environmental issues are globalized and they have come a status of threatening life on earth have caused people to question again their attitudes and behaviours towards environment and their relationship with nature; to re-observe their duties and responsibilities against nature; to re-define the ecologic culture and environmental consciousness. Particularly, the relationship between education and environmental problems has started to be investigated lately and to question the suitability of curriculum of schools with the environment sensitivity and ecological consciousness. As a result of all these issues, the necessity, importance of environmental education and making its awareness among students in schools have become a matter on the agenda both in our country and all around the world. The aim of this study is to research

whether there is any difference among the attitudes and behaviours of university students of Agriculture Department in Northern Cyprus Universities towards environment.

### **1.1. Problem Statement**

What levels are the attitudes and behaviours towards environment of university students (Libyan, Turkish and Nigerian) who are studying at Agriculture Department of Northern Cyprus Universities and is there any relationship among demographic variables like students' sex, economic level, educational background of parents, having received courses about environment or not and whether to be a volunteer member of any organization?

The aim will be to find answers for the following questions based on this problem phrase:

- What levels are the environmental attitudes of Libyan, Turkish and Nigerian students who are studying at Agriculture Department of Northern Cyprus Universities?
- What levels are the environmental behaviours of Libyan, Turkish and Nigerian students who are studying at Agriculture Department of Northern Cyprus Universities?
- Do the environmental attitudes and behaviours of Libyan, Turkish and Nigerian students who are studying at Agriculture Department of Northern Cyprus Universities differ based on sex?
- Do the environmental attitudes and behaviours of Libyan, Turkish and Nigerian students who are studying at Agriculture Department of Northern Cyprus Universities differ based on educational background of their parents?
- Do the environmental attitudes and behaviours of Libyan, Turkish and Nigerian students who are studying at Agriculture Department of Northern Cyprus Universities differ based on economic status of their parents?
- Do the environmental attitudes and behaviours of Libyan, Turkish and Nigerian students who are studying at Agriculture Department of Northern Cyprus Universities differ based on whether they have received environmental course?

- Do the environmental attitudes and behaviours of Libyan, Turkish and Nigerian students who are studying at Agriculture Department of Northern Cyprus Universities differ based on whether they are a volunteer member of any organization about the environment?

### **1.2. Objective**

In this research, it is targeted to investigate the environmental attitudes and behaviours of Libyan, Turkish and Nigerian students who are studying at Agriculture Department of Northern Cyprus Universities in terms of various variables.

### **1.3 Importance of the Research**

It is the entirety of positive or negative attitudes and thoughts and beneficial behaviours of individuals like readiness for the solution of environmental problems, value judgments towards environment and the attitudes and behaviours towards environment. Considering the seriousness of the environmental problems, the necessity of such attitudes to be acquired by individuals starting from pre-school period all along higher education process emerges. That is, all educational levels are charged major tasks with regard to provide individuals with attitudes towards environment and environmental issues (Erten, 2005).

If we should take into consideration how important human factor is in solution of environmental problems, the necessity that individuals should become conscious on environment and its issues. When it is considered from this point of view, education and environmental attitudes and behaviours cannot be ignored. The researches conducted are insufficient in determining how much environmental attitudes and education of people are sufficient. Authentic researches to be carried out in such fields would help to the solution of the problems.

### **1.4. Hypotheses**

The following hypotheses will be taken into consideration in this research:

- It is assumed that students participating in the research answer truly and sincerely all items of thesis scale,
- The working group represents the research universe,
- The working group participate in the study willingly.

## 1.5. Limitations

This research;

- is limited to the students studying at Agriculture Department of Northern Cyprus Universities,
- its findings is limited to the answers they give to environmental attitude scale,
- the sampling of the research limited to 400 students studying at university in fall semester of 2015-2016 academic year.

## 1.6. Definitions

The definitions of the conceptions mentioned in the research are given as follows:

**Environment:** The media consisted of organic and inorganic matters where all creatures of the world live and which both affects and is affected by creatures (Alım, 2006).

**Environmental Problem:** When it is mentioned about environmental problem or pollution, it comes to mind both the issues emerging from pollutants like air, water and soil and issues emerging from other ecological problems like noise, acid rain, erosion and climate changes (Yıldız et al., 2000).

**Environmental Education:** It is a continuously learning process among disciplines which provides knowledge, ability, value and experience for solving environmental problems in order to let individuals develop susceptibility and awareness towards their environment and leave it healthy and clean for the next generations by having them identify the values, attitudes and concepts regarding the environment (Vaughan, Gack, Solorazano, Ray, 2003).

**Attitude:** It is the tendency attributed to individual and form his/her sense, thought and behaviours systematically towards a psychological object (Kağıtçıbaşı, 2013).

**Environmental Attitude:** Ensuring the gain for individuals and societies obtain certain value judgements and sensitivity for active participation desire for protecting and improving environment (Ünal and Dımışkı, 1999).

***Environmental Behaviour:*** It is a measurement showing how much an individual is prepared to protect the environment actively, and it is the perception environmental issues and opinion about them of that individual (Yeung, 2002 ).

## **CHAPTER II**

### **RELEVANT LITERATURE**

#### **2.1. Environment**

Environment can be explained as the entire outer conditions affecting creatures especially people and which affected by them. Consequently, environment means us and everything outside us. It is the place and factors, land, climate, sources, beliefs, customs and habits which people are interested make contact with and where they live (Kavruk, 2002).

The concept of environment both have spread and reached complex dimensions. As well as natural (physical) dimension of environment in the last quarter of the twentieth century, its cultural, politic, economic, ecologic, social, psychologic dimensions started to be debated and expressed loudly to have multi dimensions and to be formed of complex relations and interactions (Atasoy, 2005).

“Environment” is generally an organism surrounded as it is a notion belonging to ecology actually. The surrounding thing is the milieu where it grows and is active. Briefly, the “environment” notion comprises all factors affecting biologic nature of an organism both known and unknown which stays out of the organism (Atasoy, 2005). The environment is a multi disciplinary place/atmosphere units formed of both living and non-living factors (Kemp, 2003).

The environment is said to be the milieu where creatures live affecting in various types and they are affected by it too. The environment of a living creature is the place where it maintains all social, biological, cultural and economic activities and meets the needs of nourishment, reproduction and sheltering. The environment comprises all viable and non-viable creatures, the physical, chemical and biological factors that could affect those (Yıldız et al., 2005).

The environment is the integrity of material creatures, events and energies (Tont, 2001).

#### **2.2. Environmental Problems**

Though there is not a clear definition of environmental problem notion, we confront it as environmental issues like not using appropriately the natural resources, biodiversity, the situation of forests, seas and shore sources. The core of environmental problems is

pollution. The pollution can be seen in different types such as air pollution, water pollution, soil pollution, radioactive pollution and noise pollution (Yel et al., 2004).

Yıldız et al. (2000) convened environmental problems under five headings:

1. Stopping Population Growth
2. Sustainable Usage of Natural Sources
3. Legal Arrangement of Social Expenditures
4. The Protection of Biodiversity
5. Giving Importance to Environmental Education

As living creature environment is a production of the milieu it belongs, changing of the environment with natural or several interventions affects in the same rate the whole viable activities in that area (Şahin et al., 2004).

Uncontrolled urbanization and rapidly developing population, pollution of streams, ineffectiveness in distribution and consumption of freshwater, global warming, nearly perished natural life, climate change as a result of the increase in carbon dioxide gases, thinning and depletion of ozone layer, greenhouse effect caused by the gases diffused in the atmosphere, acid rain, increase in chemical waste covering shores, perishing of millions of plant and animal species, nuclear pollution, toxic waste, mercury pollution and the decrease of greens and increase of desertification are the main environmental problems in today's world.

### **2.3. Environmental Education**

It is called environment to the milieu where living creatures affect other viable or non-viable creatures and they are affected by as well (Alım, 2006).

The environment of a living creature is the place where it maintains all biological, social, cultural and economic activities and meets the needs of nourishment, reproduction and sheltering that are the main principles of life (Yıldız, Sipahioğlu and Yılmaz, 2000).

The environment is where notions of people and nature that seem to be inseparable intersect. These notions are two main factors that need one another in fact, by all means,

but which could completely exist without the presence of the other. These two factors have the position of both active and passive to another (Parlak, 2004).

Environmental education aims to develop sensitivity with regard to protecting and developing of natural habitat, and to change individuals' attitudes and behaviours in a positive way (Bilgi, 2008).

Environmental education provides the increase in social susceptibility and interest, obtaining information necessary for environmental protection, research of the methods necessary for the solution of environmental issues (Dresner and Blawner, 2006).

Doğan (2000) makes an assessment about the environmental education to be an eternal process in which individuals and societies acquire awareness about sustainable development through knowledge, values, abilities and experiences, and obtain the determination to take action in order to resolve the current and future environmental problems individually.

Considering the definitions about environmental education generally, while on the one hand, it is aimed to obtain the necessary cognition, perception and behaviour types towards environment with environmental activities, on the other hand, it is given importance to the processes developing students' personality positively like experience, active participation, responsibility and take charge in. For this reason, environmental education, beyond being a certain part and subject of general education systems, is taken as a quality of application area where will and skills of living in harmony within the environment (Özdemir, 2007).

That the environment sustains its existence depends on the compliance between viable and non-viable factors. If there should be any outer intervention or by any of such factors, there emerge disturbances in environment's compliance mechanisms which perform perfectly (Çimen, 2008).

Human being always struggles with the nature that he/she lives in by also using technology and changes the environment in order to increase welfare level. The environmental problems that more powerfully threaten the future of people every second emerge as a result of this struggle and changes. Just as people play an important role in the emergence of environmental problems, they have major tasks too in minimizing the emerging problems. For this, environmental awareness should be provided to people



from very young ages and so, they should be responsible individuals. This could only be ensured with an effective and efficient education exclusively environmental education (Alim, 2006).

#### **2.4. The Importance of Environmental Education**

Environmental education is an important process that shape the attitudes and behaviours of individuals towards the viable and non-viable components in the environment, imposing them sustainable life conscious and making them sensitive against environment and well-aware individuals. Creating environmental awareness in individuals beyond creating awareness against the environment is an important step in environmental education. As a matter of fact, it may be insufficient in developing positive attitudes and behaviours against environment that having knowledge on environment (Erten, 2006).

The environmental education which starts to be given at early ages not only help individuals to adopt nature-friendly life styles but also to take active role in this process and to develop skills of critical thinking, creative thinking and problem solving (Bülbül, 2007).

In this way, while individuals make sustainable steps into future, they may also realize their own development. As a consequence, environmental education where students take place actively increase the sensitivity towards environment and it causes positive changes in their value judgments towards environment. This situation necessitates the media of rich environmental education following up the actual in environmental issues (Keleş, 2007 quoted from Palmer and Neal).

Environmental education is not limited only to formal education, but it comprises general as well as lifetime educational activities that are included in non-formal education. The environmental education cares for occupation, age, socio-economic and cultural structures of individuals forming the society. Thus, environmental education provides individuals to have certain ethical values regarding environment and provides to protect the productive and aesthetic values of the environment (Bülbül, 2007).

Environmental education makes obligatory to conduct within school and outside school activities together. The theoretical training process in classroom environment cannot be sufficient to draw attention to environmental problems and develop suggestions for their

solution. The way that every individual could contribute to protecting the environment in their own behaviour especially as consumer consists of active participation to learning experience and taking responsibilities actively. The permanent learning in environmental issues should be provided by taking active roles of students (Bozkurt and Cansüngü, 2002).

Environmental education is an educational process which provides learners who are sensitive to environmental rapid changes in the world, who can bring solutions to environmental issues of our day with abilities they need and where the instructors have an active role in protecting the environment. Environmental problems that are increasing globally day by day makes environmental education obligatory. For this reason, environmental education uses a wide educational scale by underlining directly the experience and practical activities (Keleş, 2007).

## **2.5. Targets and Objectives of Environmental Education**

The most effective way in preventing environmental problems and destruction is certainly education processes that will bring up individuals who are sensitive to environment and whose environmental awareness is high. Environmental education is to make people gain abilities to manage natural resources and environmental richness of the earth for solving the environmental problems, to make people undertake responsibilities on this matter and to provide them with knowledge, consciousness and values (Kavruk, 2002).

In this regard, environmental education has gain importance increasingly all around the world since the international studies that were carried out in Stockholm in 1972 and Tbilisi in 1977 and countries passed into application through formal and informal educational processes from pre-school period to later ages by configuring environmental education programs. The foundation of environmental education was established in Tbilisi, capital of Georgia in 1977 by a meeting and the frame drawn here lighted the environmental education processes applied in the World. In this context, general objectives of environmental education were stated as shown below.

- Developing the conscious and sensitivity of connection among economic, social, politic and ecologic events in urban and rural regions;

- Creating possibilities for individuals to have the necessary knowledge and standards of judgment in making attitudes, responsibilities and abilities in order to protect and improve the environment;
- Creating new behaviours addressing to environment in individuals and as a whole, in the society (Ünal and Dımişkı, 1999).

The targets of environmental education determined according to Tbilisi Report are stated below in terms of consciousness, knowledge, attitude, ability and participation dimensions:

***Consciousness:*** Making individuals and societies have consciousness and sensitivity on the environment and its problems;

***Knowledge:*** Making individuals and societies have fundamental knowledge and experience about environment and its problems;

***Attitude:*** Ensuring the gain for individuals and societies obtain certain value judgements and sensitivity for active participation desire for protecting and improving environment;

***Ability:*** Making individuals and societies have abilities for identifying and analyzing environmental problems;

***Participation:*** Providing individuals and societies with the opportunity of taking active part in studies of bringing solution to environmental problems from all levels (Ünal and Dımişkı, 1999).

