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NEAR EAST UNIVERSITY

INSTITUTE OF EDUCATIONAL SCIENCES

ENVIRONMENTAL EDUCATION AND MANAGEMENT

THE ATTITUDE OF LIBYAN SECONDARY AND HIGH SCHOOL STUDENTS TOWARDS THE ENVIRONMENT AND THEIR ENVIRONMENTAL KNOWLEDGE

MASTER THESIS

Master Student

Sobhi OMRAN KHALIFA ALJWADI

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ABSTRACT

THE ATTITUDE OF LIBYAN SECONDARY AND HIGH SCHOOL STUDENTS TOWARDS THE ENVIRONMENT AND THEIR ENVIRONMENTAL KNOWLEDGE

Sobhi OMRAN KHALIFA ALJWADI

Master's Degree, Environmental Education and Management

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This study has been conducted in order to define the attitude of secondary and high school students in Libya towards the environment and their envıronmental knowledge. While relationships among variables in the study were examined, comparisons among the groups were also made. In this regard, this study is a relational screening work. The research data were collected in six schools in central Libya during the 2015-2016 education year. The researcher was with the secondary and high school students of Libya while filling out the data collection tools and made all necessary explanations. The program SPSS 20 was used to analyze obtained data. T-test and single direction variance analysis has been made on data collected from secondary and high school students. The level of education, parental education level, and environment related knowledge level of the pupil were analyzed by single direction variance analysis.

As a result of the research, no significant difference was found in the environmental information and environmental attitudes of students according to the gender variable. Whereas, a significant difference between the pupil's educational background and their environmental knowledge was observed (p=,033).There was no significant difference in their attitude towards the environment (p=,288). The environmental knowledge level of the students with literate mothers is higher than the students with illiterate mothers. Significant difference was observed between the father's educational status and the pupil's environmental knowledge and attitude towards the environment. Whereas, a significant current environmental knowledge difference between the students who have taken a class or education related to the environment (p=,009) has been observed, but no difference in their attitude towards the environment (p=,312) was seen. Whereas, no significant difference between the

participants’ environmental knowledge and benevolent work in an environmental organization (p=,722), a significant difference towards their attitude towards the environment (p=,000) has been observed. It is seen that the students' attitude towards the environment ($\overline{X}$=172,37) is higher than those who do not engage in voluntary environmental work ($\overline{X}$=168,86). There was a significant difference between monthly income and the current environmental knowledge level of students (p=,000) and environmental attitude (p=,049) of secondary and high school students. When the results of the study are examined, it has been determined that the level of environmental knowledge and attitude of Libyan secondary and high school students towards the environment are insufficient.

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

ÖZET

LİBYA'DAKİ ORTAOKUL VE LİSEDE ÖĞRENİM GÖRMEKTE OLAN ÖĞRENCİLERİN ÇEVRE BİLGİSİ VE ÇEVREYE YÖNELİK TUTUMLARININ İNCELENMESİ

Sobhi OMRAN KHALIFA ALJWADI

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Bu çalışma, Libya'daki orta okul ve liselerde öğrenim gören öğrencilerin çevre ve çevre bilgisi ve çevreye yönelik tutumlarını belirlemek amacıyla yapılmıştır. Çalışmada değişkenler arasındaki ilişkilere bakılırken, gruplar arasında karşılaştırmalar da yapılmıştır. Bu yönüyle araştırma bir ilişkisel tarama çalışmasıdır. Araştırma verileri, 2015-2016 eğitim ve öğretim yılında Libya merkezde yer alan 6 okulda toplanmıstır. Araştırmacı veri toplama araçlarını doldururken Libya'daki orta okul ve lise oğrencilerinin yanlarında bulunmuş ve gerekli olabilecek tüm açıklamaları yapmıştır. Elde edilen verilerin analiz edilmesinde SPSS 20 programı kullanılmıştır. Ortaokul ve lise öğrencilerinden toplanan veriler üzerinde t-testi ve tek yönlü varyans analizi yapılmıştır. Öğrencinin öğrenim gördüğü sınıf, anne eğitim düzeyi, baba eğitim düzeyi, çevre ile ilgili bilgi düzeyleri tek yönlü varyans analizi ile incelenmiştir.

Araştırma sonucunda, öğrencilerin çevre bilgisi ve çevresel tutumları, cinsiyet değişkenine göre hiç bir anlamlı farklılık tespit edilmemiştir. Öğrencileri eğitim durumu ile öğrencilerin çevre bilgisini arasında anlamlı bir fark görülürken (p=,033), çevreye yönelik tutumlarında (p=,288) anlamlı bir farka rastlanmamıştır. Anne eğitim düzeyi ortaokul ve lise öğrencilerin çevre bilgisi, anne eğitim durumu okuma yazma bilmeyen düzeyinde olan öğrencilerden yüksektir. Babalarının eğitim durumu ile öğrencilerin çevre bilgisini ve çevreye yönelik tutumları arasında anlamlı bir fark görülmemektedir. Libya'daki ortaokul ve lise öğrencilerin, çevre ile ilgili bir ders veya eğitim almış ya da almamış olmaları ile mevcut çevre bilgisi düzeyleri arasında (p=,009) anlamlı bir farka rastlanırken, çevre tutumları (p=,312) arasında anlamlı bir fark görülmemektedir. Katılımcıların çevre örgütünde gönüllü uğraş vermesi ile öğrencilerin çevre bilgisi (p=,722) düzeyi arasında anlamlı bir farka rastlanmazken,

çevre tutumları (p=,000) arasında anlamlı bir fark görülmektedir. Öğrencilerden gönüllü çevre uğraşı(üyeliği) verilerin çevreye yönelik tutumlarının ($\bar{X}$=172,37) gönüllü çevre uğraşı vermeyenlere ($\bar{X}$=168,86) oranla daha yüksek olduğu görülmektedir. Ortaokul ve lise öğrencilerin, aylık geliri ile öğrencilerin mevcut çevre bilgisi düzeyleri (p=,000) arasında ve çevre tutumları (p=,049) arasında anlamlı bir farka rastlanmıştır. Araştırma sonuçlara bakıldığı zaman, Libya'daki ortaokul ve lise öğrencilerinin çevre bilgisi ve çevreye yönelik tutumlarının düzeylerinin yetersiz olduğu tespit edilmiştir.

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

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ABBREVIATIONS

UNESCO: United Nations Educational, Scientific and Cultural Organization

SESs: Social-ecological systems

UNEP: United Nations Environment Programme

(%): Percentage

P: Significance

X: Average

Ss: Standard deviation

T: t test value

P: Significance level

Df: Degrees of freedom

N: Average sample number

F: f value

TERMINOLOGY

Environment: Environment can be defined as all external factors; the whole of the physical, chemical and biological factors that affect living things; physical and social factors that influence and shape the living being and its life, and the collection of factors that influence the organism's life (Tokay and Yüksel, 2003).

Environmental Education: Environmental education is the process of confirming understandable values and values to develop important attitudes and skills in order to understand and accept the relationship between humans, culture and biophysical environment. Environmental education is a permanent process in which individuals and communities gain awareness of sustainable development and gain the determination to act in order to individually solve current and future environmental problems with their knowledge, values, skills and experiences (Doğan, 2000).

Environmental Knowledge: Knowledge is defined as “Intellectual outcome” or “something learned” which is obtained by thinking, judging, reasoning, reading, observing and experimenting (Balay, 2004).

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

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

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

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CAPTER I
INTRODUCTION

Environmental notion has the character of having a notion being defined in different meanings and characteristics. It has been evaluated by being tackled in different meanings and characteristics with various approaches. Environmental notion tackled in social and psychical point is indispensable living space in terms of both social and physical. Environment or living space is defined as the place that living beings are bounded with vital bonds and are affected in various ways (Yıldız et al., 2000). Environment in which human maintain all his social, biological and chemical activities contains superficial soil a effecting human and nature or non-natural vegetation near the geology, hydrology- mineralogy (like water minerals and petrol) sources (Uşak, 2006). Environment is defined as all the things apart from individual in terms of environmental psychology (Sülün et al., 2010). Within this work, physical environment statement is focused on.

Today, it is increasingly common place to speak ofenvironmental problems and the management of social-ecological systems (SESs) as complex andnecessarily adaptive. Environmental issues such as loss of biodiversity, climate change, air pollution or watershortages aremultifaceted. Consensus has grown that governingecological problems is about coping with cross scaleand cross-level dynamics (Cash et al, 2006). This means a different type of management at onelevel, such as the spatial scale, may bring aboutunforeseen changes at another level or scaleto understand these dynamics, the systems paradigmand its notions of embedded hierarchies of scalesand levels have prevailed in significant parts of theliterature, including the disciplines with which wehave so far mostly been engaging, which are mainly landscape ecology, policy analysis and publicadministration (Soberon and Sarukhan, 2009).

The term environmental awareness has a broad meaning. It does not only imply knowledge about environment, but also values and necessary skills to solve environmental problems. Moreover, environmental awareness is the initial step ultimately leading to the ability to carry on responsible citizenship behavior (Sengupta et al., 2010).