The following decisions were taken in that conference regarding environmental education;

- It should be indicated how biological and physical events would affect life in economic, social, political, cultural, historical, technological and aesthetical ways taking environment as a whole,
- The knowledge integrity should be provided through natural and social sciences,
- It should be focused on researches about environmental issues,
- It should be addressed to broad masses about environmental issues and let them be more sensitive about the environment,

- The environmental issues should be brought to the agenda in local, regional and international levels,
- Environmental education should be supplied a life time to everyone from 7 till 70 (Külköylüoğlu, 2000).

## **2.6. Behaviours Towards Environment**

It was conducted several researches where different independence variables comprising individual and social factors as well as politic attitudes were used in order to determine behaviours towards environment. It was found that there was an inconsistent relation between behaviours and conditions when all independent variables were used. The reason of that inconsistency resulted from the insufficiency of measurement and the fact that problems were not sufficiently identified.

Stern (2000) alleged that behaviour against the environment is not in a single dimension structure and that is why measurement problems are experienced because findings show behaviours depending on different factors. The only way to classify a behaviour is to separate the special and general behaviours from each other. The general behaviour includes activities like participating to environmental societies, supporting them, signing agreements. Such behaviours affect public policies and provides benefit to the environment differently from direct and activist behaviours. As for speacial behaviour, it includes the activities like consumption of vegetable, recycling, organic food consumption. Such behaviours that have a direct effect on the environment are more effective when everyone acts in the same way.

Some of the results of the research stated that there is a significant relation between behaviour and intention towards environment, while some show that there is a poor relation between attitudes and behaviours towards environment. In our globalizing world, there are findings showing that knowledge related to environmental issues, attitudes towards environmental problems and environment-friendly behaviours change according to the cultures (Laroche et al. 2002).

## **2.7. Attitudes Towards Environment**

The attitude is the positive or negative tendencies in cognitive, affective and behavioural characteristics that individuals have regarding a certain individual, object or

situation (Kollmuss and Agyeman, 2002). It was found that attitudes towards environment has very little effect on environmental behaviour.

Gigliotti (1994) stated in his study where he investigated the situations of university students acting towards environment that the youth thinking environmental problems will be solved thanks to technology are reluctant to make sacrifices in their life styles. There is a difference between the attitudes and behaviours towards environment due to some reasons such as the consumers indicating that they are sensitive to the environment do not prefer buying environment-friendly goods.

Ajzen and Fishbein (1980) pointed out that a researcher aiming at finding a relation of high level between attitude and behaviour should measure attitudes towards certain behaviours. For example, when the attitudes towards driving a car and climate change are compared, no relation is seen between them generally. Even, someone who has anxiety about climate change is tended to drive a car because his/her attitude towards climate change is not related to driving a car (Kollmuss and Agyeman 2002). Accordingly, unifying variables towards behaviour like social and individual norms and making an appropriate matching will empower the relation between attitudes and behaviours.

## **2.8. Environmental Conscience**

Human being meets his/her entire needs especially physiological needs from the environment which he/she is in interaction. However, he/she is face to face with serious environmental problems having used all obtained natural sources as to his/her own wish and irresponsibly. It can be said that industrialization activities that have been seen for the last 200 years especially in Europe has an important effect in the acceleration of today's process. The environment/nature which is taken as "free goods" economically within industrialization efforts has overcome a multi usage phase up to date. Studies that could be deemed to be important for restoring the spoiled natural balance are not foreseen in this process let alone replacing the sources taken from nature. All negativities experienced as environmental problems (pollution, deterioration) are in fact a natural result of consumption but not problems. It was in 1960s that was mentioned about supporting the environment both socially and individually as a whole, researching solutions and focusing on common view "common heritage of humanity" of the world by comprehending problems deeply (Özmen et al., 2005).

The report “Our Common Future” published by United Nations in 1987 emphasized on the necessity that environment and economic development should be thought together and the current needs should be met in a way not to hinder the future generations to meet theirs and caused environmentalist movements to acquire legal support and to become more effective (Ay and Ecevit 2005).

The basis of environmentalist movement has humanistic values like social unity and cooperation. People generally show interest to the objects they esteem. Even if the formation of value differs according to the quality of an object and social status of people, as a result, it is expected to be shown to the esteemed object, create sensitivity or feel a number of good feelings (Çalışkan 2002). The environmental problems seen today are considered as the values where everyone could come together universally.

Formation of value on environment begins in individuals with his/her awareness on environmental problems and thinking the reasons. It is expressed with the sensitivity against environmental problems that individual or society reacts against outer factors that have turned to be problem. The sensitivity towards environment could be summarized as the awareness of people on firstly local, national and global environmental problems, their interest on such issues, taking responsibilities of them and their willingness to make several initiatives in order to protect and develop the nature (Çalışkan 2002).

## **2.9. Related Publications and Researches**

### **2.9.1. Domestic Studies on Environmental Education, Environmental Attitudes and Behaviors**

One of the most important subjects on the agenda of all people on earth today are the environment and environmental problems. It is necessary to protect the environment in order that future generations could live in a more healthy and reliable environment. Protecting the environment realizes with creating environmental awareness in people. The researchers have developed many environmental behaviours and environmental attitudes by considering different factors; they also have carried out many researches on environment and attitudes and behaviours towards environment. Some of them are as follows:

**Bahar (2000)** aimed to determine the knowledge level of 200 university students on global warming, greenhouse effect and ozone layer in the research named “Prior

Knowledge of University Students on Environmental Education, Notion Mistakes” It was detected in the direction of study results that university students did not have sufficient knowledge level before taking “Environmental Education” course, they did not hear about global warming, greenhouse effect and ozone layer depletion or they had wrong knowledge about them.

**Altın (2001)** aimed to determine the attitudes of Biology Teacher members studying in 11 different education faculties in different areas in master’s thesis study named “Environmental Education on Biology Teacher Members”. As a result of the study, it was observed that the interest towards environment and attitude points of students were insufficient. It was detected that fourth grade students were more successful than first grade students on the notions regarding ecology and their attitude points were higher. Furthermore, it was seen that as socio-economic level increases the attitude towards environment increases too positively. No relationship was determined between attitude and sex towards environment.

**Şimşekli (2001)** investigated the activities carried out within the scope of the project “Applied Environmental Education” in Bursa in 2000–2001 academic year with respect to the contribution of school administrators and teachers. The minutes prepared during activity reports and inspections prepared by 14 school administrators that were selected for the project were examined and so the rate of environment conscious of children was investigated. It was observed that teachers have a sufficient awareness about environment is one of the factors making difficult the environmental education.

**İlgar (2001)** stated that the development should be targeted for a desired environment as a result of the research. He fixed that educative, instructive and directive programs should be included more in mass communication. Furthermore, the education of parents should be paid attention in order to obtain more healthy results.

**Yılmaz (2002)** investigated in their study the contribution of the events realized in the environment in which we live to the environmental problems. In order to prevent such problems and protect the environment, they precised that environmental education given to students is insufficient as a result of the study they conducted to research how much knowledge the higher education students have about the environment. They concluded that written and visual media have more contribution to environmental knowledge of students.

The misconceptions of students about notions regarding greenhouse effect were investigated in the study named “Primary School Students’ Misconceptions of Notions regarding Greenhouse Effect in Environmental Education” that was conducted by **Bozkurt and Cansüngü (2000)**. As a consequence, it was detected that students are not aware sufficiently about greenhouse effect and they have many misconceptions.

**Aksoy (2003)** explained the steps of solution of a scientific problem in the study “Application of Problem Solving Method in Environmental Education”. He developed a model in order that this method could be applied in environmental education. It was determined in the research that secondary school students develop logical solutions for environmental problems they face by using the steps of problem solving method, and they could also develop their environmental awareness more healthily by developing a more systematic thinking ability.

**Çabuk and Karacaoğlu (2003)** investigated in their study “Investigation on the Sensitivity of University Students towards Environment” the sensitivity of students towards environment. It was detected in the research that the sensitivity of students towards environment differ majorly according to their sex, age, their educational program, class variabilities.

**Erten (2003)**, aimed to create a new course plan about how to make the conscious of “reducing garbage” in the research named “A Teaching Model about Bringing 5th Grade Students in the Awareness if Reducing Garbage”. He researched whether there is a consistent relationship among the knowledge, attitudes and behaviours of the students about reducing garbage by determining them. The environmental awareness of students increased much with the planned course plan, and such knowledge became permanent.

**Erten (2003)** dealt with environmental awareness of teachers studying in pre-school institutions in their study named “Determining Environmental Awareness Levels of Teachers in Pre-School Educational Institutions and Determining Environmental Education Situation in These Schools”. Consequently, it was found that environmental awareness of teachers were different regarding several environmental issues.

**Ekici (2005)** investigated the attitudes of students towards environmental education in the study named “Investigating the Attitudes of High School Students towards



Environmental Education”. As a consequence, it was determined that the attitudes of students change according to sex, class, social and economic levels.

**Erol (2005)** “tried to determine the knowledge of university students about environmental concepts as well as their interest and attitudes towards environment and environmental issues in his study named “Attitudes of Second Grade Students of the Department of Classroom Teaching towards Environmental Problems” and whether they differ majorly according to socio-economic features of students. According to the findings of the research, the interest of students in environment and environmental problems are weak, they have misconceptions on some matters about ecology, and positive attitudes of female students towards environmental problems are higher than those of male students. Furthermore, there is a significant difference between students’ attitudes towards environment and their mothers’ occupations, ages and number of sibling, yet there is no significant difference according to the settlement, geographical region, their fathers’ occupations, and educational level of their parents, the house they live in, income level of their parents and whether they received training about environment.

**Özmen, Çetinkaya and Nehir (2005)** intended to determine in their study the attitudes of university student towards environmental problems and the factors affecting such attitudes. As a result of the assessments, they suggested that educational programs that will activate the groups which are sensitive to environmental issues should be developed for an effective environmental education.

**Akçay (2006)** intended to compare the activities about environment education realized within the scope of pre-school education program in Canada, America, Switzerland, Germany and Japan through the activities on environmental education carried out under pre-school education program within Turkish National Education Sysyem in his master thesis under the title “Environmental Education for Pre-School Students in Different Countries”.

**Akçay (2006)**, investigated the scope of environment and gave place to environmental issues and international studies, conferences and decisions taken against such problems after making the definition of environment fact in the first part of his thesis work consisting of three sections. Moreover, he tried to establish a relationship between environment and pre-school training by touching upon fundamental properties and

developments of environmental education and pre-school training facts. In the second section of the study, the method is explained and the targets and activities towards environmental education within the scope of pre-school education program of the countries where comparison will be done. In the third section, the program of every country is compared with Turkey one by one. As a consequence, based on all these comparisons, a general assessment has been done and suggestions has been tried to be given.

**Buhan (2006)** studied in the research the environmental awareness of teachers working in pre-school programs and the environmental education in these schools. He tried to determine what level pre-school teachers give environmental education in education programs towards environmental conscious, attitude, knowledge and behaviour sub-dimensions. It was observed at the end of the research that environmental awareness, attitudes and behaviours of protecting the environment of teachers are not sufficient. At the end of the study, it was emphasized that environmental science course should be given the institutions training pre-school teachers, and that there is need to create a national environment protecting program.

**Erol and Gezer (2006)** investigated the attitudes of 2nd grade students of Pamukkale University Classroom Teaching Department in the research named “Attitudes of Classroom Teaching Students towards Environment”. As a result of the study, attitudes of female students towards environment were found to be higher than those of male students. Moreover, it was detected that there is a significant difference between attitude points of female students and male students towards environment.

**Uzun and Sağlam (2006)** aimed to introduce “Environmental Attitude Scale” that they developed in their research named “Environmental Attitude Scale for Secondary School Students”. They applied the scaled they developed to 969 high school students totally. The data obtained was analyzed in SPSS program. As it was pointed out that the scale could be used safely in determining behaviours and attitudes towards environment, some other suggestions were given too.

**Daştan (2007)** intended to analyze the interest, knowledge and sensitivity of biology teachers towards environmental problems in his thesis named “Assessment of Biology Teachers’ Opinions about Environmental Problems in Turkey”. It was ascertained that there are differences in teachers’ interest and sensitivity towards environmental

problems according to their professional seniority as a result of the assessments. However, it was observed that teachers with whom the study was conducted, behave more sensitively against the problems they see, feel and face personally. As a result of all findings and assessments, it was stressed upon the importance that local authorities have the necessary responsibilities and sensitivity as well as the regulations made by central administrations in order to be successful in solving environmental problems and raising a certain sensitivity by training local people on environmental issues.

**Deniş and Genç (2007)** conducted a research on the attitude and basic environmental concept success of students towards environment in their study called “Attitudes of Classroom Teaching Students Who Are Taking and Not Taking Environmental Sciences and Comparison of Their Success in Environmental Sciences”. The results of the research show us that the students taking environmental sciences are more successful than those not taking, furthermore, there is a significant difference between their success scores. In addition, it has not been detected a significant difference between environmental attitude scores of the students who are taking and not taking environmental sciences course, yet the students have a positive attitude towards environment.

**Gökçe et al. (2007)** intended to determine the attitudes of primary school students towards environment in their study. Independent variables such as attitudes, sex, academic success level of students, educational background of their parents and income level of the family were investigated in the research. They detected in the research that the attitudes of students towards environment differ according to their sex and academic success level, educational background of their parents and income level of their families.

**Ak (2008)** studied the awareness of primary school teacher candidates about environment and the relation of the departments they study in and their sex in the thesis named “Investigation of Awareness of Primary Education Candidates towards Environment in terms of Some Demographic Variables”. As a result of the analyses, it was observed that there are significant differences between primary school departments taking environmental sciences course and those not taking. In contrary to what expected, awareness level of students of Science and Technology Department in which environmental courses are given much was seen to be lower. In addition, it was also

detected that there is a significant difference between sex and some sub-divisions of environmental awareness scale. This significant difference is in favor of male students. It was concluded from the research that consciousness of teacher candidates towards environment are affected by the courses they take.

**Uğulu (2008)** researched in their study the effect of endemism conception on the attitudes of students towards environment. As a result of the conducted applications, it was concluded that the students who perceive endemism conception accurately have higher attitudes towards environment.

**Aslan, Sağır and Cansaran (2008)** tried to adapt the “Attitude and Knowledge Scale towards Environment” which was developed before in their study called “Adaptation of Environmental Attitude Scale and Determination of Environmental Attitudes of Primary School Students”. This scale was applied on 525 primary school students of 7th and 8th grades. While data was evaluated in the research, descriptive and procedural statistical techniques were used. Unrelated samples t-test was used in comparing the differences between total attitude scores and items among classes, and no statistical difference was seen among total environmental attitudes as a result of the analyses. But in some sub-dimensions a significant different was seen.

**Atasoy and Ertürk (2008)** intended to determine the environmental attitudes and knowledge of primary school students in their study “A Field Research on Environmental Attitude and Knowledge of Primary School Students”. The study was carried out with 1118 students of 6th, 7th and 8th grades. The Environmental Knowledge Test and Environment Attitude Scale were used as data collection tools and consequently, it was detected that environmental attitudes and knowledge of students were not sufficient.

**Ek (2009)** intended to determine in their research the attitude and sensitivity of students studying on different academic fields towards environment and the factors having an influence on them. As a result of the research it was detected that the scores obtained from environmental attitude scale of several variables like students’ schools, class, sex, age groups, the location they lived longest, occupation of their fathers.

**Kalburan (2009)** conducted the study of validity and reliability of “New Ecologic Paradigm Scale” and “Environmental Attitude Scale for Children” that are aimed at

children. On the other side, he aimed to determine the effect of environmental education program on environmental attitude levels that are implemented on the basis of developing environmental attitude of 60-72 month children that are in kindergarten and their parents. According to the results obtained in the research, suggestions for instructor, families and scientific researches that could be done in future in order to help pre-school children and their parents to develop environmental attitudes were given.

**Gür (2009)** intended to investigate the environmental education, the importance given to environmental education of 8th grade primary school students and the acquisition level of their environmental education in the research named “Determination of Environmental Awareness Achievement Levels”. As a result of the studies, it was observed that female students have more environmental awareness than male students. A significant difference was seen in secondary education and university levels regarding “knowledge” dimension.

**Kaya, Akıllı and Sezek (2009)** investigated the attitudes of high school students towards environment in terms of sex in their study named “Investigating Attitudes of High School Students towards Environment in terms of Sex”. The prepared “Environmental Attitude Scale” was applied on 450 high school students. The results were assessed in SPSS program. It was detected as a result of the study that attitudes of female students towards environment are better than male students. However, it was determined that students especially did not turn their environmental ideas into behaviours.

**Kesicioğlu and Alisinanoğlu (2009)** intended to demonstrate in their research the attitudes of pre-school children towards environment in their research named “Investigation on 60-72 Month Children Attitudes towards Environment in terms of Several Variables”. The study was conducted with 353 children. As data collection tool “Environment Reaction Inventory” was used and analysed in SPSS program. Consequently, a significant difference emerged in terms of sex variable, but such variables as accommodation, mother’s educational background, father’s educational background, family’s income level, and professions of parents did not lead to difference.

**Öngen and Sam (2010)**, conducted a research whether there is any relationship between university students’ environmental attitudes with self esteem in the study

named “Investigation of Environmental Attitudes of University Students with New Environmental Paradigm and Self Esteem Scale”. The study was carried out on 398 volunteer university students. A questionnaire was applied to the students which comprised of the socio-demographic questions for obtaining information about their age, sex, class, economic status of their family and whether to have received course on environmental sciences by New Environmental Paradigm and Self Esteem Scale. At the end of the study, it was observed that average centered approach of female students was higher than male students. A significant relationship was detected between average centered approach and their self esteem.

**Çınar, Akduran, Dede and Altinkaynak (2010)** aimed to determine the attitudes of senior students of nursing department towards environmental problems in their study named “Attitudes of Senior Students of Nursing Department towards Environmental Problems”. The research was conducted on 55 volunteer students. The data was collected by “Personal Knowledge Form” and “Environmental Attitude Scale” that were formed by the researchers and were evaluated in SPSS program. As a result of the study, it was observed that most of nursing department students are at the expected level. Even so, it was believed that the programs for environmental risks and possible results in their education should be given a little bit more place.

**Keleş (2010)** aimed to evaluate in their study the project “Education of Nature in Ihlara Valley (Aksaray) and its Vicinity” named “The Change and Permanence Assessment of Environmental Attitudes, Ideas and Behaviours of Teacher Candidates Based on the Project of Education of Nature”. If we should express in an open way, they tried to determine the efficiency and permanence of the project prepared on environmental awareness, attitude, opinion and behaviour. The study was limited to 25 teacher candidates. Data was collected by using environmental attitude scale and analyses were carried out by using SPSS program and ANOVA. It was consequently determined that the prepared project affected considerably the environmental awareness, attitudes and behaviours.

**Özdemir (2010)** examined the opinions of teacher candidates about global warming in the study named “Investigation of the Opinions of Biology and Science Teacher Candidates about Global Warming in terms of Some Variables”. According to

investigation results, the opinions of teacher candidates about global warming do not differ significantly according to sex and department of education variables.

**Şenyurt, Temel and Özkahraman (2011)** tried to answer the question “Which socio-demographic factors determine the attitudes of university students towards environmental problems?” in their research named “Investigation of University Students’ Sensitivity on Environmental Matters”. The study was carried out with 250 volunteer university students. As data collection tool, “Environmental Awareness Scale” and “Socio-Demographic Questionnaire Form” were used. In the attitudes of students towards environment, the sex and that they have received a course on environment before. However, educational background of their mothers and income level of families did not differ majorly. At the end of the study, it was asserted that university students should give more importance to environmental problems and they have to be aware of them.

**Özgen (2012)** investigated the attitudes of university students towards environmental problems in the study named “Tendency Attitudes of Teacher Candidates to Environmental Problems: Turkey Sample”. The research was conducted with 727 teacher candidates studying in the programs depended on primary education in 8 different university of Turkey. Data was collected through personal information questionnaire and environment attitude questionnaire scales. The method in the research was a descriptive scanning model intended for determining whether the attitude and approaches of teacher candidates towards environmental problems differ according to several variables like sex, grade levels, departments, functional feature of the residential unit in which they reside. The results were detected in the research to be significant according to some independent variables in 3 categories too prepared for attitudes of teacher candidates towards environmental issues.

**Şallı (2011)**, investigated the effect of bringing recycling concept to 48-60 month children attending to pre-school institutions through project-based learning approach in the research called “bringing recycling concept to 48-60 month children attending to pre-school institutions through project-based learning approach”. In the direction of the findings obtained from the research, the acquisition of recycling concept of the children in test group who participated to recycling program that was prepared project-based

learning approach developed more than the children in control group and the program was effective.

**Kutru (2012)** intended to determine the perceptions on nature of university students in his research. He investigated the opinions, feelings about the nature and nature experiences of the students regarding the significance, structure, operation, importance of the nature and relationship between people and nature. As a result, the nature recalled the creatures for a large number of the students. Green area like forest among the places accepted as “nature” came to the fore. Most of the students perceive human being as both a part of the nature and a factor damaging it. As a remarkable finding, the students think that there is a balance in nature and this balance could be disrupted only by the effect of human being. The nature is found to be important in terms of its benefit to human being predominantly. The nature experience which was determined most commonly in working group is nature experience aimed at fun and rest. Accordingly, most of the students feel positive feelings towards nature.

**Nalçacı (2012)** intended to bring to light that performing the subject “Pollution in Our Environment” of Primary Education 4th grade, Science and Technology course by creative drama show the efficiency of the awareness of students on environment. As a result of the obtained findings and their assessment, it was observed that creative drama method is used in Science and Technology course affects environmental awareness of students and has an important place. The data obtained from the analysis of assessment forms taken from students supported this result.

**Güven (2012)** intended to investigate in the research the effect of environmental education based on interdisciplinary approach to the attitudes and behaviours of primary school 4th grade students. The findings demonstrated that interdisciplinary approach is more effective than traditional approach regarding the attitudes and behaviours of students towards environment. Çiftçi and Cihangir (2012) investigated the attitudes of primary school 4th and 5th grade scout students towards environment in their study named “Attitudes of Primary School 4th and 5th Grade Scout Students towards Environment”. The study was carried out with 395 students. Environment attitude scale and open-ended question form were used in the research conducted as scanning model. As a consequence, it was detected that scout students are more conscious and sensitive to the environment than other students.



**Aydın and Çepni (2012)** studied with 790 students in their research named “Investigation of the Attitudes of Primary School Second Grade Students towards Environment in terms of Some Variables”. As data collection tool, they used the “Environmental Attitude Scale” which was developed before. Consequently, it was determined that students have a positive attitude regarding environment. Significant differences were found in terms of variables such as sex, grade level, educational background of father, profession of father, family income level. But the difference in terms of educational background of mother and profession of mother was not significant.

**Değirmenci (2013)** intended to investigate the attitudes of primary school students towards environment in terms of different variables in the study named “Investigation of the Attitudes of Primary School Students towards Environment in terms of Different Variables”. The research comprises 114 primary school students studying in the 6th, 7th and 8th grades. The environmental attitude scale that was applied to the students consists of 4 sub-dimensions which are population growth, energy conservation, environmental problems and nuclear energy. Besides that, the variables like students’ sex, grade level, having received training on environment before, educational background of mothers were tried to be measured. The results were assessed in SPSS program. As a result, it was found that students’ sex, grade level, having received training on environment before, educational background of mothers of primary school students affect the attitude towards environment.

**Öcal (2013)** investigated the attitudes of 455 teacher candidates towards environment by handling them in terms of different variables in the study called “Determination of Attitudes of Social Sciences Teacher Candidates towards Environmental Problems”. As data collection tool, Environmental Attitude Scale and personal information form that were developed by Şama (2003) were used. The results of the study show that teacher candidates are interested in environmental issues. Significant differences were found between the attitudes towards environment and variables like sex, susceptibility sense for environmental matters and the frequency of following up the environmental matters over press.

**Gürbüz, Çakmak and Derman (2013)** wanted to determine the attitudes of students towards environment with regard to variables such as sex, grade and sources of

knowledge acquisition in their study named “Attitudes of Biology Teacher Candidates towards Sustainable Environment”. The study was conducted with 152 biology department students. SPSS program was used for data analysis in the research conducted by using scanning model. When the data was analysed with t-test technique, it was observed that the attitudes of teacher candidates towards sustainable environment in some sub-dimensions of the scale were high. Moreover, differences were detected in terms of variables like sex, grade level and source of knowledge acquisition. According to the results of data, some suggestions that could be beneficial for the sake of the study were made.

### **2.9.2 Foreign Studies on Environmental Education, Environmental Attitudes and Behaviors**

The study that was conducted by **Papanagou et al. (2005)** with the name “environmental education on wetland ecosystems” was carried out with primary school students studying in Greece. Wetland ecosystem education program that was developed by the researchers was applied to 61 primary school students and 8 teachers. The educational program consisted of photos, worksheets, video images regarding Messolongi wetland ecosystem and separately prepared manuals for teachers and students. The students and teachers stated that the program was positive at the end of the research. Most importantly, it was detected that attitudes of students towards environment and their knowledge about wetland ecosystem increased.

**Shobeiri, Omidvar and Prahallada (2006)** reported the environmental attitudes of primary school teachers (India and Iran) in their study on “The Effect of Sex and School Type on Environmental Behaviours of Teachers in Iran and India”. 103 primary school teachers were selected through random exemplary method from Mysore city of India and Tehran city of Iran. The exemplary formed of 505 males and 499 females. They used the Taj Environmental Attitude Scale that was developed Hassen Taj in 2001. The results indicated that there are significant differences between environmental attitude levels of Indian and Iranian teachers. Besides that, regarding environmental attitudes a major difference was found in the environmental attitudes inside two groups that were divided according to their sex. The country and administrators (school management type) are not attitudes affecting environmental attitudes of teachers.

**Yavetz, Goldman and Peer (2007)** made interviews with 765 first grade students of three different teaching departments in Israel in their study called “Environmental Education in Teaching Internship; Environmental Behaviours, Knowledge and Attitudes of Novice Students”. The researchers studied the possible relations between students’ habits and environmental behaviours. Furthermore, it was researched whether environmental awareness and behaviours of students differ or not. As a result of the study, it was found that environmental attitudes of students are positive even though they have limited environmental knowledge. It was detected that environmental knowledge and behaviours of students who are studying in close fields to the environmental sciences are higher than other students in other fields.

In the study “Attitudes of Teacher Candidates in Lebanon towards Environmental Knowledge and Behaviours” of **Vlaardingerbroek and Taylor (2007)**, a comparison was made between environmental knowledge and behaviours of Australian and Lebanese first and second grade students. In the study where totally 87 returns were provided, while Australian students gave approximate answers to national environmental problems of their country in the light of their knowledge about global environmental problems, Lebanese students were far away. It was observed that even if students show positive scores in environmental behaviours, they are more skeptical on the issue how much effective environmental education could be in calculating the environmental problems.

**Said (2007)** sought to locate the susceptibility of Malaysia secondary school students towards environmental problems by investigating environmental concept information. The surveys measuring environmental sensitivity and concept information that were improved by the researchers were applied. As a result of the research, it was made out that environmental sensitivity of students is high as environmental concept information is low. It was ascertained that students acquire environmental knowledge with help of sources like TV and Internet especially.