Environmental education is a process of identifying values and clarifying concepts in order to develop skills and added tools necessary to understand and appreciate the inter-relationship among man, his culture and his bio-physical surroundings.

In general terms, environmental attitude is defined as the tendency to display positive or negative learned reactions towards acertain object, situation, institution, concept or other people (Yılmaz, 2004., Atasoy, 2005). Attitudesoccur through a learning process as a result of life and experiences (Tavşancıl, 2006). It is stated that environmental attitudes refer to all positive or negative opinions such as fear, anger, uneasinessand value judgments stemming from the environmental problems as well as readiness to bring a solution to theenvironmental problems which are among environment-oriented behaviors (Erten, 2004).

The goal of environmental education is to develop a world population that isaware of, and concerned about the environment and its associated problems, andwhich has the knowledge, skills, attitudes, motivations, and commitment to workindividually and collectively towards solutions of current problems and theprevention of new ones" (UNESCO, 1978) there is no question that increased knowledge must play an essential role in solving humanity's environmental problems. Knowledge can help limit and reduce population size (Ehrlich and Holdren, 1971., Ehrlich and Ehrlich, 1990), change patterns of overconsumption (Ehrlich et al., 1997) and develop more environmentally benign technologies (World Commission on Environment and Development, 1987., Holdren, 1990., Kane, 1996). These connections between knowledge and the environment are relatively uncontroversial. Some recent analyses suggest, however, that knowledge-growth may alleviate environmental problems in a way that is largely unprecedented. Although history provides numerous examples where industrialization has produced unfortunate environmental consequences, some argue that knowledge-growth will assure high levels of environmental quality in the future. According to this view, the continued discovery of cleaner, low-polluting production methods will preserve environmental quality, despite the increases in the scale of global output and consumption.

Environmental education is a long-term processof developing the skills and behavior necessaryto understand and accept the relationshipsbetween people, culture and the natural environment. In addition, environmental educationis a sequential process that attempts to increaseunderstanding of the environment and promotepro-environmental values. Its ultimate aim isto motivate citizens to act individually and collectivelyin an environmentally conscious mannerthat balances the social, economic, and ecologicalneeds of today without compromisingthose of the future (Yorek et al., 2010). It is a means to prepare societyin practical decision making and to teachenvironmentally friendly behavior. It should, therefore, be a fundamental and integral part ofeducation for all members of society. Environmentaleducation syllabuses at all educationallevels (both formal and informal) should beprepared so as to help achieve these aims (Grodzinska-Jurczak et al., 2006).

1.1. Aim of the Research

The aim of this research is to study the attitude of secondary and high school students in Libya towards the environment and their environmental knowledge according to different variables.

1.2. Problem

The problem is the factors affecting the knowledge and level of attitude and behaviour of the college students and students of secondaryeducation in Libya. Significant relationship between the environment and knowledge of students of secondary education and college about environment taking into account the class variables, amongst collage and secondary education students of different nationalities studying in Libya, different ages and gender, and the economical back ground of the students and their families.

1.2.1. Sub-Problems

1. Does gender have an effect on environmental knowledge and environmental attitude?
2. Do secondary and high school students in Libya have effect on environmental knowledge and attitude?
3. Does the education of mothers of secondary and high school students in Libya affect their environmental knowledge and attitude?
4. Does the level of education of the fathers of secondary and high school students in Libya affect the environmental knowledge and attitude?

5. Is there any effect of taking environmental course or training of secondary and high school students in Libya in terms of environmental knowledge and attitude?

6. Are the environmental knowledge and attitude of secondary and high school students of Libya affected by their being a member of an environmental club or voluntary establishment?

7. Does the monthly salary of the families of secondary and high school students in Libya affect the students' environmental knowledge and attitude?

1.3. Importance of the Research

The changing of attitudes and behavior in a positive manner in education and environmental awareness, one of the main objectives of this training is to change in the attitudes of environmental knowledge and the teaching of environmental education for students in secondary schools and higher institutes by the measurement of their positions and the reflection of environmental knowledge and thus to determine the extent of the effectiveness of this training, therefore we must educate students of the reasons for the continuation of human existence that depends on the particular nature of natural resources.

Environmental education is the training aimed at changing the approach towards environmental ethics, environmental awareness, environmental knowledge, environmental attitudes and behaviors in a positive way. For this reason, positive change in environmental attitudes and knowledge are among the primary goals of this education. One of the primary objectives of this research was to measure the reflection of the environmental education taken by primary school second grade students on their environmental attitude and level of knowledge and thus, determine the effectiveness of this education.

1.4 Limitations

- This study was limited with environmental knowledge test and environmental attitude scale
- Made with a total of 445 students 151, of whom were female and 294 were males,
- In 6 randomly chosen middle schools in Libya,
- 2015-2016 school year.

1.5 Assumptions

- It is assumed that the data collection tools used in the research were appropriate for secondary school and high school students to measure environmental knowledge and environmental attitudes and the subject and purpose of the research;

- that the examination group studied was sufficient for the generalization of the research,

- that the scales were answered sincerely and objectively, reflecting the existing knowledge, with sufficient care and diligence, during the period given to middle and high school students.

1.6. Definition

Environment: The environment is a multi disciplinary place/atmosphere units formed of both living and non-living factors (Kemp, 2003).

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).

Environmental Knowledge: Environmental knowledge is the knowledge of environmental problems and the solutions to these problems, the development in ecological areas and all related information about nature (Erten, 2005).

Environmental Attitude: Learned tendencies that are consistent with the environment, manifested in the form of exhibiting positive or negative attitudes (Pelstring, 1997).

Environmental Awareness: Environmental awareness is a concern towards the environment orenvironmental problems. In other words it is defined as an idea holding a general impression orconsciousness about something without having to know much about it (Roberta, 2009).

CHAPTER II
RELEVENT LITERATURE

In this section, some researches made in Libya related to the subject are mentioned. When looked at the literature, primarily in the light of researches done on the matter of environment; subjects such as the environment, environmental education, definition, characteristics, etc. were emphasized.

2.1. The Environment

The word Environment is gotten from the French word "Environ" which signifies "Encompassing". Our encompassing incorporates biotic variables like people, plants, creatures, organisms, and so forth and abiotic components, for example, light, air, water, soil, and so forth. Environment is a complex of numerous variables, which encompasses man and the living life forms. Environment incorporates water, air and arrive and the interrelationships which exist among and between water, air and land and individuals and other living animals, for example, plants, creatures and microorganisms (Kalavathy, 2004). She recommended that environment comprises of a securely attached entire framework constituted by physical, substance, organic, social and social components which are interlinked separately and on the whole in bunch ways. The common habitat comprise of four interlocking frameworks in particular, the air, the hydrosphere, the lithosphere and the biosphere. These four frameworks are in consistent change and such changes are influenced by human exercises and the other way around (Kumaraswamy et al., 2004).

The environment is the external surrounding where the living beings maintain their relations during their lives (Başal, 2005) As per the definition by A guesse, the earth is the entire of physical, compound and organic variables and social components, which have prompt or long haul consequences for the exercises of people and the living creatures straightforwardly or in a roundabout way (Erer, 1992). The earth is the entire of solid creatures, occasions and vitality (Tont, 2001). Environment is the entire of the physical, synthetic and organic components which have impact on the lives of living creatures in a distinct living space. Quickly, all the elements, influencing the lives of living creatures, are their surroundings (Yücel et al, 2006).

2.2. Environmental Problems

Nature has the ability to clean out generated wastes. Since the day human existence appeared on Earth, emerging wastes have been removed by nature. However, the developments in the field of industry coupled with the amount of waste left in the environment is becoming more than nature can recycle. This situation was initially ignored by the human race. It has later been understood that we were face to face with a problem after wastes that accumulate in the environment began leading to the destruction of nature, and that this situation had started to put the life of the human race in jeopardy. Humans have distorted nature's balance and caused the environment to become problematic. In our century, environmental problems have derived from the relation between nature and humans and is handled and discussed between disciplines such as politics, sociology and technology. Just as it is about the concept of environment, there is no single definition in environmental problems. Researchers who study the causes and consequences of different perspectives have explained environmental problems with different definitions. Thus, it can be said that the multidimensional concept of environment is also valid for environmental problems. The multidimensionality of environmental problems has made it a local issue and a universal problem (Atasoy, 2005).

Every single human of the earth require its assets to meet their essential needs of water, nourishment and asylum. What's more, a large portion of us require considerably more to meet our apparent needs of solace, accommodation and transportation (Oskamp,2000., Winter, 1996).

There are results to addressing each of these requirements that stretch out past asset consumption. The greater part of what we do and devour requires vitality, which we create by blazing fossil energizes. Removing, preparing, transporting and blazing fossil powers produces contamination and contrarily impacts common habitats. A hefty portion of the items we deliver by copying fossil powers are utilized quickly, and afterward disposed of, which prompts to extra issues of waste and contamination. Probably the most genuine dangers are sketched out beneath:

Climate Change: maybe the most sensational danger to the world's surroundings is an unnatural weather change. Carbon dioxide and different gas side effects of smoldering fossil powers have framed a cover around the earth that permits light to infiltrate without permitting warmth to get away. The outcome is a nursery

impact and a gradually warming planet. Researchers gauge the normal worldwide temperature has expanded by roughly six degrees Celsius in the course of recent years, and venture increments somewhere around 1.4 and 5.8 degrees Celsius by 2100 if nursery gasses are not fundamentally lessened (Intergovernmental Panel on Climate Change, 2001). In spite of the fact that this appears like a humble increment, little changes in worldwide temperature can prompt to emotional outcomes. A most dire outcome imaginable incorporates a warming of the seas that prompts to softening polar icecaps and after that to the flooding of beach front ranges, trailed by extraordinary changes in climate designs bringing on dry seasons and desertification in a few zones and surges in others. Thusly, even slight an unnatural weather change can undermine the world's capacity to manage life as we probably am aware it. In spite of the fact that there is huge instability about the rate and course of an Earth-wide temperature boost, the moderately little changes we have officially experienced may posture critical dangers to human wellbeing. The World Health Organization evaluates that an unnatural weather change is in charge of 154,000 passing worldwide by making conditions more great for the spread of infections, for example, intestinal sickness, dengue fever and loose bowels (World Health Organization, 2002).

2.3. Human Related Environmental Problems

A large part of the environmental problems we face today are the results of human activities. The most important ones have been explained below.

Natural Resource Usage: Natural resources are needed to meet the needs of all living things, from monocellular creatures to humans, and to survive. They can be inanimate, such as the sun, air, soil, water, mines, fossil fuels, as well as alive such as plants and animals. The natural resources that human beings use as if they are limitless are actually limited. And these resources are rapidly depleting. According to the statements of the Society for the Protection of Nature; the natural resources have been consumed quicker and in larger amounts than at any point in mankind's history, was multiplied several times in the last 40 years and have been devastated. In particular, resources such as air, water, plants and oil are rapidly decreasing, narrowing the living spaces of the living beings. Today, most of the natural resources in the world are being used by industrialized countries. Nevertheless, poor and economically developing countries have more environmental problems due to the

misuse of natural resources. Natural resources have been extensively consumed in order to feed the growing population in such countries; they consume more than they produce and people are not conscious enough about the environment. The rapid depletion of rain forests for economic reasons is an example. The insufficiency of technologies such as recycling and refinement in these countries increase environmental problems (Yücel et al, 2006).

Rapid Population Growth: Rapid population growth is the leading cause of environmental problems. The world population has entered a period of rapid growth in the 18th century. The industrial revolution and the development of living conditions and the health sector played an important role in this. World population, which was 2.5 billion in 1950, is now around 7 billion. It is estimated to reach 12 billion by 2050. As in our country, rapid population growth in many countries of the world brings many economic, sociological and environmental problems. The reason is that the amount of natural resources that will increase the quality of human life against the growing population and reduce the number of poor people is limited (Çepel, 2003).

Today developed countries, which make up 20% of the world's population, consume 65% of world resources. In most of these countries the population growth rate is very slow. In fact, in some countries, the rate of population growth is zero or negative. Despite these countries with developed economies using the majority of the world's resources, there is relatively less environmental pollution when compared to population rate. Rapid population growth leads to the failure of natural resources in developing countries, economic deceleration and the proliferation of social problems. As a result, environmental problems are increasing (Çepel, 2003).

Urbanization: Emigration to cities has been accelerated due to the development of industry and technology and the increase of business areas; education, health, municipality, entertainment and resting places, shopping areas in cities being better than rural areas. As a result, environmental problems in cities have increased compared to villages and towns. Even if air, water and wastes, energy, soil cover, noise etc. are thought to be “Polluting Nature”, it is an accepted fact that one of the main factors that cause environmental problems is irregular urbanization. Urbanization is not based on a rapid industrialization movement in our country. The increase in the population of the cities is due to the inadequacy of the rural areas

rather than the attractiveness of the cities (Frangipane, 2000). In its state, urbanization does not only bring the poverty of rural areas to cities, it also promotes excessive and unnecessary consumption, creating negative environmental and economic effects. It is necessary to regard these as environmental problems in a broad sense. Today, depending on population growth and emigration all over the world, residential areas for accommodation and nourishment are selected randomly in or around the city center. As a result, agricultural, historical and touristic places that hold high economic values are disappearing. Today, about half of the world's population lives in cities. While, in most improving countries the basic services such as health, infrastructure, security, education, transportation are not sufficiently provided, increasing migration will extend these issues even more. All of these will cause unconscious use of natural resources and increase environmental problems (Yıldız et al., 2005).

Industrialization: Pollution caused by the industry is usually caused by lack of investment planning and location selection rather than the size of the investments. On the one hand, industrialization uses fertile agricultural land as a place of establishment, which can cause problems as various wastes can generate from these facilities such as air, water, soil, noise and radiation pollution. The increase in production, which started with the industrial revolution, led to rapid depletion of natural resources, while throwing the generated wastes in the production process to the environment caused environmental problems (Uslu et al., 2001). Among the problems that have come forth with the industrialization is the destruction of touristic areas, agricultural lands, natural and cultural assets as well as the damage made by industrial facilities built on inappropriate lands (Doğan, 2002).

Energy: Energy which enables living beings to fulfill their life functions; causes important environmental problems during its production, consumption, transport and storage. Energy sources can be classified as renewable, such as solar, wind, water, biomass; and Non-renewable energy sources such as coal, oil, natural gas, uranium, and thorium. As a result of these energy resources being used unconsciously, we have encountered various issues from weather, water, soil pollution, destruction of natural resources, to acid rains and thinning in the ozone layer. In order to minimize these problems it is needed to produce and consume energy in a conscious manner. In order to achieve this, firstly renewable energy

sources such as the sun, wind and geothermal energy should be focused on, power economy should be made in energy sources and above all an appropriate energy policy should be determined for a sustainable nature (Doğan, 2002).

Agricultural Activity: Vegetive, animal and agricultural activities carried out without causing environmental problems for thousands of years have caused environmental problems by disturbing the natural environment after artificial chemical substances such as hormones, fertilizers were introduced in order to get more products from the unit area to meet the need for food of the rapidly growing population (Yıldız et al. 2005). The kindling of plant wastes such as excessive tree cutting and field opening, forest fires, overgrazing of meadows and pastures, stubble and so on., incorrect irrigation and the application of Hydroelectric plants erosion, excessive use of chemical drugs and artificial fertilizers, irregular planting and different reasons alike cause the pollution of water and soil, and the deterioration of the natural balance of the ecosystem.

Extinction of Living Species: It is estimated that between 4 million and 40 million species live in our world. Although existing species sometimes disappear naturally, we can say that the disappearance of living species is now accelerated by human influence (Turkmen, 2008). According to studies, it is stated that the rate of disappearance of the present species is 1000 to 10 000 times higher than in the past. It is stated that 5 frog, 3 reptile, 11 bird and 10 mammal species are extinct or face the danger of extinction in our country (Avci, 2005). To protect biodiversity; taking legal and technical measures, building gene banks, setting up sheltered areas and raising awareness are some of the precautions to be taken on this issue (Çepel, 2012).

2.4. Global Environmental Issues

As a result of global environmental problems, humanity is facing significant problems. Air pollution is one of the most common environmental problems in the world. Especially after the industrial revolution, various illnesses and deaths due to increased air pollution were experienced in London the 1950's. Due to excessive air pollution in Mexico City, every child born has enough lead in his/her bloodstream to make him/her physically disabled. A few of the most important problems of our century are the rapid reduction of clean water resources, the difficulty of access to water, and the increasing water poverty. This global problem is also the problem of Turkey on a local scale. According to the 3rd Global Environment Report published

by the United Nations Environment Program in 2002, "1.1 billion people are deprived of safe drinking water in the world, especially those living in Africa and Asia. In addition, 2.5 billion people have no safe treatment services for water (Özdemir, 2003).

180 year are needed to cradicate the effects of 810 million barrels of oil poured into the Gulf during the Gulf War on the living creatures. Poland is losing more than 200,000 hectares of forest every year due to tree cuttings and pollution. 10% of the world's rivers are polluted and 6.5 million tons of solid waste is poured into the ocean every year. As a result of the thinning of the ozone layer, drought and agricultural changes, the predicted result of skin cancer rate is up to 26%. If population growth cannot be decreased, the world population will double in 30 years. Toxic wastes produced up to this day will not degrade for several generations.