**Al-Rabaani and Al-Mekhlafi (2009)** conducted a survey which divides into 5 sections and consisting of 48 questions to totally 317 students from 5 different faculties in their study called “Attitudes of the Students of Sultan Qaboos University towards Some Environmental Problems and Their Intention in Reducing These Problems”. The results of the study showed that women show more positive environmental behaviours than

men, it was not observed behavioural differences among students on environmental issues like water pollution, air pollution and wastes, but behavioural differences were only seen in energy issue among the students of Agriculture department of faculty of education. Accordingly, the students of Faculty of Education show more positive behaviours. Furthermore, no major differences were seen statistically in different sex and among faculties in environmental pollution reducing behaviours.

The results obtained from data that was gathered in the questionnaire study on 900 Bavarian and 182 Asturian school children whose ages range between 14 - 15 in 2007 in the study of **Zecha S. (2010)** called “Environmental Knowledge, Behaviours and Actions of South Spain (Asturian) and South Germany (Bavarian) Youth”. The results demonstrated that cultural differences create contrasts in terms of environmental knowledge, behaviours and actions. In addition, it was pointed out that there are significant statistical differences between environmental knowledge and behaviours of Bavarian and Austrain youth by assessing several independent variables according to their personal behaviours and actions.

Data was collected from 2124 French students by applying survey questions created under the scope of Science Education Project that was carried out in 2008 in France in the study of **Hebel, Montpied and Fontanieu (2010)** called “Behaviours of Students towards Environment: A Study on French Secondary School Students”. They evaluated environmental behaviours from three different viewpoints that are egosantrism, anthropocentrism and egosantrism. They stated that there are differences in terms of sex regarding this matter. The authors stated that there are relations between the three types of environmental behaviour and tendencies towards learning environmental topics according to the findings obtained.

**Aslanova, Gündüz (2011)**, in a similar study, tried to define the level of knowledge of students of Baku State University, Biology Faculty 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 awareness, attidudes of Azerbaijani students studying at NEU were 3,34% (69,2%), whereas attitudes of Baku State University Students were 3,34% (66,8). Although there are significant differences among two groups from statistical point of view, this

difference is not higher than environmental knowledge. A significant difference among two groups was observed in 38 questions out of 63 questions on environmental knowledge from statistical point of view.

**Sarkar (2011)** made a research on environmental attitudes of primary school students in Bangladesh by using standard environment attitude scale with the study “Environmental Attitudes of Primary School Students: The Status of Environmental Education in Bangladesh”. The study consisted of 15 questions on a Likert type scale. The environmental attitudes of female students was found to be higher than male students to cover all of the students in the town and village in this study that was conducted with 400 primary school students. Particularly, when the girls in the village are compared to the others, they have the highest environmental attitudes. This study argued on the necessity of emerging the relation and differences between environmental behaviours and attitudes of Bangladesh youth.

**Yousuf and Bhutta (2012)** aimed to put forth whether there is any difference between the attitudes of female and male students towards environmental issues (like air and water pollution, excessive consumption of resources, global climate change) in their study named “Attitudes of Secondary School Students of Karachi Pakistan”. Totally 312 students attended the study in Karachi region from public schools (n=151) and private schools (n=161). The data was analysed by using nonparametric equality of independent t-test. The results demonstrated that there is no significant difference between the attitudes of female and male students on environmental issues. The results of the study provided an important perspective to the attitudes of female and male students on environmental issues against public and private school disciplines.

**Aslanova, Gündüz, Dağlı (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 in the academic period 2012-2013 in Northern Cyprus, Turkey and Azerbaijan. The formal content analysis method was used for the analysis 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

### METHOD OF THE RESEARCH

In this section it is focused on statistical techniques that are used in the universe and exemplary of the research, data collection tools and analysis of data.

#### 3.1. Method of The Research

In this research, it is investigated whether the environmental attitudes and behaviours of Libyan, Turkish and Nigerian students who are studying at Agriculture Department of Northern Cyprus Universities in terms of various variables. For this purpose, the study was carried out with relational screening model. The relational screening models are the research models that intend to determine the presence and/or degree of covariance between or among two or more variables. The variables that will be sought for a relation are symbolized, but this symbolization should be done in such a way to allow for a relational analysis. The current situations and conditions are exactly put forth in scanning models (Karasar,2005). In this research, as dependent variable “Environmental Knowledge Test” and “Attitude Scale towards Environment” “Behaviour Scale towards Environment” were used.

#### 3.2. The Universe And Sample

The research consisted of students studying in Agriculture Department in Northern Cyprus Universities in spring semester of 2015-2016 academic year. The research exemplary consisted of 114 female, 186 male, totally 300 students studying in fall semester of the same academic year. The number of students forming the exemplary of the research according to their sex is given in Table 1.

**Table 1. Distribution Table of Students Forming the Exemplary According to Their Sex**

Sex	Number of Students
Female	114
Male	186
<b>Total</b>	<b>300</b>

### **3.3. Data Collection Technique**

The following phases were followed with reference to data collection needed for the research: the researches made regarding the matter and related literature scanning firstly, and the surveys applied in these researches were examined. Later, a questionnaire was determined in the direction of the objective of the research. The questionnaire was planned in 3 sections. The following data collection tools were used in the research: *1. Personal Information Form; 2. Environmental Knowledge Test; 3. Attitude and Behaviour Scale towards Environment.*

**1. Personal Information Form:** There were independent variables regarding the students themselves and their families as well as the questions aiming at determining their interests and thoughts towards environment and environmental problems in personal information form.

**2. Environmental Knowledge Test:** The questions aiming at identifying knowledge level of students regarding concepts on environment were included in the scale. The basic conceptions that should be familiar to students who have environmental knowledge and sensitivity were included in the scale. The students were provided with such conceptions and they were asked to write which conceptions those definition were belong to.

**3. Attitude and Behaviour Scale towards Environment:** The scales were prepared with likert technique. The scale could be prepared in triple and quintet according to this method. Another feature of likert type scale is that it is one-dimensional. In other words, all items are targeted to measure the same attitude. The scale of this research was prepared with 5 point likert technique.

### **3.4. Data Collection Process**

In order to realize the scanning dimension of the research, the scales to be used as measuring tools were prepared first. The questionnaire was applied on the students studying at Agriculture faculty of Northern Cyprus that was predetermined. The application was realized within the hours the students were available in fall semester of 2015-2016 academic year. All of the applications were conducted by the researcher himself. At the beginning of the application, some explanations were made to the students regarding how to fill in the related sections and the structure of the survey, and their questions were answered during the application.



### **3.5. Analysis of Data**

The data was analyzed by using SPSS-20 (Statistical Package for the Social Sciences) package program. In the analysis of data the t-test, Anova, Scheffe, Wilks Lambda and Manova analysis techniques were used as well as the investigation of the statistics.

- **Manova Analysis:** In case that two independent variables influence multi dependent variables, Two-Way MANOVA is used. It is used to research the common effect of multi independent variables on multi dependent variables (Wilks Lambda) (Büyüköztürk, 2002).

- **Anova analysis:** It is used to analyze how ANOVA independent variables interact among themselves and the effects of such interaction on dependent variable. In case that the variable to be analyzed has more than 2 groups, the method to be used is Anova. In order to investigate whether there is any difference of any group based on Anova analysis; if data shows a normal distribution the subtests like Turkey, LSD or Scheffe are used. In this study Scheffe test was preferred (Büyüköztürk, 2002).

- **Scheffe test:** Scheffe method was developed to compare all linear combinations that are possible among groups; this method in general terms is handled as post hoc type which does not care about the hypothesis that observation numbers in groups should be equal and which keeps under control the  $\alpha$  error margin (conservative) in case that the numbers to be compared and that are the most flexible are many (Scheffe, 1953; Scheffe, 1959).

- **Frequency test:** It presents the data as numbers and percentages in order to describe the characteristics of the distribution of the scores or values belonging to one or more variable(s).

### **3.6. Validity and Reliability**

The researcher is focused on the reliability and validity of research method in this section. The reliability of a scale is about the random errors in the scales that were prepared by the researcher. The data obtained with help of a not reliable scale has no contribution to the research. Because when the same test is applied to the same people in different times and the results are seen to be different, it won't be possible to interpret on the results obtained (Yıldırım et al., 2007).

**Table 2. Reliability of Behavioural Scale**

<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items
,852	17

The valid basic percentages are given in Table 2 regarding the validity and reliability of the behavioural scale giving the data. Cronbach Alpha coefficient of the behavioural scale has been found to be ,852.

**Table 3. Reliability of Behavioural Scale**

<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items
,829	21

The valid basic percentages are given in Table 3 regarding the validity and reliability of the attitude scale giving the data. Cronbach Alpha coefficient of the attitude scale has been found to be ,829.

## CHAPTER IV

### FINDINGS AND COMMENTS

The findings obtained as a result of the research are given in tables and explained in this section. The interest of students towards respectively environment and environmental problems and their thoughts are given. Furthermore, some comments are made by taking into consideration whether the attitudes and behaviors of the students towards environment differ, sex, educational background of their parents, whether to have received voluntarily courses about environment and whether to be a member of any organization.

#### 4.1. Demographic Characteristics

In this chapter of the research, the findings and comments with regard to demographic features are included.

**Table 4. Distribution of The Exemplary According to Sex**

	<b>Gender</b>	<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	Female	114	38,0
	Male	186	62,0
	<b>Total</b>	<b>300</b>	<b>100,0</b>

As seen in Table 4, the exemplary of the research consists of 300 people. %38 of the participants are female students, while %62 of them are male students. We can see that the distribution of the exemplary according to sex the number of males are greater than females.

**Table 5. Distribution of Exemplary According to Age**

	<b>Age</b>	<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	18-22	148	49,3
	22-26	50	16,7
	26-30	102	34,0
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering Table 5, it can be seen that the exemplary consists of students between the ages 18-22 in %49,3, 22-26 in %16,7 and 26-30 in %34. We can see that the distribution of exemplary according to age is the highest between the ages 18-22.

**Table 6. Distribution of Exemplary According to Nationalities**

	Narionality	Frequency	Percent
<b>Valid</b>	TR	38	12,7
	Libya	119	39,7
	Nigeria	143	47,7
	<b>Total</b>	<b>300</b>	<b>100,0</b>

It can be seen in Table 6 that the exemplary consists of Turkish students in %12,7, Libyan students in %39,7 and Nigerian students in %47,7. We can see that the distribution of exemplary according to nationality is the highest with Nigerian students.

**Table 7. Distribution of Exemplary According to Educational Background of Fathers**

	Father education	Frequency	Percent
<b>Valid</b>	Elementary	41	13,7
	Primary school	29	9,7
	Secondary school	35	11,7
	High school	80	26,7
	University	104	34,7
	Master / Doctorate	11	3,7
	<b>Total</b>	<b>300</b>	<b>100,0</b>

As it can be seen in Table 7, the fathers of students forming the exemplary have educational background as; 13% primary school, 9.7% secondary school, 11.7% high school, 26.7% higher education, 34.7% undergraduate and 3,7% master and phd. Considering the distribution of exemplary according to educational background of fathers, we can see that fathers have generally bachelor's degree. The distribution of the

exemplary is formed at the lowest with primary school and PhD degree, while the majority is bachelor's degree.

**Table 8. Distribution of Exemplary According to Educational Background of Mothers**

	<b>Mother education</b>	<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	Elementry	62	20,7
	Primary school	37	12,3
	Secondary school	62	20,7
	High school	76	25,3
	University	58	19,3
	Master / Doctorate	5	1,7
	<b>Total</b>	<b>300</b>	<b>100,0</b>

As it can be seen in Table 8, mothers of students forming the exemplary have educational background as; %20,7 primary school, %12,3 secondary school, %20,7 high school, %25,3 higher education, %19,3 undergraduate and %1,7 master and phd. The distribution of the exemplary is formed at the lowest with master's and PhD degree, while the majority is high school.

**Table 9. Distribution of Exemplary According to Moderate Income Level**

	<b>Family salary</b>	<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	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
	<b>Total</b>	<b>300</b>	<b>100,0</b>

We can see in Table 9 that the families of students forming the exemplary have monthly income as; 13% is less than 1,000 TL, 26.3% is from 1,000 to 2,000 TL, 22,3% from 2000 to 3,000 TL, 18% from 3,000 to 4,000 TL and 20,3% more than 4,000 TL.

Considering the distribution of exemplary according to moderate income level, we can see that average monthly income of the participants is around 1000-2000 TL.

**Table 10. Distribution of Exemplary According to Whether Taking Course about Environment**

	Course	Frequency	Percent
<b>Valid</b>	Yes	136	45,3
	No	164	54,7
	<b>Total</b>	<b>300</b>	<b>100,0</b>

We can see in Table 10 that the students forming the exemplary say “**yes**” in %45,3 and “**no**” in %54,7 with regard to whether having environmental course or not. The distribution of the exemplary is formed by yes answer at the lowest and no answer at the highest rate.

**Table 11. Distribution of Exemplary According to Whether Being a Volunteer Member of the Organization on Environment**

	Membership of NGO	Frequency	Percent
<b>Valid</b>	Yes	14	4,7
	No	286	95,3
	<b>Total</b>	<b>300</b>	<b>100,0</b>

We can see in Table 11 that students forming the exemplary say “**yes**” in %4,7 and “**no**” in %95,3 considering whether they are volunteer members of any organization. The distribution of the exemplary is formed by yes answer at the lowest and no answer at the highest rate.

## 4.2. Interpretations and Findings on Sub Problems

### 4.2.1. First Sub Problem

In this chapter of the research, the findings and comments with regard to sub-problems of the research are included.

- What levels are the environmental attitudes of Libyan, Turkish and Nigerian students who are studying at Agriculture Department of Northern Cyprus Universities?