2.5. The Relations between Environment and Education

2.5.1. The Concept of Education

Education is a process of mutual interaction that has existed since mankind came into being. Education has the functions of stimulating, enlightening and guiding. Education is a process that is beingexperienced and has been experienced. It is in interaction with social changes. Education refers to the process of socialization in a broad sense. Experiences that are effective in shaping attitudes and behaviors through learning are understood as education. All knowledge and skills acquired through interaction with the environment in which the individual live are within the scope of education. That is why education has always existed since the birth of mankind. Even if the level of development is different, education encompasses individuals from their birth in almost every society. In any case where learning occurs, it can be said there is a behavior changing training process. Education is so extensive as acquiring the skills necessary for continuing daily life through learning, and providing the knowledge system that gives meaning to the individual‘s life as a whole (Tatlıdil, 1993).

In the definition of education there are 3 basic points which the vast majority of educators agree upon. These are:

1. Education is to create the desired behavior in the individual. That is, it is called education when a behavior desired by the educator, is again formed with the influence of the educator on the trainee.

2. Behavior occurs in the individual as a product of its own experience, that is, its interaction with its environment. For this reason, it is necessary to prepare a suitable environment for the individual to learn so that education can be realized. The individual will only be able to attain the desired behavior after passing through the training process in this prepared educational environment.

3. In order to create the desired behaviour, the individual must remain in the educational process for a certain period of time in this prepared education (Kavruk, 2002).

While the qualifications earned by the individual are accepted as educated differ according to internalized human ideals, religious belief and philosophical views. An educated individual is defined as a person who has made the desired qualifications a part of their personality. Some common characteristics that characterize a trained person according to R.S. Peters are listed as shown below:

1. It learns an activity, not as a means, but as an aim.

2. It should be learned as profoundly as to organize information within each other in a conceptual framework and have the sense to question the occurences.

3. It should be able to develop a holistic viewpoint that can explore and connect with the area he/she specialized with other areas of life.

4. He/she should be able to transform life into education and quality by providing interaction between teachings and learnings; the way of life and view of events. People who are educated and creative, develop useful behaviors, look after and protect their environment and all good values. Today's education also includes teaching.

Education is the act of teaching by giving general or specific information by using methods developed for this purpose and with this information, to teach manners and forms of thinking.

2.6. Environmental Education

Education for the environment has not been considered as an independent educational field for many years and can only be examined in parts by other sciences. However, nowadays, as a result of environmental issues reaching today's dimensions, the first and perhaps the only way to attain the needed level of consciousness that will enable these problems to be announced to all masses and to take the related measures is independent environmental education which can teach environmental awareness and sensitivity (Kavruk, 2002).

Natural training is an interdisciplinary long lasting methodology which plans to raise a world populace who know about the earth and related issues and who has learning, expertise, state of mind, rationale, individual and social obligation which would add to the answers for the ecological issues and would keep the new ones to happen (Moselley, 2000).

The earth has an extremely multidimensional, broad and complex nature. In this manner, natural instruction is additionally multidimensional, broad and complex. Due to this reason, the idea of "Environmental Education" changes from individual to individual, from association to association. Right now, there are different meanings of ecological instruction. Environmental training can be characterize an as creating ecological mindfulness in each section of the general public conveys the individual's behavioral changes sensible to the earth, perpetual and positive securing normal, authentic, social and socio-stylish values, and giving cooperation effectively in tackling the issues (MEF, 2004).

There are two critical developments having impact on the creation and improvement of ecological training. These developments are environment and instruction developments. In parallel with these developments, common studies, non-formal training and instruction of security, which have added to the advancement of the natural training, have been additionally risen. These instructive developments have contributed enormously to the advancement of the ecological training (Marcinkowski,2001).

2.7. The Need for Environmental Education

One of the underlying reasons of the environmental problems has been indicated as increasing human population owing to increasing resource use, consumption and accordingly environmental change. Furthermore, environmental

problems all around the world were deeply discussed in the United Nations Conference on Human Environment in Stockholm in 1972. Herein, the significance of environmental education was put into words in the Belgrade Charter that was held in 1975. Environmental education was deeply discussed by describing its goals, objectives and principles in Tbilisi (UNESCO, 1978).

In this conference, 14 the need for environmental education to deal with the environmental problems was pointed out through indicating some recommendations. One of these recommendations was about its integration into formal education with the purpose of helping learners gain environmental knowledge, understanding, values, and skills essential for overcoming the environmental problems. In this regard, the goals of environmental education were described in the Tbilisi declaration as follows (UNESCO, 1978):

- to foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas,
- to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment,
- to create new patterns of behavior of individuals, groups and society as a whole towards the environment.

It can be stated that the goals of environmental education are based on training persons who are aware of, concerned about the environment and its various problems and have knowledge, skills and positive attitudes to conserve and improve the environment individually or collaboratively. The role of education for the environmental matters was under discussion during the Tbilisi conference. According to the conference report, environmental education should be integrated into all education levels from early childhood education to higher education. When the past, current and future of environmental education status evaluated, the goals of environmental education indicated in Tbilisi Conference are still valid and promising for the future of environmental education field (Potter, 2010).

Fifteen years later, United Nations Conference on Environment and Development organized in Rio de Janeiro, Brazil produced Agenda 21 and Rio Declaration as essential sources of the conference. Agenda 21 is composed of major environmental problems such as water pollution, energy consumption and

deforestation and provides some principles about solutions for these problems in the twenty first century by stressing on the necessity for environmental education 15 (UNESCO, 1993).

Rio Declaration is more related to the responsibilities of governments for dealing with the environmental problems and the solutions which are handled from economic, social, and political perspectives. Furthermore, it is believed that educating learners to become responsible individuals for the environment and making them active participants to create resolutions against these problems plays a crucial role in minimizing and preventing varied influences of these problems (UNESCO, 1993).

On the issue of environmental responsibility, Hungerford and Volk (1990) asserted that educating learners who show and act environmentally responsible behaviors for the protection and improvement of the environment should be one of the major goals of environmental education. At this point, they reviewed objectives of environmental education noted in Tbilisi Declaration in 1977 and they advocated that these objectives are prerequisite variables for learners to gain environmentally responsible behaviors. Moreover, improving individuals' environmental literacy should be one of the basic goals of environmental education so as to have people acquire environmental responsibilities to protect and improve the quality of the environment (NAAEE, 2008; Roth, 1992).

In brief, environmental education is a crucial need in our century to educate environmentally literate learners who have knowledge, values, attitudes, skills and participation to deal with the environmental problems the earth faces and to improve qualification of the environment for the current and next generations.

2.8. The Purposes of Environmental Education

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

- *Environmental Awareness:*it is to help the individuals and groups obtain awareness and sensibility towards the environment and environmental problems. Environmental awareness has intellectual, emotional and behavioral dimensions. In

other words, environmental awareness comprises of the thoughts including all the decisions, principles and interpretations about the environment, the behaviors to transfer all these thoughts and the emotions related to all these (Türküm, 2006).

- *Knowledge;* having knowledge about environmental issues helps to obtain basic concepts about environment, to comprehend the interaction between the environment and the humans and how to solve the environmental issues and problems.
- *Attitude;* it provides the students to obtain standards of judgement, participation and motivation to protect and develop the environment.
- *Skills;* it helps to obtain required skills for solving, searching and defining the environmental issues and problems.
- *Participation;* it provides the use of knowledge and skills, obtained about environmental issues and problems, in solving the problems.
- *Environmental Awareness;* Environmental awareness is a concern towards the environment orenvironmental problems. In other words it is defined as an idea holding a general impression orconsciousness about something without having to know much about it (Roberta, 2009).

Individuals should be engrained in the environmental knowledge and awareness from the very young ages. The more the new generations are raised as environment friendly from the time of kindergarten, the more the protection of our environment will be guaranteed. Thus, these environment-friendly individuals will have more chances to make progress in their career and to be successful. Houses, local community and schools are the three main areas where environmental education is provided. All the efforts made in these areas should be in mutual relationship which enables the solutions to be produced depending on environmental awareness, and also, enables the environmental problems to be comprehended. The protection of the delicate balance between the environment and the humans is under the responsibility of the humans (Dinçer, 1999). The more the mass media gives importance to the environmental issues, the more these issues will stick into the humans' minds. However, this would be available only when the environmental issues are treated profoundly and by seeking solutions instead of being treated with its sensational aspects just when an environmental disaster happens (Kıyıcı et al., 2005).

2.9. Environmental Education in Libya

Environmental education strives to enable man to exploit natural resources and preserve his environment to insure its sustainability. Thus it targets all classes of society with certain doses of its goals and objectives. The paper was aimed to study and analyze environmental education in Libyan educational curriculum in the basic education stage and passing through the high school level with its different fields of study and ending at university education. The methodology of making the study was based on the study of curriculum of pre-university education stages and curriculum of university of Sebha and through that the goals and objectives of environmental education were explained. The study showed that there were some doses of environmental education concepts in the curriculum of the different education stages. Environmental education is an organized effort to teach how environmental systems function and direct the principles by which man regulates his environmental behavior to achieve sustainability of natural resources and environmental education objectives and a balanced development. Environmental education includes all learning stages and also targets the public and enlightens them about what is environment and the problems faced (Kuwait Environmental Education Conference, 1976).