**Table 12: Anova Test of Attitude Level of Libya, Turkish and Nigerian Students**

Attitude	Sum of Squares	df	Mean Square	f	p	Description
Between Groups	865,624	2	432,812	3,15	,044	p<.05 Difference
Within Groups	40787,293	297	137,331			yes
<b>Total</b>	<b>41652,917</b>	<b>299</b>				<b>2-3</b>

**1: TR  $\bar{X}$ =56,92    2:Libya  $\bar{X}$ =55,58    3: Nigeria  $\bar{X}$ =59,20**

As it can be seen in Table 12, a significant difference was found in attitudes of Libya and Nigeria students studying in Agriculture department of Northern Cyprus universities towards environment (p=,044). When such difference is investigated by Scheffe test, it can be seen that Nigerian students have higher attitudes towards the environment ( $\bar{X}$ =59,20) when compared to Libyan students ( $\bar{X}$ =55,58).

### 4.2.2. Findings and Interpretation Regarding Secondary Sub-Problems

- What levels are the environmental behaviours of Libyan, Turkish and Nigerian students who are studying at Agriculture Department of Northern Cyprus Universities?

**Table 13: Anova Test of Behaviour Level of Libya, Turkish and Nigerian Students**

Behavior	Sum of Squares	df	Mean Square	f	p	Description
Between Groups	172,574	2	86,287	0,574	,564	p>.05 Difference
Within Groups	44650,093	297	150,337			No
Total	44822,667	299				

**1: TR  $\bar{X}$ =60,89    2: Nigeria  $\bar{X}$ =58,55    3: Libya  $\bar{X}$ =59,56**

As it can be seen in Table 13, no significant difference was found in attitudes of TR, Libya and Nigeria students studying in Agriculture department of Northern Cyprus universities towards environment ( $p=.056$ ).

#### 4.2.3. Findings and Interpretation Regarding Third Sub-Problems

- Do the environmental attitudes and behaviours of Libyan, Turkish and Nigerian students who are studying at Agriculture Department of Northern Cyprus Universities differ based on sex?

**Table 14: Manova Test of the Relationship Between Attitude and Behaviour Levels Towards Environment and Sex Variable**

Source	Variable	Sum of Squares	sd	Mean Square	f	p	Description
Gender	Attitude	904,284	1	904,284	6,681	<b>,010</b>	$p<.05$
	Behaviour	236,320	1	236,320	1,566	,212	$p>.05$
Nationalty	Attitude	966,770	2	483,385	3,571	,029	$p<.05$
	Behaviour	293,787	2	146,894	,973	,379	$p>.05$
<b>YxC</b>	<b>Attitude</b>	<b>543,096</b>	<b>2</b>	<b>271,548</b>	<b>2,006</b>	<b>,136</b>	<b><math>p&gt;.05</math></b>
	<b>Behaviour</b>	<b>104,626</b>	<b>2</b>	<b>52,313</b>	<b>,347</b>	<b>,707</b>	<b><math>p&gt;.05</math></b>
Error	Attitude	39796,046	294	135,361			
	Behaviour	44364,503	294	150,900			
Correct	Attitude	41652,917	299				
Table	Behaviour	44822,667	299				

[wilks lambda  $\Lambda = ,985$  ,  $F=1,149$  ,  $p=333$  ( $p>.05$ )]

As it can be seen in Table 14, the common effect was not found to be significant between the genders of Turkish, Libyan and Nigerian students as well as the attitudes and behaviours of students studying in Agriculture faculty of Northern Cyprus universities towards environment [wilks lambda  $\Lambda = ,985$ ,  $F=1,149$  ,  $p>.05$ ]. However, it was found that attitudes of students have a significant difference according to students' genders ( $p=.010$  ,  $p<.05$ ). But there is no difference in their behaviours ( $p=.212$  ,  $p>.05$ ). As a result of the Tukey HSD test which was made to find between what groups that difference was, it was observed that there is variation between Libyan and Nigerian students. When the distribution of this variation is examined according to sex, it was



observed that the Libyan female students ( $\bar{X}=56,24$ ) and male students ( $\bar{X}=54,77$ ) have lower attitudes than Nigerian female students ( $\bar{X}=60,37$ ) and male students ( $\bar{X}=58,83$ ).

#### 4.2.4. Findings and Interpretation Regarding Fourth Sub-Problems

- Do the environmental attitudes and behaviours of Libyan, Turkish and Nigerian students who are studying at Agriculture Department of Northern Cyprus Universities differ based on educational background of their parents?

**Table 15: Manova Test of the Relationship Between Attitude and Behaviour Levels Towards Environment and Father's Educational Background**

Source	Variable	Sum of Squares	sd	Mean Square	f	p	Descript ion
Father education	Attitude	589,441	5	117,888	,860	,509	p>.05
	Behaviour	583,186	5	116,637	,792	,556	p>.05
Nationality	Attitude	348,321	2	174,160	1,270	,282	p>.05
	Behaviour	48,454	2	24,227	,165	,848	p>.05
<b>YxC</b>	<b>Attitude</b>	<b>1680,465</b>	<b>10</b>	<b>168,047</b>	<b>1,225</b>	<b>,274</b>	<b>p&gt;.05</b>
	<b>Behaviour</b>	<b>2223,355</b>	<b>10</b>	<b>222,336</b>	<b>1,510</b>	<b>,135</b>	<b>p&gt;.05</b>
Error	Attitude	38673,247	282	137,139			
	Behaviour	41524,724	282	147,251			
Correct Table	Attitude	41652,917	299				
	Behaviour	44822,667	299				

[wilks lambda  $\Lambda = ,917$  ,  $F=1,247$  ,  $p=,210$  ( $p>,05$ )]

As it can be seen in Table 15, the common effect was not found to be significant between the educational background of fathers of Turkish, Libyan and Nigerian students as well as the attitudes and behaviours of students studying in Agriculture faculty of Northern Cyprus universities towards environment [wilks lambda  $\Lambda = ,917$  ,  $F=1,270$  ,  $p=,210$  ( $p>,05$ )]. Again when Table 15 is examined, it was not found a significant variation between the educational background and attitudes of all students' fathers ( $p=,509$   $p>,05$ ) and behaviours ( $p=,556$   $p>,05$ ). Based on such findings, it is obvious that there is no significant relationship and variation between their own attitudes and behaviours of Turkish, Libyan and Nigerian students according to their fathers' educational background.

**Table 16: Manova Test of the Relationship Between Attitude and Behaviour Levels Towards Environment and Mother's Educational Background**

Source	Variable	Sum of Squares	sd	Mean Square	f	p	Description
Mother	Attitude	1197,466	5	239,493	1,812	,110	p>.05
Education	Behaviour	207,157	5	41,431	,280	,924	p>.05
Nationalty	Attitude	508,440	2	254,220	1,923	,148	p>.05
	Behaviour	170,471	2	85,236	,576	,563	p>.05
<b>YxC</b>	<b>Attitude</b>	<b>2411,351</b>	<b>10</b>	<b>241,135</b>	<b>1,824</b>	<b>,056</b>	<b>p&gt;.05</b>
	<b>Behaviour</b>	<b>2020,198</b>	<b>10</b>	<b>202,020</b>	<b>1,366</b>	<b>,196</b>	<b>p&gt;.05</b>
Error	Attitude	37272,046	282	132,170			
	Behaviour	41717,273	282	147,934			
Correct Table	Attitude	41652,917	299				
	Behaviour	44822,667	299				

**[wilkis lambda  $\Lambda$  = ,889 , F=1,556 , p=,058 (p>,05)]**

As it can be seen in Table 16, the common effect was not found to be significant between the educational background of mothers of Turkish, Libyan and Nigerian students as well as the attitudes and behaviours of students studying in Agriculture faculty of Northern Cyprus universities towards environment [wilkis lambda  $\Lambda$  = ,889 , F=1,2556 , p=,0,58 (p>,05)]. Again when Table 5 is examined, it was not found a significant variation between the educational background and attitudes of all students' fathers (p=,110 p>,05) and behaviours (p=,924p>,05). Based on such findings, it is obvious that there is no significant relationship and variation between their own attitudes and behaviours of Turkish, Libyan and Nigerian students according to their mothers' educational background.

#### **4.2.5. Findings and Interpretation Regarding Fifth Sub-Problems**

- Do the environmental attitudes and behaviours of Libyan, Turkish and Nigerian students who are studying at Agriculture Department of Northern Cyprus Universities differ based on economic status of their parents?

**Table 17: Manova Test of the Relationship Between Attitude and Behaviour Levels Towards Environment and Family Incomes**

Source	Variable	Sum of Squares	sd	Mean Square	f	p	Description
Salary	Attitude	1330,764	4	332,691	2,450	,046	p>.05
	Behaviour	225,710	4	56,428	,373	,828	p>.05
Nationalty	Attitude	668,073	2	334,037	2,459	,087	p>.05
	Behaviour	266,657	2	133,328	,880	,416	p>.05
<b>YxC</b>	<b>Attitude</b>	<b>1184,092</b>	<b>8</b>	<b>148,011</b>	<b>1,090</b>	<b>,370</b>	<b>p&gt;.05</b>
	<b>Behaviour</b>	<b>1136,844</b>	<b>8</b>	<b>142,106</b>	<b>,938</b>	<b>,485</b>	<b>p&gt;.05</b>
Error	Attitude	1184,092	8	148,011			
	Behaviour	1136,844	8	142,106			
Correct Table	Attitude	41652,917	299				
	Behaviour	44822,667	299				

**[wilkis lambda  $\Lambda$  = ,953 , F=,868 , p=,606 (p>,05)]**

As it can be seen in Table 17, the common effect was not found to be significant among the families' monthly income levels of Turkish, Libyan and Nigerian students as well as the attitudes and behaviours of students studying in Agriculture faculty of Northern Cyprus universities towards environment [wilkis lambda  $\Lambda$  = , 953 ,F=,868, p=,606 (p>,05)]. Again when Table 17 is examined, while there was generally a significant variation between family income levels and attitudes of all students (p=,46 p>,05), no significant variation was found to among their behaviours. As a result of the Tukey HSD test which was made to find between what groups that difference was relating to the attitudes, it was observed that there is variation between TR, Libyan and Nigerian students who have an income between 1000 and 2000TL, and TR, Libyan and Nigerian students who have income between 2000 and 3000TL. When the distribution of this variation is examined according to income level, it was concluded that Nigerian students who have an income between 1000 and 2000 ( $\bar{X}$ =58,82), Libyan students ( $\bar{X}$ =53,67) and TR students ( $\bar{X}$ =47,50) have lower attitudes than those who have income levels between 2000 and 3000 for Nigerian ( $\bar{X}$ =60,59), Libyan, ( $\bar{X}$ =59,77) and TR ( $\bar{X}$ =60,67) students. Based on such results, it is obvious that as income level increases, the attitudes of both TR, Libyan and Nigerian students increase too.

#### 4.2.6. Findings and Interpretation regarding Sixth Sub-Problems

- Do the environmental attitudes and behaviours of Libyan, Turkish and Nigerian students who are studying at Agriculture Department of Northern Cyprus Universities differ based on whether they have received environmental course?

**Table 18: Manova Test of the Relationship Between Attitude and Behaviour Levels Towards Environment and whether to Have Received Environmental Course**

Source	Variable	Sum of Squares	sd	Mean Square	f	p	Description
Course	Attitude	66,691	1	66,691	,487	,486	p>.05
	Behaviour	370,813	1	370,813	2,501	,115	p>.05
Nationalty	Attitude	305,329	2	152,664	1,114	,330	p>.05
	Behaviour	157,507	2	78,754	,531	,588	p>.05
<b>YxC</b>	<b>Attitude</b>	<b>213,595</b>	<b>2</b>	<b>106,798</b>	<b>,779</b>	<b>,460</b>	<b>p&gt;.05</b>
	<b>Behaviour</b>	<b>211,446</b>	<b>2</b>	<b>105,723</b>	<b>,713</b>	<b>,491</b>	<b>p&gt;.05</b>
Error	Attitude	40297,909	294	137,068			
	Behaviour	43591,731	294	148,271			
Correct Table	Attitude	41652,917	299				
	Behaviour	44822,667	299				

[wilkis lambda  $\Lambda$  = ,993 , F=,513 , p=,726 (p>,05)]

As it can be seen in Table 18, the common effect was not found to be significant between whether Turkish, Libyan and Nigerian students have received courses about the environment before as well as the attitudes and behaviours of students studying in Agriculture faculty of Northern Cyprus universities towards environment [wilkis lambda  $\Lambda$  = ,993 , F=,513, p=,726 (p>,05)]. Again when Table 18 is examined, there was not found generally any significant variation between whether the students have received courses about the environment before and their attitudes (p=,486 , p>,05) and behaviours (p=,115, p>,05). Based on such findings, it is obvious that there is no significant relationship and variation between their own attitudes and behaviours of Turkish, Libyan and Nigerian students according to whether the students have received courses about the environment before.

#### 4.2.7. Findings and Interpretation regarding Seventh Sub-Problems

- Do the environmental attitudes and behaviours of Libyan, Turkish and Nigerian students who are studying at Agriculture Department of Northern Cyprus Universities differ based on whether they are a volunteer member of any organization about the environment?

**Table 19: Manova Test of the Relationship Between Attitude and Behaviour Levels Towards Environment and whether to Be a Member of Environmental Organization**

Source	Variable	Sum of Squares	sd	Mean Square	f	p	Descrip tion
Membership of NGO	Attitude	130,310	1	130,310	,947	,331	p>.05
	Behaviour	61,804	1	61,804	,408	,523	p>.05
Nationalty	Attitude	250,034	2	125,017	,909	,404	p>.05
	Behaviour	48,806	2	24,403	,161	,851	p>.05
<b>YxC</b>	<b>Attitude</b>	<b>293,035</b>	<b>2</b>	<b>146,518</b>	<b>1,065</b>	<b>,346</b>	<b>p&gt;.05</b>
	<b>Behaviour</b>	<b>112,585</b>	<b>2</b>	<b>56,293</b>	<b>,372</b>	<b>,690</b>	<b>p&gt;.05</b>
Error	Attitude	40435,472	294	137,536			
	Behaviour	44513,537	294	151,407			
Correct Table	Attitude	41652,917	299				
	Behaviour	44822,667	299				

**[wilkis lambda  $\Lambda$  = ,991 , F=,638 , p=,636 (p>,05)] NGO: None govermental organization**

As it can be seen in Table 19, the common effect was not found to be significant between whether Turkish, Libyan and Nigerian students are a member of any organization about the environment as well as the attitudes and behaviours of students studying in Agriculture faculty of Northern Cyprus universities towards environment [wilkis lambda  $\Lambda$  =,991 ,F=,638, p=,636 (p>,05)]. Again when Table 19 is examined, there was not found generally any significant variation between whether the students are a member of any organization about the environment and their attitudes (p=,331 , p>,05) and behaviours (p=,523, p>,05). Based on such findings, it is obvious that there is no significant relationship and variation between their own attitudes and behaviours of Turkish, Libyan and Nigerian students according to whether the students are a member of any organization about the environment.

### 4.3. Results of Knowledge Test

In this chapter of the research, the findings and comments with regard to knowledge test questions of the research are included.

**Table 20: Table of Average Environmental Knowledge Test**

	N	Range	Minimum	Maximum	Mean	Std. Deviation
Knowledge	300	15,00	3,00	18,00	10,5700	3,23625
<b>Total</b>	<b>300</b>					

As it can be seen in Table 20, the maximum score that could be taken from the participants as a result of environmental knowledge test is 18,00. The score average of the participants taken from the knowledge test seems to be 10,57. Taking into consideration this result, it can be seen that environmental consciousness of participants is average. The frequency distribution of the right and wrong answers given by the participants for each question is given as follows.

**Table 21: Which One of The Following Are Not The Result of Air Pollution?**

		Frequency	Percent
<b>Valid</b>	False	121	40,3
	True	179	59,7
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 21 for the question “*Which One of The Followings Are Not the Result of Air Pollution?*” given by the students who formed the exemplary, we can see it is answered as %40,3 “*wrong*” while %59,7 “*true*”.

**Table 22: Which of the Followings Can Be Done to Reduce Air Pollution?**

		Frequency	Percent
<b>Valid</b>	False	135	34,3
	True	165	65,7
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 22 for the question “*Which of the Followings Can Be Done to Reduce Air Pollution?*” given by the students who formed the exemplary, we can see it is answered as %34,3 “*wrong*” while %65,7 “*true*”.

**Table 23: Which of the Ideas of Promoting the Use of Bicycles to Reduce Direct and Indirect Reduce the Environmental Problems?**

		Frequency	Percent
<b>Valid</b>	False	145	48,3
	True	155	51,7
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 23 for the question “*Which of the Idea of Promoting the Use of Bicycles to Reduce Direct and Indirect Reduce the Environmental Problems?*” given by the students who formed the exemplary, we can see it is answered as %48,3 “*wrong*” while %51,7 “*true*” .

**Table 24: Which of the Following Will Not Be Considered as One of the Causes of Air Pollution?**

		Frequency	Percent
<b>Valid</b>	False	76	25,3
	True	224	74,7
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 24 for the question “*Which of the Following Will Not Be Considered as One of the Causes of Air Pollution?*” given by the students who formed the exemplary, we can see it is answered as %25,3 “*wrong*” while %74,7 “*true*” .

**Table 25: Which of the Following or Which Are the Result of Amount of CO<sub>2</sub>, CH<sub>4</sub> and O<sub>3</sub> Gas Increases in the Atmosphere?**

		Frequency	Percent
<b>Valid</b>	False	177	59,0
	True	123	41,0
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 25 for the question “*Which of the Following or Which Are the Result of Amount of CO<sub>2</sub>, CH<sub>4</sub> And O<sub>3</sub> Gas Increases in the Atmosphere?*” given by the students who formed the exemplary, we can see it is answered as %59 “*wrong*” while %41 “*true*” .

**Table 26: Which of the Following Can Not Be Represented as One of the Causes for Acid Rain?**

		Frequency	Percent
<b>Valid</b>	False	156	52,0
	True	144	48,0
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 26 for the question “*Which of the Following Can Not Be Represented as One of the Causes for Acid Rain?*” given by the students who formed the exemplary, we can see it is answered as %52 “*wrong*” while %48 “*true*”.

**Table 27: Which One or Which Ones of the Followings is (are) the Result of the Greenhouse Effect?**

		Frequency	Percent
<b>Valid</b>	False	216	72,0
	True	84	28,0
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 27 for the question “*Which One or Which Ones of the Following is (are) the Result of the Greenhouse Effect?*” given by the students who formed the exemplary, we can see it is answered as %28 “*wrong*” while %72 “*true*”.

**Table 28: The Use of Pesticides is Effective as a Priority to Which Ever of The Following Forms of Pollution?**

		Frequency	Percent
<b>Valid</b>	False	115	38,3
	True	185	61,7
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 28 for the question “*The Use of Pesticides is Effective as a Priority to Which Ever of the Following Forms of Pollution*” given by the students who formed the exemplary, we can see it is answered as %61,7 “*true*” while %38,3 “*wrong*”.



**Table 29: Which of the Following Items We Use in Our Daily Basis Does Not Use CFC Gas?**

		Frequency	Percent
Valid	False	220	73,3
	True	80	26,7
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 29 for the question “*Which of the Following Items We Use in Our Daily Basis Does Not Use CFC Gas?*” given by the students who formed the exemplary, we can see it is answered as %73,3 “*wrong*” while “*true*” %26,7 .

**Table 30: Which of the Following or Which are Known as Greenhouse Gases?**

		Frequency	Percent
Valid	False	231	77,0
	True	69	23,0
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 30 for the question “*Which of the Following or Which are Known as Greenhouse Gases?*” given by the students who formed the exemplary, we can see it is answered as %77 “*wrong*” while %23 “*true*”.

**Table 31: What Do We Understand by Cfc's (Chlorofluorocarbon)?**

		Frequency	Percent
Valid	False	145	48,3
	True	155	51,7
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 31 for the question “*What Do We Understand By Cfc's (Chlorofluorocarbon)?*” given by the students who formed the exemplary, we can see it is answered as %48,3 “*wrong*” while %51,7 “*true*” .

**Table 32: Which of the Followings are Not Considered as Soil Pollutants?**

		Frequency	Percent
<b>Valid</b>	False	115	38,3
	True	185	61,7
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 32 for the question “*Which of The Followings Are Not Considered As Soil Pollutants?*” given by the students who formed the exemplary, we can see it is answered as %38,3 “*wrong*” while %61,7 “*true*”.

**Table 33: Which of the Followings is Not a Way to Prevent Soil Pollution?**

		Frequency	Percent
<b>Valid</b>	False	257	85,7
	True	43	14,3
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 33 for the question “*Which of the Followings is Not a Way to Prevent Soil Pollution?*” given by the students who formed the exemplary, we can see it is answered as %85,7 “*wrong*” while %14,3 “*true*”.

**Table 34: Which is or Which are Being Mixed in the Air After We Start Our Car in the Morning in Our Garage?**

		Frequency	Percent
<b>Valid</b>	False	237	79,0
	True	63	21,0
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 34 for the question “*Which is or Which are Being Mixed in the Air After We Start Our Car in the Morning in Our Garage?*” given by the students who formed the exemplary, we can see it is answered as %79 “*wrong*” while %21 “*true*”.

**Table 35: Which of the Followings or Which are Considered as the Factors Which Cause Water Pollution?**

		Frequency	Percent
<b>Valid</b>	False	210	70,0
	True	90	30,0
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 35 for the question “*Which of the Following or Which are Considered as the Factors Which Cause Water Pollution?*” given by the students who formed the exemplary, we can see it is answered as %70 “*wrong*” while %30 “*true*”.

**Table 36: Which of the Following Behaviours May Pollute the Water Which You Drink or You Use to Do at Home That You Live in?**

		Frequency	Percent
<b>Valid</b>	False	220	73,3
	True	80	26,7
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 36 for the question “*Which of the Following Behaviours May Pollute the Water Which You Drink or You Use to Do at Home That You Live in??*” given by the students who formed the exemplary, we can see it is answered as %73 “*wrong*” while %26,7 “*true*” .

**Table 37: Which of the Following is Not One of the Events That Caused the Erosion?**

		Frequency	Percent
<b>Valid</b>	False	124	41,3
	True	176	58,7
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 37 for the question “*Which of the Following is Not One of the Events That Caused the Erosion?*” given by the students who formed the exemplary, we can see it is answered as %41,3 “*wrong*” while %58,7 “*true*” .

**Table 38: Which of the Following is the Main Reason for the Accumulation of Excess Nitrogen in the Soil?**

		Frequency	Percent
<b>Valid</b>	False	156	52,0
	True	144	48,0
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 38 for the question “*Which of the Followings is the Main Reason for the Accumulation of Excess Nitrogen In the Soil?*” given by the

students who formed the exemplary, we can see it is answered as %52“*wrong*” while %48“*true*” .

**Table 39: Which of the Following Water Pollutants Can Be Harmful When Mixed into The Atmosphere From The Exhaust of Vehicles According To Fuel Type Used?**

		Frequency	Percent
<b>Valid</b>	False	243	81,0
	True	57	19,0
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 39 for the question “*Which of The Following Water Pollutants Can Be Harmful When Mixed Into The Atmosphere From The Exhaust of Vehicles According To Fuel Type Used?*” given by the students who formed the exemplary, we can see it is answered as %81 “*wrong*” while %19“*true*” .

**Table 40: Which of The Following is a Sign of Medical Waste?**

		Frequency	Percent
<b>Valid</b>	False	276	92,0
	True	24	8,0
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 40 for the question “*Which of The Following is a Sign of Medical Waste?*” given by the students who formed the exemplary, we can see it is answered as %92 “*wrong*” while %8“*true*” .

**Table 41: Which of The Following or Which Is Not Likely To Be Generated From Recycling?**

		Frequency	Percent
<b>Valid</b>	False	269	89,7
	True	31	10,3
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 41 for the question “*Which of The Following or Which Is Not Likely To Be Generated From Recycling?*” given by the students who formed the exemplary, we can see it is answered as %89,7“*wrong*” while %10,3“*true*” .

**Table 42: Which of The Following Is Not The Material To Be Disposed In Paper Recycling Bins?**

		Frequency	Percent
<b>Valid</b>	False	261	87,0
	True	39	13,0
<b>Total</b>		<b>300</b>	<b>100,0</b>

Considering the answers in Table 42 for the question “*Which of The Following Is Not The Material To Be Disposed In Paper Recycling Bins?*” given by the students who formed the exemplary, we can see it is answered as %87 “*wrong*” while %13 “*true*” .

**Table 43: Which of Following Are Not The Benefits To A Country Verging Towards To Renewable Energy Sources?**

		Frequency	Percent
<b>Valid</b>	False	148	49,3
	True	152	50,7
<b>Total</b>		<b>300</b>	<b>100,0</b>

Considering the answers in Table 43 for the question “*Which of Following Are Not The Benefits To A Country Verging Towards To Renewable Energy Sources?*” given by the students who formed the exemplary, we can see it is answered as %49 “*wrong*” while %50 “*true*”.

**Table 44: Which of The Following Material Property Can Be Disposed In The Glass Piggy Bank?**

		Frequency	Percent
<b>Valid</b>	False	254	84,7
	True	46	15,3
<b>Total</b>		<b>300</b>	<b>100,0</b>

Considering the answers in Table 44 for the question “*Which of The Following Material Property Can Be Disposed In The Glass Piggy Bank?*” given by the students who formed the exemplary, we can see it is answered as %59 “*wrong*” while %41 “*true*” .

**Table 45: Which of The Following Indicates That A Substance is Made From A Recyclable Packaging?**

		Frequency	Percent
<b>Valid</b>	False	299	99,7
	True	1	,3
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 40 for the question “*Which of The Following Indicates That A Substance is Made From A Recyclable Packaging?*” given by the students who formed the exemplary, we can see it is answered as %99,7 “*wrong*” while %0,3 “*true*” .

**Table 46: Which of The Following Is Not The The Alternative Energy Sources?**

		Frequency	Percent
<b>Valid</b>	False	194	64,7
	True	106	35,3
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 46 for the question “*Which of The Following Is Not The The Alternative Energy Sources?*” given by the students who formed the exemplary, we can see it is answered as %64,7 “*wrong*” while %35,3 “*true*” .

**Table 47: Which of The Following Which Are or May Be The Measures That Can Be Taken To Prevent Noise Pollution In The Surrounding Area?**

		Frequency	Percent
<b>Valid</b>	False	272	90,7
	True	28	9,3
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 47 for the question “*Which of The Following Which Are or May Be The Measures That Can Be Taken To Prevent Noise Pollution In The Surrounding Area?*” given by the students who formed the exemplary, we can see it is answered as %90,7 “*wrong*” while %9,3 “*true*” .

**Table 48: Which of The Following Material Property Can Not Be Disposed In The Glass Piggy Banks?**

		Frequency	Percent
<b>Valid</b>	False	212	70,7
	True	88	29,3
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 48 for the question “*Which of The Following Material Property Can Not Be Disposed In The Glass Piggy Banks?*” given by the students who formed the exemplary, we can see it is answered as %70,7 “*wrong*” while %29,3 “*true*” .