In doing so, brochures are used with the internet, media, radio and TV and extracurricular education. In order to ensure its outcomes, environmental education focuses on awareness and developing knowledge and skills and community involvement.

Jean-Jacques Rousseau, one of the eighteenth century philosophers was the first to point out the importance of concentrating on the environment in education. Few decades later, the philosopher Louis Agaser called for study of natural environment and not books. Cornell University in the U.S.A was the first to initiate teaching children cultural values using natural environment.

2.10. Goals of Environmental Education

Environmental education, with its different tools to understand environment and clear vision to guide management, maintaining and developing the environment, strives to make a real change in the behavior of individuals towards it to become the principle for self-discipline. Such objective shall seek to clarify and coordinate between interests and moral, aesthetic and economic values and beliefs and

inheritances for their influence on the environment (Sufi, 2002). Its goals may include the following:

- Developing academic thinking in individuals and improving their capabilities in investigating, examining, analyzing, projecting and dealing with any harm to the environment and controlling it through development of elements and introducing concepts of community involvement.
- Promoting the concept of fixing the damage to deal with any environmental harm and using motivation at work towards environmental preservation.
- Preparing trained and skilled forces in different environmental fields and levels.
- Spreading awareness among individuals, universities, state and public bodies about the importance of environment and its preservation and maintenance through conferences, seminars, lectures, sermons and audio and visual and reading media, and also using drama, open theater, caricature, songs and competitions for this purpose. Such goals can be achieved by defining the methodology and objectives of environmental education, age categories and targeted authorities.

2.11. Environment in Libya

Libya is a North African country located along the southern coast of the Mediterranean Basin. Its total land area is about 1.76 million km2, most of which (95.2%) is desert, while the rest is either rangeland (4%), or agricultural land (0.4%), and less than 0.3% is a scattered forested area. The annual average rainfall is estimated at 300 - 400mm depending on climatic and topographic features. Libya environmental challenges include limited water resources, droughts and land degradation, depletion of natural resources, fragmented mechanisms for environmental management and monitoring, inadequate solid and hazardous waste management, and oil spills (UNDP, 2013).

Primary education is compulsory in Libya, and is provided by the sovereign state. This stage includes 9 years of education, from 6 and 15 years old usually, with two levels: primary and middle. The basic school starts from the age of 6 years until 12 years after which the pupils move to the primary level where they have 3 years of study to finish the compulsory school. The official language in Libya is Modern Standard Arabic with the vast majority of the population speaking one of the many varieties of Arabic, mainly Libyan Arabic, but also Egyptian and Tunisian Arabic. A

significant number of people also speak one of the various Berber Languages, especially in the Tripolitania region. Under the colonial regime, Italian was a prominent language in Libya and it was also the language of instruction in educational institutions. A few elderly people in Libya still speak some Italian, mainly in the form of Libyan Italian, however the younger generations are more likely to understand English. From the 1970s onwards English started to become more important to Libyans, mainly due to economic and business reasons. While less educated people may not be able to converse in the language most business people are accustomed to speaking English. Furthermore there are several Libyan professionals who received their education in the United States or in the United Kingdom and hence have developed a certain level of proficiency in the language (KPMG, United Accountants for Professional Services LLC, a Libyan limited company and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative (KPMG, 2014).

2.12. Education System in Libya

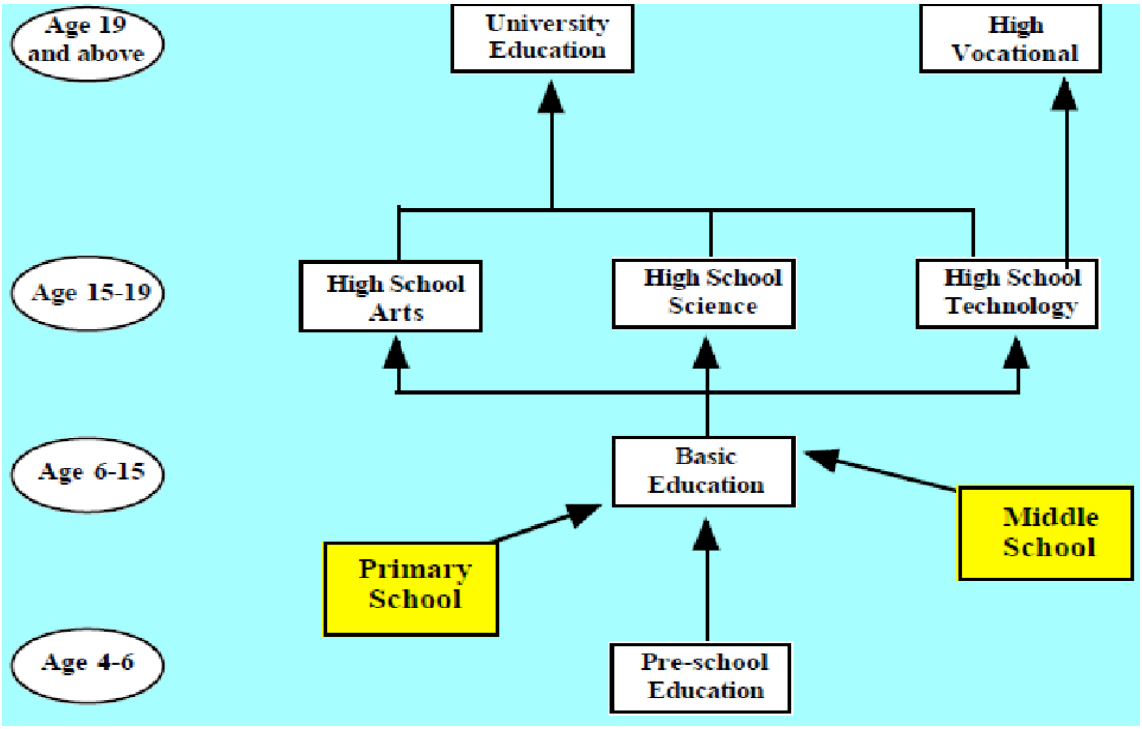
The Libyan education system is very modern in that there were almost no schools at all some 50 years ago while today, education is free for all at all levels and the participation rate is extremely high. Any system growing at that rate is bound to face pressures and stresses. Over the period of time and, particularly in the past ten years, the system has been subjected to considerable development and change. This makes life very difficult for teachers. Equally, it is very difficult for parents to guide their young people when the system has changed so much since they were at school. Such a rate of development has only been possible given the vast oil revenues generated in the country. Much has been invested in education but the education system has been seen in terms of the kinds of jobs which such an industry can produce. The need to build so much in order to educate so many in a short time creates the classical dilemma of quality of education versus quantity of education, with a shortage of Libyan school teachers at secondary school level, particularly those qualified in science subjects. Against this background, students are sometimes not very satisfied or fulfilled in their studies and sometimes show this by leaving school or simply failing to attend.

Formal education in Libya is organized from age four and general education in Libya involves thirteen years with pupils entering primary at the age of six.

Table 1.
The Levels of School Education in Libya

Stage	Year group	Ages	Period
Basic	1-6	6-12	6 years
Primary	7-9	12-15	3years
High	10-13	15-19	4years

Figure 1. The Levels of School Education



Source: Libyan Education Authority (1995), translated into English:

The overall structure of the education system can be seen in figure The focus of this study is on Middle and Higher Schools (age 6-19+).

2.13. Libyan curriculum in basic and primary schools

Compulsory Education, this stage of education is compulsory for the pupils to get a certificate allowing them to enter high school. This stage includes 9 years of education, from 6 and 15 years old usually, with two levels: primary and middle. The primary school starts from the age of 6 years until 12 years after which the pupils

move to the middle level where they have 3 years of study to finish the compulsory school. The curriculum, in terms of subjects to be studied is shown in table.

Table 2.
The Curriculum (Schools in Libya).

Schools and Grades	**Pre- basic school / 1st -3st**	**Basic school /4th -6th**	**Primary school7th-9th**	**High school / 10th-13th**
	Arabic	Arabic	Arabic	Arabic
	Mathematic	Mathematic	Mathematic	Computing
	Religion	Religion	Religion	Religion
	Physical Ed	Physical Ed	Physical Ed	Physical Ed
	Painting	Painting	Painting	English
		Culture	Culture	Culture
		Science	English	
		History	Biology	Plus choice
		Geography	Chemistry	by subject
			Physics	direction
			History	
			Geography	

Source: Libyan Education Authority (1995). Libyan, Government Documents, Dar Alshap, Tripoli Libya / translated into English.

2.14. International Environmental Legislation

Since the start of this century, the world has taken long walks in growing universally restricting administrative instruments, for example, traditions, bargains, conventions and national laws, meaning to secure the earth. What's more, the ecological universal enactment has been produced to end up what is right now named the International Environmental Protection Law. The International Environmental Legislation was created after the Stockholm Conference in 1972 which focused on the imperative relationship between the earth and improvement. The Conference underlined the human right to clean environment free from contamination, and perceived the risk forced by the nonstop increment in human populace, which results in uncontrolled and over exploitation of normal assets and natural surroundings prompting ecological crumbling. The Participating States concurred on the formation of another foundation, the United Nations Environment Program (UNEP) to serve as

a point of convergence inside the UN framework for the advancement and coordination of the global natural motivation in1972. In 1981, the African Charter on Human and Peoples Rights (otherwise called the Banjul Charter) was embraced. Article 24 of the Charter perceives the privilege of individuals to "a general acceptable environment ideal to their advancement". So also, the Organization of American States attested the privilege of each individual to live in a protected and solid environment in the Additional Protocol to the U.S. Sanction on Human Rights Protocol of San Salvador (Abdulmaula & Mahmoud, 2008).

In 1982, World Charter for Nature (known as the IUCN) was embraced. In Principle 23, it reaffirmed that: "All people, as per their national enactment, might have the chance to take an interest, exclusively or with others, in the definition of choices of direct worry to their surroundings, and should have admittance to method for review when their surroundings has endured harm or debasement".

In 1992, the Earth Summit was held in Rio de Janeiro:

- Convention on Biological Diversity that means to ensure the biodiversity and the circulation of normal assets decently among part states.
- Convention on environmental change that requires created (modern) nations to decrease contamination by diminishing and controlling mechanical outflows into the air.
- United Nations Convention to Combat Desertification that goes for battling desertification and relieving the impacts of dry season in nations experiencing desertification.
- World Summit on Sustainable Development was held in Johannesburg in 2002, in South Africa. The Summit concentrated on making an interpretation of improvement arrangements to activity arrangements, and it asked for to take restricting measures to give sufficient monetary assets important to sustainability (Abdulmaula & Mahmoud, 2008).

2.15. Studies on Environmental Information, Attitude and Behavior Domestically and Internationally

Murphy and Olson, (2008) in his work on the "Minnesota Environmental Literacy Report", sought to determine the level of environmental literacy of individuals living in Minnesota. A total of 1,000 adults participated in the study and the survey was conducted in 2001. As a result of the research, it was found out that men's environmental knowledge levels were higher than women's; as to the attitude towards the environment it was found out that women's positive behavior level was higher than men's. At the same time, there was a significant difference between levels of education and environmental information. According to the findings obtained, environmental knowledge increases as level of education increases.

Martin, (2003) in his work in which he studied the effects of extracurricular experiences on environmental knowledge, attitudes and behaviors of pupils under 12 years old; indicated that, out-of-school experience is a major influence on students' environmental knowledge, attitudes and behaviors, but is ignored by many researchers and teachers. According to the results obtained from the control and experiment groups formed in the study on the 4th and 5th grades, in the 5th grade, there was a significant difference between control and experimental group in favor of the experimental group in terms of environmental information, attitude and behavior scores. Again in the 5th grade, there were significant differences in terms of gender, in favor of girls in environmental information, attitudes and behaviors. This difference specifically is due to the girls in the 5th grade experimental group.

Jingliang et al., (2004) observed in a survey application oriented at their environmental awareness and level of knowledge, conducted in Kunming city among 1404 high and primary school students that the level of knowledge about the environment was at top level. Furthermore, it was determined that primary school students had higher awareness levels about the environment than high school students but did not have adequate knowledge about environment oriented practices. The students stated that they learned via the media in the first place and via teachers in the second place.

De Lavega, (2004) in his work entitled “Awareness, Knowledge, and Attitude aboutEnvironmental Education: Responses fromEnvironmentalSpecialists, High School Instructors, Students, and Parents’ ” has aimed at evaluating the

environmental attitude, environmental information and environmental awareness among high school teachers, environmental specialists, students and students' parents. In this study, De Lavega developed a scale to use in order to measure information, attitude and self-efficacy. According to the result of the study, environmental experts obtained the highest score in all three areas.

Ya, Xiang, Xiafei and Yuanmei Jinhang, Yunyan, (2004) in their work entitled "An Analysis of Environmental Awareness and Environmental Education for Primary School and High School Students in Kumming" aimed at measuring Primary and high school students' environmental consciousness, environmental awareness and factors affecting these concepts. According to the results of the research, it was found out that the awareness levels of elementary and high school students were at a good level and at the same time primary school students' desire to participate in environmental protection projects was higher than the enthusiasm of high school students to participate in environmental protection projects.

Coyle, (2005) in his study, where he investigated environmental literacy in a research conducted over a 10-year period, determined that as a result of over 30 years of School-based transmitted environmental knowledge to individuals, only one third of the adults could correctly answer 9 or more of the 12 questions in a simple environmental test.

Atasoy, (2005) in his work done in Bursa among 1118 student in order to evaluate Primary school students' environmental attitudes and knowledge, observed a significant difference between grade levels in terms of environmental attitudes and knowledge. In terms of socioeconomic levels of the students, it was determined that there was no significant difference in environmental attitudes. According to the knowledge test, it was determined that female students' environment information was higher than of male students. There was no significant difference between the students in lower and upper socioeconomic levels in terms of knowledge test. A significant difference was observed in both knowledge and attitudes of students at lower socioeconomic level differing according to gender. On the other hand, there was a significant difference in terms of attitude between the students in the upper socioeconomic level, although there was no significant difference according to gender. Furthermore, it was determined that there was a weak link between environmental knowledge and attitudes among primary school students.

Alp et al., (2006) examined the environmental knowledge and attitudes of students in terms of various variables with 1140 6th and 8th grade students in primary education level in Ankara. In this study, it was determined that although the students were sufficient in terms of attitude they were not sufficient in terms of knowledge. While there was a significant difference in terms of environmental attitudes towards the lower grades, a significant difference was found in terms of environmental information in the upper grades. While there was a significant difference in terms of environmental attitudes towards in lower grades, a significant difference was found in terms of environmental information in upper grades.

Armağan, (2006) in his work made on 212 students in 7th and 8th grade to determine their environmental knowledge level, has established that 7th grade students were better in multiple choice tests compared to 8th grade students and that there were no major difference between male and female students score average.

Gökçe et al., (2007) conducted a study on 789 students from 8th grade in Eskişehir in order to determine the attitudes of elementary school students towards the environment. According to the results of the study, it was determined that the attitude scores of the students towards the environment were high. When these scores were examined, considering gender variables, it was determined that there was a significant difference in favor of the girls. In addition, there was a significant difference between the academic achievement levels of the students and the attitudes towards the environment. There was no significant correlation between the level of education and income of the parents and the attitudes of the students towards the environment.

Uzun, (2007) in his work on middle school students' knowledge and attitudes towards the environment, determined that students' thoughts about the environment was close to positive, but in terms of behavior towards the environment, it was at a negative level. In addition, the relationship between the environmental behaviour and environmental information to the students was not found to be significant. There was a meaningful difference between male students and female students in terms of information and thought, while no significant difference was found between girls and boys in behavior towards the environment. Again, in terms of environmental knowledge and thinking, a significant difference was found for the students in the age group of 17, but no significant difference was found in age-related behaviors

towards the environment. In terms of environmental information and environmental thought, it was found that the students in the upper socioeconomic level had a significant difference compared to the students in the lower socioeconomic level, while there was a significant difference in favor of the students in the lower socioeconomic level between the lower and upper socioeconomic levels in terms of environmental behavior. It was been found out that there was meaningful difference between class levels in terms of environmental knowledge and thinking, especially in the 10th grade, but the difference in environmental behaviors could not be determined.

Evren, (2008) determined that the students from different levels of primary and secondary education who have a middle economic level have a consciousness of the environment when they work among different socio-economic level students.

Ökeşli, (2008) determined that elementary school second grade students in Bodrum had a high level of positive behavior towards the environment, although their level of knowledge about the environment was weak. Children with good knowledge of the environment also have a high level of knowledge and attitude towards the environment. Although there is no difference in terms of environmental information between male and female students, it was determined that female students' attitude towards the environment were more advanced than male students.

Özden, (2008) in the study of environmental awareness and retention by prospective teachers found a significant difference in favor of girls in their attitudes towards environmental problems between girls and boys. Significant differences were found out for individuals with good economic status compared to those with low economic income. A significant difference was found in the research conducted according to the class level. It has been determined that fourth grade teacher candidates have a higher positive hold on environmental issues than first grade teacher candidates.

Sağır et al., (2008) examined the attitudes and information of the students at the primary education level towards the environment; It has been found that the gender factor does not make a meaningful difference even though the grade level in environmental information makes a significant difference. There was no significant difference in class level and gender factor in the attitude toward the environment. It has been observed that individuals were inadequate when it came to determining

environmental problems and finding solutions for the region they are living in. Significant differences were found in different knowledge and attitudes of different schools. It has been found that the education level of the parents does not make any significant difference on knowledge and attitude.

Wolf and Fraser, (2008) in their work, have indicated that study based learning was effective in students socializing and that study based laboratory activities were also effective for students.