**Table 49: Which of The Following Natural Energy Source Dose Not Cantain Sulfur Component Gases?**

		Frequency	Percent
<b>Valid</b>	False	273	91,0
	True	27	9,0
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 49 for the question “*Which of The Following Natural Energy Source Dose Not Cantain Sulfur Component Gases?*” given by the students who formed the exemplary, we can see it is answered as %91 “*wrong*” while %9 “*true*” .

**Table 50: Which of The Following or Which Are Beraw To Biomass Energy?**

		Frequency	Percent
<b>Valid</b>	False	187	62,3
	True	113	37,7
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 50 for the question “*Which of The Following or Which Are Beraw To Biomass Energy?*” given by the students who formed the exemplary, we can see it is answered as %62,3 “*wrong*” while %37,7 “*true*” .

**Table 51: Which of The Following Statements Best Describes The Formation of Acid Rain?**

		Frequency	Percent
<b>Valid</b>	False	274	91,3
	True	26	8,7
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 51 for the question “*Which of The Following Statements Best Describes The Formation of Acid Rain?*” given by the students who formed the exemplary, we can see it is answered as %91,3 “*wrong*” while %8,7 “*true*” .

**Table 52: Which of The Following or Which Are, Can Be An Alternative Energy Sources?**

		Frequency	Percent
<b>Valid</b>	False	225	75,0
	True	75	25,0
	<b>Total</b>	<b>300</b>	<b>100,0</b>

Considering the answers in Table 52 for the question “*Which of The Following or Which Are, Can Be An Alternative Energy Sources?*” given by the students who formed the exemplary, we can see it is answered as %75 “*wrong*” while %25 “*true*”.

**Table 53. Distribution of the Answers of Students to the Questions Regarding Environment**

Questions	Answers	Number of Students	Percent (%)
Which One of The Following Are Not The Result of Air Pollution?	True	179	59,7
Which of the Followings Can Be Done to Reduce Air Pollution?	True	165	65,7
Which of the Following Will Not Be Considered as One of the Causes of Air Pollution?	True	224	74,7
Which of the Following or Which Are the Result of Amount of CO <sub>2</sub> , CH <sub>4</sub> and O <sub>3</sub> Gas Increases in the Atmosphere?	False	177	59,0
Which of the Following Can Not Be Represented as One of the Causes for Acid Rain?	False	156	52,0
Which One or Which Ones of the Followings is (are) the Result of the Greenhouse Effect?	False	216	72,0
The Use of Pesticides is Effective as a Priority to Which Ever of The Following Forms of Pollution?	True	185	61,7
Which of the Following Items We Use in Our Daily Basis Does Not Use CFC Gas?	False	220	73,3
Which of the Following or Which are Known as Greenhouse Gases?	False	231	77,0
What Do We Understand by Cfc's (Chlorofluorocarbon)?	True	155	51,7
Which of the Followings are Not Considered as Soil Pollutants?	True	185	61,7
Which of the Followings is Not a Way to Prevent Soil Pollution?	False	257	85,7
Which is or Which are Being Mixed in the Air After We Start Our Car in the Morning in Our Garage?	False	237	79,0
Which of the Followings or Which are Considered as the Factors Which Cause Water Pollution?	False	210	70,0
Which of the Following Behaviours May Pollute the Water Which You Drink or You Use to Do at Home That You Live in?	False	220	73,3



Which of The Following Is Not The The Alternative Energy Sources?	False	194	64,7
Which of The Following Which Are or May Be The Measures That Can Be Taken To Prevent Noise Pollution In The Surrounding Area?	False	272	90,7
Which of The Following Material Property Can Not Be Disposed In The Glass Piggy Banks?	False	212	70,7
Which of The Following Natural Energy Source Dose Not Cantain Sulfur Component Gases?	False	273	91,0
Which of The Following or Which Are Beraw To Biomass Energy?	False	187	62,3
Which of The Following Statements Best Describes The Formation of Acid Rain?	False	274	91,3
Which of The Following or Which Are, Can Be An Alternative Energy Sources?	False	225	75,0

We can see in Table 53 that only 6 of the questions asked are correct considering the answers given by the students for the environmental knowledge questions. Based on this result, we can say that students do not have enough knowledge about the environment.

## CHAPTER V

### THE RESULT AND RECOMENDATIONS

The findings obtained as a result of the research focused and debated in this section.

#### 5.1. Results

When the results are investigated, a significant difference was found in attitudes of Libya and Nigeria students studying in Agriculture department of Northern Cyprus universities towards environment ( $p=,044$ ). When such difference is investigated by Scheffe test, it can be seen that Nigerian students have higher attitudes towards the environment ( $\bar{X}=59,20$ ) when compared to Libyan students ( $\bar{X}=55,58$ ). No significant difference was found in attitudes of TR, Libya and Nigeria students towards environment ( $p=,056$ ). Karacaoğlu (2003) obtained similar results in the study he conducted on university students.

The common effect was not found to be significant between the genders of Turkish, Libyan and Nigerian students as well as the attitudes and behaviours of students studying in Agriculture faculty of Northern Cyprus universities towards environment [wilks lambda  $\Lambda= ,985$ ,  $F=1,149$  ,  $p>,05$ ]. However, it was found that attitudes of students have a significant difference according to students' genders ( $p=,010$  ,  $p<,05$ ). But there is no difference in their behaviours ( $p=,212$  ,  $p>,05$ ). As a result of the Tukey HSD test which was made to find between what groups that difference was, it was observed that there is variation between Libyan and Nigerian students. When the distribution of this variation is examined according to sex, it was observed that the Libyan female students ( $\bar{X}=56,24$ ) and male students ( $\bar{X}=54,77$ ) have lower attitudes than Nigerian female students ( $\bar{X}=60,37$ ) and male students ( $\bar{X}=58,83$ ). The result of the joint study of Gündüz Ş & Aslanova F. (2015)., Makki (2004), Teyfur (2008) shows parallelism with the result of the research.

The common effect was not found to be significant between the educational background of fathers of Turkish, Libyan and Nigerian students as well as the attitudes and behaviours of students studying in Agriculture faculty of Northern Cyprus universities towards environment [wilks lambda  $\Lambda= ,917$  ,  $F=1,270$  ,  $p=,210$  ( $p>,05$ )]. Again when Table 15 is examined, it was not found a significant variation between the educational background and attitudes of all students' fathers and behaviours.

$p>,05$ ). Based on such findings, it is obvious that there is no significant relationship and variation between their own attitudes and behaviours of Turkish, Libyan and Nigerian students according to their fathers' educational background. The common effect was not found to be significant between the educational background of mothers of Turkish, Libyan and Nigerian students as well as the attitudes and behaviours of students studying in Agriculture faculty of Northern Cyprus universities towards environment [Wilks'  $\Lambda = ,889$  ,  $F=1,2556$  ,  $p=,0,58$  ( $p>,05$ )]. Again when Table 5 is examined, it was not found a significant variation between the educational background and attitudes of all students' fathers ( $p=,110$   $p>,05$ ) and behaviours ( $p=,924$   $p>,05$ ). Based on such findings, it is obvious that there is no significant relationship and variation between their own attitudes and behaviours of Turkish, Libyan and Nigerian students according to their mothers' educational background. No significant difference was obtained between attitudes and behaviours towards environment according to educational background of the parents of teacher candidates in the research conducted by Kışoğlu (2009). This result matches up with the result of the research. In the same direction Gökçe et al. (2007) detected no significant difference between the environmental attitude scores according to educational background of parents in the study they conducted.

The common effect was not found to be significant among the families' monthly income levels of Turkish, Libyan and Nigerian students as well as the attitudes and behaviours of students studying in Agriculture faculty of Northern Cyprus universities towards environment [Wilks'  $\Lambda = ,953$  ,  $F=,868$  ,  $p=,606$  ( $p>,05$ )]. Again when Table 17 is examined, while there was generally a significant variation between family income levels and attitudes of all students ( $p=,46$   $p>,05$ ), no significant variation was found to among their behaviours. As a result of the Tukey HSD test which was made to find between what groups that difference was relating to the attitudes, it was observed that there is variation between TR, Libyan and Nigerian students who have an income between 1000 and 2000TL, and TR, Libyan and Nigerian students who have income between 2000 and 3000TL. When the distribution of this variation is examined according to income level, it was concluded that Nigerian students who have an income between 1000 and 2000 ( $\bar{X}=58,82$ ), Libyan students ( $\bar{X}=53,67$ ) and TR students ( $\bar{X}=47,50$ ) have lower attitudes than those who have income levels between 2000 and 3000 for Nigerian ( $\bar{X}=60,59$ ), Libyan, ( $\bar{X}=59,77$ ) and TR ( $\bar{X}=60,67$ ) students. Based on

such results, it is obvious that as income level increases, the attitudes of both TR, Libyan and Nigerian students increase too. Considering the relation between monthly income of families and attitudes and behaviours towards environment, it can be seen in the study conducted by Erdoğan (2003) that the students that are in the middle and near-middle income group have more positive attitudes than those in low income group.

The common effect was not found to be significant between whether Turkish, Libyan and Nigerian students have received courses about the environment before as well as the attitudes and behaviours of students studying in Agriculture faculty of Northern Cyprus universities towards environment [Wilks'  $\Lambda = .993$ ,  $F = 513$ ,  $p = .726$  ( $p > .05$ )]. Again when Table 18 is examined, there was not found generally any significant variation between whether the students have received courses about the environment before and their attitudes ( $p = .486$ ,  $p > .05$ ) and behaviours ( $p = .115$ ,  $p > .05$ ). Based on such findings, it is obvious that there is no significant relationship and variation between their own attitudes and behaviours of Turkish, Libyan and Nigerian students according to whether the students have received courses about the environment before. Ünal and Dımişkı (1999) revealed in the conducted study that courses of environmental sciences in schools are not enough and they cannot benefit from the course sufficiently in the answers of participants with regard to taking environmental courses by students. However, the course "Environment and Human" in the previous studies were evaluated as incomplete and insufficient both by students and by teachers (Uzun and Sağlam, 2005; 2006b).

The common effect was not found to be significant between whether Turkish, Libyan and Nigerian students are a member of any organization about the environment as well as the attitudes and behaviours of students studying in Agriculture faculty of Northern Cyprus universities towards environment [Wilks'  $\Lambda = .991$ ,  $F = 638$ ,  $p = .636$  ( $p > .05$ )]. Again when Table 19 is examined, there was not found generally any significant variation between whether the students are a member of any organization about the environment and their attitudes ( $p = .331$ ,  $p > .05$ ) and behaviours ( $p = .523$ ,  $p > .05$ ). Based on such findings, it is obvious that there is no significant relationship and variation between their own attitudes and behaviours of Turkish, Libyan and Nigerian students according to whether the students are a member of any organization about the environment. Yücel and Morgil (1999) and Görümlü (2003) stated in their studies that they are not members of any organization regarding environment. They revealed that

the students do not participate actively in any organisation regarding the environment in many researches conducted on university students (Altın, 2001; Çabuk and Karacaoğlu, 2003; Özmen, Çetinkaya and Nehir, 2005). This result matches up with the result of the research.

The maximum score that could be taken from the participants as a result of environmental knowledge test is 18,00. The score average of the participants taken from the knowledge test seems to be 10,57. Taking into consideration this result, it can be seen that environmental consciousness of participants is average. We can see in Table 53 that only 6 of the questions asked are correct considering the answers given by the students for the environmental knowledge questions. Based on this result, we can say that students do not have enough knowledge about the environment. In some environmental researches that were conducted by academicians before, similar values to this result were obtained (Altınöz, 2010., Kışoğlu, 2009., Kibert, 2000., Karatekin, 2011., Gündüz &Aslanova, 2011). When the answers of university students for environmental knowledge are compared to the nationality, significant difference is obtained.

## **5.2. Recommendations**

Based on the results of this research, the following suggestions can be given:

- The lessons should be provided in sufficient quantity and quality regarding environmental education.
- The volunteer environmental organizations should review their work, and take precautions that will make the studies more efficient.
- The university students should be provided with positive attitudes towards the environment and environmental problems.
- The importance of informal education is as high as formal education in bringing environmental knowledge and attitude. The parents should care about the environmental education of their children.
- It will be beneficial to keep newspapers, magazines, etc. publications about the environment at universities and schools.

- All kinds of support should be provided by collaborating with international organizations. The media should be encouraged to produce educative and introductory programs and should deem their publication as a task.

- The environmental education in national level should be a part of national education. Environmental education should be considered as part of formal and non-formal education in all levels with regard to being a life long educational process.

- The environmental issues could be made more attractive in teaching programs, and so the allocated time for such issues should be increased accordingly in order to increase positively students' attitude and behaviour levels towards environment and make them environmentally sensitive and responsible individuals.

- The teachers should touch upon the subjects they select in every course and motivate the students on this matter. The coordination among schools should be provided and mass project studies should be carried out.

- Our country should keep pace with modern era of 21<sup>st</sup> century and give importance to the matter of environmental subject in order to protect environmental values it has and remove the environmental problems it has.

- The students should be encouraged to be members of environmental institution or organization and be active in the activities of these organizations like conference, meeting.

- Environmental education should be considered as part of formal and non-formal education in all levels with regard to being a life long educational process.

- The national and international congresses help researchers come together, accelerate the flow of information and develop horizons with their social aspects. However, the participation of researchers to the congresses keeps low due to some reasons like the congress participations are ignored in academic promotion, high prices of participation, etc. There are more limited studies in terms of scientific value in congresses, so this hinders congresses from reaching their aim. Thus, it is necessary that the continuity of congresses, that is their sustainability which brings subject matter experts together.