Afacan, (2008) in the doctoral dissertation study titled "Perception Levels of Science-Technology-Society-Environment Relationship and Scientific Attitudes of Elementary School Students (Kırıkkale Province Sample)" has analyzed the level of perception of students' STSE relationship depending on the variable of their class and the socio-economic level of the school. Qualitative and quantitative methods were used in the study. The research was conducted using semi-structured interviews with 40 students. According to the results of the research, it was stated that STSE perception levels increased in an irregular fashion when the class level of elementary school students increased. Students of lower and upper socioeconomic level schools could understand the STSE relationship.

Çukur and Özgüner, (2008) in their study titled "The Role of Game Space Design in Teaching Green Consciousness to Children in Urban Areas", emphasized that green consciousness should be taught in childhood and investigated how the children's existing level of consciousness of nature should be transmitted.

Meydan and Doğu, (2008) in their work titled "Evaluation of Opinions of Primary Secondary School Students about Environmental Problems According to Some Variables" examined 606 secondary school students' thoughts about environmental problems and their knowledge about environmental problems.

Rickinsona and Lundholmb, (2008) there is growing recognition of the significance of learning within debates about sustainable development. Within the field of environmental education research, however, there has been insufficient attention given to questions of learners and learning. In the light of this situation, this paper reports findings from two studies (one in England, the other in Sweden) that focused specifically on learners' experiences of and responses to environmental curricula in secondary school and higher education. Three kinds of learning

challenges that can be experienced by students on environmental education courses are outlined and discussed. The main purpose of the paper is to highlight the complexity of the learning experience within environmental education and to draw attention to the need for improved research-based understandings of environmental learning processes.

Erdoğan, (2009) conducted a study on 2412 5th grade students oriented at environmental literacy and situations affecting responsible behaviors related to the environment. It was determined that environmental literacy levels of the students were at the targeted level. It was also determined that variables such as parents' education level, environment oriented experiences, interest, parents' and siblings' anxiety for the environment, school type, knowledge, cognitive skills, sensitivity, volunteering and attitude played a role in responsible behavior towards the environment.

Ek et al., (2009) in their study titled "Attitudes and Sensitivity of Junior and Senior Students at Adnan Menderes University on Environmental Problems and Their Responses to Environmental Problems", wanted to determine the attitude and sensitivity of students towards the environment and also to determine the factors that affected the attitude and sensitivity towards the environment. The study group consisted of 554 students. It was determined that various variables such as class, gender and age influenced students' attitudes and sensitivities towards the environment.

Abd-El-Salam., El-Naggar and Husein, (2009) conducted pre-tests and post-tests to measure the effect of primary school students' environmental knowledge and environmental attitudes on environmental education, and as a result of the education they were provided, they found out that in 69% of students’ environmental knowledge and in 88% attitude towards the environment were high.

Kaya et al., (2012) in their work done to analyze the attitude of high school students towards the environment based on gender determined that female students created a significant difference compared to males. It was also determined that students' thoughts were not sufficient in terms of turning it into behavior.

Kesicioğlu and Alisinanoğlu, (2009) conducted a study on 353 individuals who attended kindergarten and received kindergarten education. Although there was

a significant difference in the attitudes towards the environment according to the gender factors, they stated that no significant difference was found for the variables of parents' occupation, education levels, family income, and living areas.

Krnel and Naglic, (2009) in their work about any differences in information about the environment, awareness and responsible behavior between primary eco-school students that have project work and students in classical schools, they indicated that the level of knowledge of eco-school students was slightly higher compared to those at classical schools. On the other hand, no significant difference was found between the two groups in terms of awareness and responsible behaviors.

Ünal, (2009) in his work among Çorlu's Primary school students' attitudes toward the environment and their participation in accordance with their sensitivity, it was observed that girls were at a higher level than men in terms of information, interest, responsibilities and attitudes towards the environment.

Yüksel, (2009) studying between classical, normal eco-school and green-flagged schools in Ankara province, found no significant differences in environmental information. Eco-schools were found to be more active than classical schools. In addition, while eco-schools with green flags were found to be members of various organizations working to protect the environment, such memberships were identified in other schools.

Baş, (2010) the aim of the research was to investigate the effects of Multiple Intelligences strategy and traditional methods of instruction on elementary students' environmental awareness knowledge levels and their attitudes towards the environment. The pre/post-test control group research model was used in this study. The research was carried out in 2009 – 2010 education-instruction year in an elementary school in Nigde, Turkiye. Totally 60 students in two different classes in the 7th grade of this school participated in the study. The data obtained in the study were analysed by the computer programme SPSS 15.0. The arithmetic means and standard deviations were calculated for each group. In order to test the significance between the groups, the t-test was used. The significance level was taken as .05. The results of the research showed a significant difference between the environmental awareness knowledge levels and attitude scores of the experiment group and the control group. It was also found out that the multiple intelligences instructional strategy activities were more effective in the positive development of the students'

attitudes and their environmental awareness knowledge levels. At the end of the research, it is revealed that the students who are educated by Multiple Intelligences instructional strategy have more environmental awareness knowledge levels and have a higher motivation level than the students who are educated by the traditional methods of instruction. It was also found out that the students participated in the experimental process which multiple intelligences strategy was applied enjoyed the activities, had great fun and they became more aware of the environmental issues.

Solmaz, (2010) researched the effect of cooperative learning concerning conceptual understanding and awareness of the environment in 7th grade with 69 students in an elementary school in İzmir. As a result of this study, the researcher observed that cooperative learning was effective in terms of conceptual understanding and attitudes towards the environment. In studies, it was seen that various variables influence environment related knowledge and attitude. We will try to observe the influence of these variables in this study.

Aslanova and Gündüz, (2012) investigated the level of knowledge of students of Baku State University, Biology Faculty on environmental education. As Azerbaijan has rich natural gas and oil resources, environmental issues have become more important subjects for the last twenty years. While verifying responds of students for asked questions on environmental issues, we observed that correct answers by female were 59,05% but correct answers of men were 57, 45%. Both of female and male students responded the 3 important questions incorrectly. There was significantdifference in only 2 Articles of general 63 Articles, among students. While looking at total average of all Articles, knowledge levels of female and male were defined as 3,34 (68%). While verifying knowledge levels of students, there was significant difference among classes from statistical point of view. While estimating responds of students on environmental problems under their faculties, there was not significant difference among them, and correct answer percentage is 60,1% that belonged to students of Biology Faculty. 59,1 % belongs to Ground Protection, but the lowest percentage of correct answers 57, 6% belonged to Ground Structure and Ground Inspectorships.With the researches conducted so far it has been observed that awareness of environment or advocacy for the preservation of environment has not well developed among the college students of Azerbaijan. Specially obtaining these results from a research conducted among students majoring in biology have a

significant meaning; because science of biology is fundamental the understanding the environment. Lack of "understanding and awareness of environment" in students and professionals of this branch poses a big problem for Azerbaijan. It is not possible to improve or protect the environment without creating an awareness of the environment. Therefore, it is a social necessity to educate the public effectively in this matter. The results show 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, attitudes of Azerbaijani students studying at NEU were 3,46% (69,2%), but attitudes of Baku State University' Students were 3,34% (66,8). Although there are significant differences among the two groups form statistical point of view, this difference is not higher than environmental knowledge. Significant difference among two groups was observed in 38 questions from 63 questions on environmental knowledge from statistical point of view.

Sarkar, (2011) observed that secondary school students in Bangladesh had a high attitude towards the environment in general. At the same time, he found out that female students' attitude towards the environment was higher than male students. In the study, it was determined that the attitude of girls and especially those living in rural areas had a higher level of positive attitude compared to other groups.

Çelikbaş, Yalçınkaya and Banoğlu, (2013) in their work titled "Environmental Education Perceived the Primary Education Students" aimed to specify the environmental knowledge and environmental education in the eyes of 5th, 6th, 7th and 8th grade students. According to the results of the research, it was observed that as the grade of students changed, their classification of presented concepts changed too.

Karatekin and Çetinkaya, (2013) in their work titled "Evaluation of Schoolyards in terms of Environmental Education" aimed to investigate the Schoolyards in Manisa city center in regards of environmental education. According to study results, the usage area and green area per primary students in schoolyards in Manisa province was low; while the existing green areas had few trees and flowers. The materials required for environmental education were not present in school gardens. These findings indicated that the primary school gardens in Manisa province were not sufficient in terms of environmental education.

Gündüz, Aslanova and 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”. The study was high school students studying in 2012-2013 academic year in Northern Cyprus, Turkey and Azerbaijan. The formal content analysis method was used to analyse the data collected. The results of the study showed that environmentally conscious individuals always tried to stop nature’s unfortunate destiny. One of the best ways to raise this consciousness is to direct the youth toward trustful educational institutions. Results showed that the studied countries failed in 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
RESEARCH METHODS

3.1. Research Model

This research is basically a screening type study aiming at comparing the attitudes and behaviors of middle school and high school students towards their information about the environment, world views and environmental education. Screening studies are researches with the purpose of describing a past or an existing issue as it is, or, in some cases, to determine or compare the relationships between certain situations. Screening studies are conducted with the aim to gather the date about significant aspects of a group (Büyüköztürk, 2009).