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***Appendix-1.***

**PERSONEL INFORMATION**

**Education status of your mother: Education status of your father:**

Elementary ☐1  
Primary School ☐2  
Secondary School ☐3  
High School ☐4  
University /  
Faculty ☐5  
Master / Doctorate ☐6

Elementary ☐1  
Primary School ☐2  
Secondary School ☐3  
High School ☐4  
University /  
Faculty ☐5  
Master / Doctorate ☐6

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

Less than 1,000TL ☐      Between 1,000 TL – 2,000TL ☐      Between 2,000- 3,000TL ☐  
Between 3,000 -4,000TL ☐      More than 4,000 TL ☐

**Please tick the appropriate option in the following question:**

1. Have you received any environment lessons before?

Yes ☐1

No ☐2

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

Yes ☐1 Name: .....


No ☐






## Appendix-2.

### ENVIRONMENTAL AWARENESS KNOWLEDGE TEST

NO	Name Surname: Female: ( ) Male : ( )
B1	<p>Which one of the following are not the result of air pollution?</p> <p>a) Historical and artistic architectural tissues are being destroyed  b) Related respiratory disorders occurs In living organisms  c) Climate change occurs  d) The ozone layer thickens and breaks down  e) Plant leaves are damaged</p>
B2	<p>Which of the following can be done to reduce air pollution?</p> <p>a) To choose public transport for journeys  b) To burn garbage's in a vacant land  c) To drive to short distances  d) Use low-calorie coal at home  e) To burn stubbles in the field</p>
B3	<p>Which of the idea of promoting the use of bicycles to reduce direct and indirect reduce the environmental problems?</p> <p>1. Water pollution 2. Air pollution 3. Soil pollution 4. Noise pollution  a) Only 2 b) 1 and 2 c) 2 and 4 d) Only 4 e) 1, 2, 3 and 4</p>
B4	<p>Which of the following will not be considered as one of the causes of air pollution?</p> <p>a) Exhaust fumes from cars  b) Fumes from factory chimneys  c) Plant respiration causing CO<sub>2</sub> into the atmosphere  d) Incineration of waste recycling  e) Widely use of coal stove in the house</p>
B5	<p>Which of the followings or which are the result of amount of CO<sub>2</sub>, CH<sub>4</sub> and O<sub>3</sub> gas increases in the atmosphere?</p> <p>1. Change of climate 2. Depletion of the ozone layer 3. Greenhouse effect  a) Only 1 b) Only 3 c) 1 and 2 d) 2 and 3 e) 1, 2, and 3</p>
B6	<p>Which of the following cannot be represented as one of the causes for acid rain?</p> <p>1. The nitrogen oxides coming from chimneys of industry organizations  2. The gases resulting from combustion of fossil fuels  3. Gases caused by exhaust of vehicles  4. Gases resulting from decay of plants and organisms  a) Only 4 b) 1 and 4 c) 1, 2 and 3 d) Only 1 e) 2 and 3</p>
B7	<p>Which of following or which are knows as greenhouse gases?</p> <p>1. CO<sub>2</sub> 2. CH<sub>4</sub> 3. CFC 4. NO 5. Water vapor 6. Cl<sub>2</sub>  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</p>

<b>B8</b>	<p>Which one or which ones of the following is the result of the greenhouse effect?</p> <p>1- Melting of glaciers 2- Climate shift 3- Droughts and floods 4- Fall in sea level 5- Increased in greenhouse crops yield</p> <p>a) 1 and 3   b) Only 1   c)1,2 and 4   d)1,2 and 3   e) 1,2,3,4 and 5</p>
<b>B9</b>	<p>The use of pesticides is effective as a priority to whichever of the following forms of pollution?</p> <p>a) Water pollution   b)Soil pollution   c) Air pollution   d) Noise pollution   e) Coastal pollution</p>
<b>B10</b>	<p>Which of the following items we use in our daily basis does not use CFC gas?</p> <p>a)Iron   b)Fridge   c) Air conditioning   d)Fire extinguisher   e)Car spray</p>
<b>B11</b>	<p>What do we understand by CFCs (Chlorofluorocarbon)?</p> <p>a) Gas compounds destroying the seas b) Gaseous compounds that affect the ozone layer c) Gas compounds that destroys historical monuments and architectural tissues d) Gas compounds that destroys the roots of plants e) Result of Photosynthesis airborne gaseous compounds</p>
<b>B12</b>	<p>Which of the following are not considered as soil pollutants?</p> <p>a) Organic food waste b) Pesticides c) Acid rain d) Batteries and battery e) Chemical and medical waste</p>
<b>B13</b>	<p>Which of the following is not a way to prevent soil pollution?</p> <p>a) Controlled use of pesticides b) Installing filters on factory chimneys c) The preference for hybrid cars instead of regular gasoline d) The preference for organic fertilizer instead of chemical fertilizers e) Treatment of sewage mixed domestic and industrial waste</p>
<b>B14</b>	<p>Which is or which are being mixed in the air after we start our car in the morning in our garage?</p> <p>1) Cl<sub>2</sub>   2) Cadmium   3)CO   4)NO   5)Lead</p> <p>a) Only 3   b)3,4 and 5   c)1,3 and 4   d)3 and 4   e)2,3 and 4</p>
<b>B15</b>	<p>Which of the following or which are considered as the factors which cause water pollution?</p> <p>1- Drug and chemical fertilizers used in agriculture 2- Decomposed organic waste 3- The liquid waste from the factory 4- Harmful gases emitted from the chimneys of the factories</p> <p>a) Only 1   b)1 and 3   c)1,2 and 4   d)1,3 and 4   e)1,2,3 and 4</p>

<b>B16</b>	<p>Which of the following behaviours may pollute the water which you drink or you use to do at home that you live in?</p> <p>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</p> <p>a) Only 3    b) 2 and 3    c) 2,3 and 4    d) 1 and 3    e) 1, 2, 3 and 4</p>
<b>B17</b>	<p>Which of the following is not one of the events that caused the erosion?</p> <p>a) Burning the sloping field to 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</p>
<b>B18</b>	<p>Which of the following is the main reason for the accumulation of excess nitrogen in the soil?</p> <p>a) Over planting of legumes  b) Reduction of green vegetation  c) Improper use of fertilizers  d) Direct use of nitrogen by living things  e) The destruction of forests</p>
<b>B19</b>	<p>Which of the following water pollutants can be harmful when mixed into the atmosphere from the exhaust of vehicles according to fuel type used?</p> <p>a) Nickel    b) Copper    c) Chrome    d) Lead    e) Aluminium</p>
<b>B20</b>	<p>Which of the following is a sign of medical waste?</p> <p>  </p> <p>a)                      b)                      c)                      d)                      e)</p>
<b>B21</b>	<p>Which of the following or which are is not likely to be generated from recycling?</p> <p>a) Paper and Cardboard  b) Glassware  c) Metallic materials  d) Plastics and derivatives  e) Cotton fabrics and derivatives</p>
<b>B22</b>	<p>Which of the following is not the material to be disposed in paper recycling bins?</p> <p>a) Newsprint  b) Paper and cardboard packaging  c) Used books  d) Carbon paper  e) Cardboard boxes</p>
<b>B23</b>	<p>Which of the following are not the benefits to a country verging towards to renewable energy sources?</p> <p>a) Reducing energy efficiency  b) Reducing the dependency on oil and gas imports  c) Reduction of air pollution  d) Reduction of energy needs  e) Reduction of greenhouse gas emissions</p>

<b>B24</b>	<p>Which of the following material property can be disposed in the glass piggy bank?</p> <p>a) Crystal glass b) Mirror glass c) Porcelain and ceramic d) Colored soft drink bottles e) Light bulb and fluorescent lamps</p>
<b>B25</b>	<p>Which of the following indicates that a substance is made from a recyclable packaging?</p> <p>a)  b)  c)  d)  e) </p>
<b>B26</b>	<p>Which of the following is not the alternative energy sources?</p> <p>a) Geothermal      b) Sun      c) Natural gas      d) Wind      e) Wave</p>
<b>B27</b>	<p>Which of the following which are or may be the measures that can be taken to prevent noise pollution in the surrounding area?</p> <p>1. Improving light rail systems and road traffic restrictions 2. Metro lines to be built entirely underground 3. Reforestation of the surrounding transit roads 4. Small industrial enterprises within the city to move to industrial zones</p> <p>a) 1 and 2      b) Only 2      c) 1, 2 and 4      d) 2 and 3      e) 1, 2, 3 and 4</p>
<b>B28</b>	<p>Which of the following material property cannot be disposed in the glass piggy bank?</p> <p>a) Windowpane b) Colored glass soft drink bottles c) Colourless glass beverage bottle glass d) Glass e) Glass preserves and jams jars</p>
<b>B29</b>	<p>Which of the following natural energy source does not contain sulfur component gases?</p> <p>a) Natural gas      b) Coal      c) Petroleum      d) Fuel-oil      e) Lignite coal</p>
<b>B30</b>	<p>Which of the following statements best describes the formation of acid rain?</p> <p>a) Some gas is formed by damaging the ozone layer b) NO<sub>x</sub> is formed by the merger of CO<sub>2</sub> gas c) Results of the reaction of the NO<sub>x</sub> and SO<sub>x</sub> gases with atmospheric moisture d) Formed of SO<sub>x</sub> gas with particles merging with the atmosphere e) It occurs when NO<sub>x</sub> and SO<sub>x</sub> gases reacts with O<sub>2</sub> f) Some gas is formed by damaging the ozone layer g) NO<sub>x</sub> is formed by the merger of CO<sub>2</sub> gas h) Results of the reaction of the NO<sub>x</sub> and SO<sub>x</sub> gases with atmospheric moisture i) Formed of SO<sub>x</sub> gas with particles merging with the atmosphere j) It occurs when NO<sub>x</sub> and SO<sub>x</sub> gases reacts with O<sub>2</sub></p>
<b>B31</b>	<p>Which of the following or which are, can be an alternative energy sources?</p> <p>1. Coal      2. Natural gaz      3. Hydraulics      4. Geothermal      5. Hydrogen</p> <p>a) Only 1      b) 1 and 2      c) 2, 3, 4 and 5      d) 3, 4 and 5      e) 4 and 5</p>

### Appendix-3.

#### ENVIRONMENT CONSCIOUS ATTITUDE TEST

NO	THE EXTENT TO WHICH YOU AGREE WITH THE STATEMENTS BELOW	I Strongly disagree	I don't agree	I Barely agree	I agree	I totally agree
T1	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 of nature and depletion of many species day by day makes me sad.					
T5	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.					
T8	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.					
T10	It this continues fossil fuel supplies will run out in the very near future.					
T11	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	If I 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.**

**ENVIRONMENTALLY CONSCIOUS BEHAVIOR TEST**

<b>NO</b>	<b>The extent to which you agree with the statements below</b>	<b>I never do it</b>	<b>I Barely do it</b>	<b>Sometimes I do it</b>	<b>I do it often</b>	<b>I do it very often</b>
<b>D1</b>	We separate the unused paper in our house and we notify or call the place for collection.					
<b>D2</b>	I make sure that the book and file paper I purchased is made from recycled paper.					
<b>D3</b>	I normally throw away the used batteries into the garbage cans					
<b>D4</b>	I normally throw away the used bottles into the bottle piggy bank					
<b>D5</b>	Me and my family give our used our old furniture or old books to those who need or collecting institutions or organizations.					
<b>D6</b>	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.					
<b>D7</b>	We usually chat with friends over environmental pollution.					
<b>D8</b>	I would be very careful for unnecessarily use of light, radio and television.					
<b>D9</b>	I attend frequently to conference or any meetings for the protection of the environment.					
<b>D10</b>	I write letters to a newspaper or journalists, politicians or any other authorized people for the prevention of environmental pollution.					
<b>D11</b>	My family and I use energy saving light bulbs.					
<b>D12</b>	I force my family and the people around me to use biofuels for both their car and home.					
<b>D13</b>	When I buy gifts that are organic and harmless to environment.					
<b>D14</b>	To those who want to buy white appliances, I urged them to buy A class white appliances.					
<b>D15</b>	Me and my family or group of friends use either one of our cars or public transport to protect the environment.					
<b>D16</b>	I look around for recycling bins to throw away my used papers.					

<b>D17</b>	My family and my friends frequently talk about the benefits and importance of alternative energy sources of wind and solar energy etc.					
<b>D18</b>	When there is a broken glass at home; we throw it to the kitchen trash disposed along with vegetables and fruit peels.					
<b>D19</b>	I follow the Internet, television, newspapers for the news of the use and expansion of alternative energy sources.					
<b>D20</b>	Me and my family wash fruits and vegetables in a bowl in the kitchen.					
<b>D21</b>	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.					

***Appendix-5.***

**KNOWLEDE TEST ANSWER SHEET**

1- A	17-A
2- D	18-B
3- C	19-B
4- C	20-C
5- E	21-B
6-A	22-D
7-C	23-C
8-D	24-C
9-B	25-A
10-C	26-C
11-B	27-C
12-A	28-B
13-C	29-C
14-C	30-E
15-B	31-C
16-D	32-B

## **Curruculum Vitae**

My name is Abdulrahman Almoktar S Haswa. I was born on 06.09.1979 in Libya in Zwara city. In 1993 I started high school and of completed in 1996-1997. I got my high Diploma in fall 1999 from the higher center for water affairs in Ajeelat. I got a job at the end of 2000 as Drill instructor at the same Higher Institute where I graduated from. I worked as a trainer on the drilling machine in outside fields during (2002-2007). After that worked as a lecturer in (Practical) drilling techniques for students in the drilling department in the higher Institute for water affairs, Libya (2007-2009). In 2013 I left my country to complete my education and get a master's degree. I had the opportunity to travel to the UK to receive a good education. I spent one year there but there was some problems made me back my country and start thinking about the best options and that makes me chosen north Cyprus to finish may master degree. My master's study in Near East University began in (2016-2015) in the field of Environmental Education Management.