While relationships among variables in the study were examined, comparisons among the groups were also made. In this regard, this study is a relational screening work. Relational screening models are research models aimed at determining the presence and / or degree of exchange between two or more variables (Karasar, 2006).

3.2. Population and Sample of the Research

The research group consisted of a total of 445 students 151 of whom were female and 294 were male from 6 randomly chosen secondary schools in Libya during the 2015-2016 school year.

Table3.
Distribution of the Study Group by Schools and Genders

Level	Female	Male	Students
Secondary School	71	134	
High School	80	160	445
Total	151	294	

3.3. Data Collection

The data collection tools used were personal information form, environmental information test, environmental knowledge test, environmental attitude and behavior scale.

The research data were collected in six schools in central Libya during the 2015-2016 school years. The researcher was with the secondary and high school students while filling out the data collection tools and made all necessary explanations.

3.4. Data Collection Tools

The data collection tools used were “personel information form”, “environmental information test”, “environmental attitude and behaviour scale”.

3.5. Data Analysis and Interpretation

SPSS 20 (Statistical Package for the Social Sciences) program was used in analyzing the obtained data. T-test and single directional variance analysis were conducted to collect data from secondary and high school students. The level of education, parental education level, and environment related knowledge level of the pupils were analyzed by single directional variance analysis. Anova test was conducted in the single directional variance analysis in order to determine whether there was a significant relationship between variables and the students’ environmental knowledge, or not.

3.6. Research Ethics

The research to be valid and reliable, and science throughout the process research ethics has been considered. Of the people interviewed thought is given to direct quotations. This excerpts are presented at the bottom of the issues managed in research. Researchers have endeavored to demonstrate an objective attitude during negotiations and to influence participants were required to exhibit works behavior.

CHAPTER IV

FINDINGS AND COMMENTS

This section, deals with the research findings, tables related to these findings and comments.

4.1. Demographic Features

This section, deals with the findings and comments related to demographic features are available.

Table 4.
Distribution of Sampling According to Class Level

		Frequency	Percent (%)
Class	Secondary school	205	46,1
	High school	240	53,9
	Total	**445**	**100,0**

As it can be noted in Table 4, %46.1 of the students are secondary school students and %53.9 are high school students.

Figure 2.
Percentage of Sampling according to Class Level

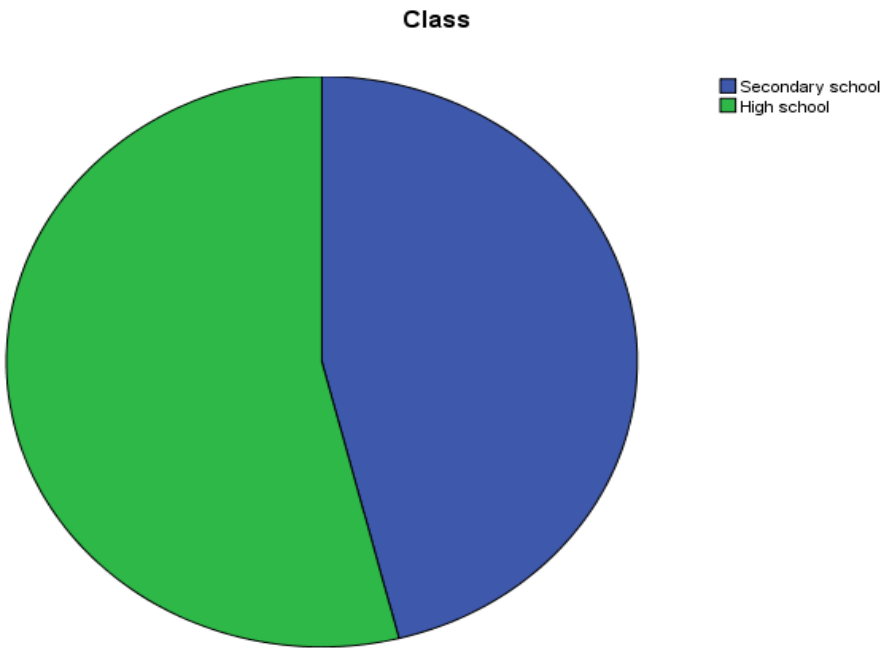


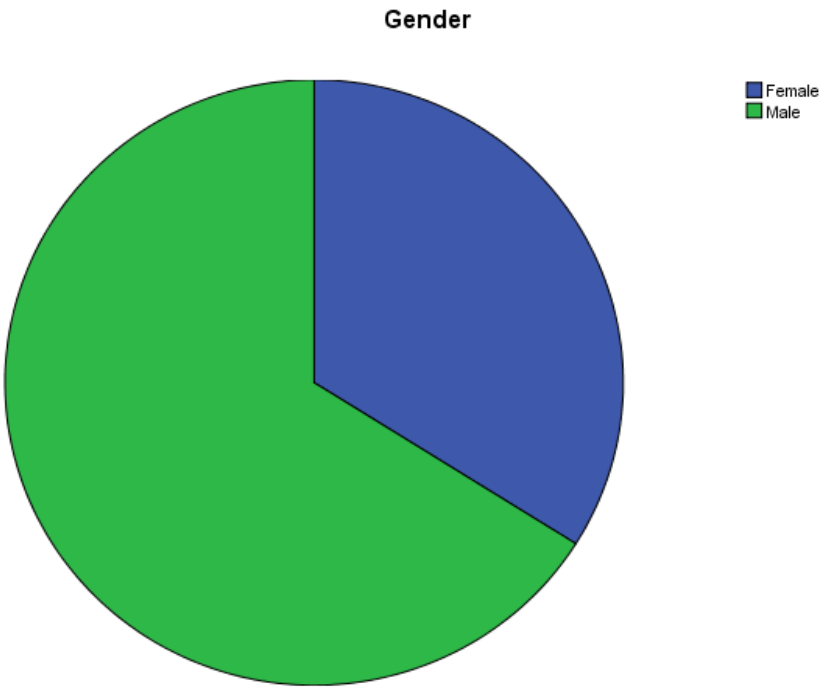
Figure 2 shows thatthere are more high school students than secondary school students.

Table 5.
Distribution of Sampling According to Gender

		Frequency	Percent (%)
Gender	Female	151	33,9
	Male	294	66,1
	Total	**445**	**100,0**

It can be seen in Table 5, a total of 445 people participated in the study. %33 of them were female and %66 were male. The distribution shows that, according to gender, the males are more number of male students is higher.

Figure 3.
The Percentage of Sampling According to Gender



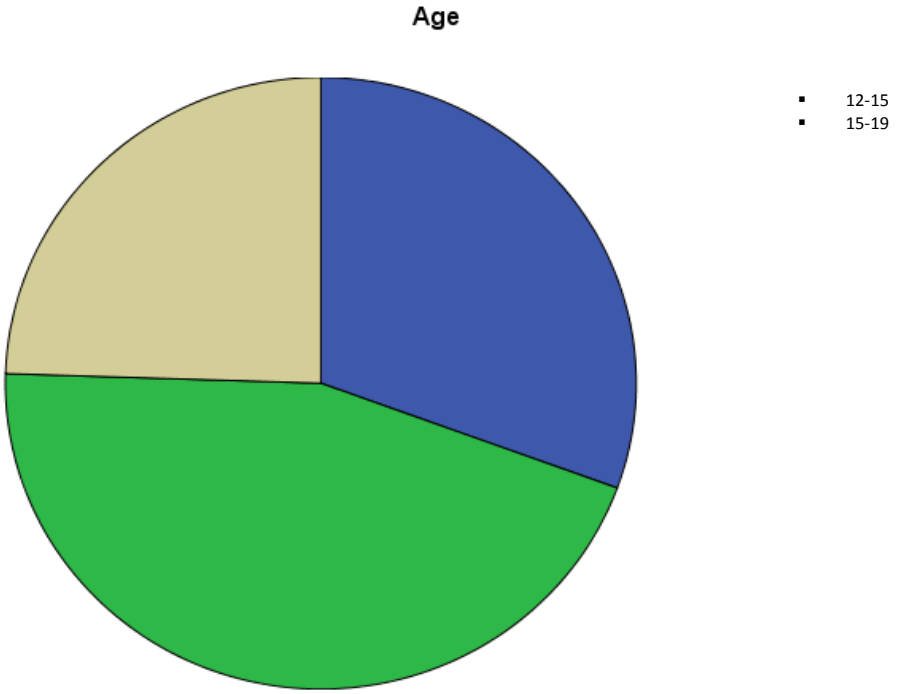
As can be seen in Figure 3, most of the participators in the study are male.

Table 6.
Distribution of Sampling According to Age

		Frequency	Percent (%)
Age	15 -19	200	45
	12-15	245	55
	Total	**445**	**100,0**

As in Table 6, %45 of the participant students are between the ages of 15-19 and %55 of them are between 12-15. According to the distribution of sampling, by the age the students between the ages at 12-15 are more.

Figure 4.
The Percentage of Sampling According to Age



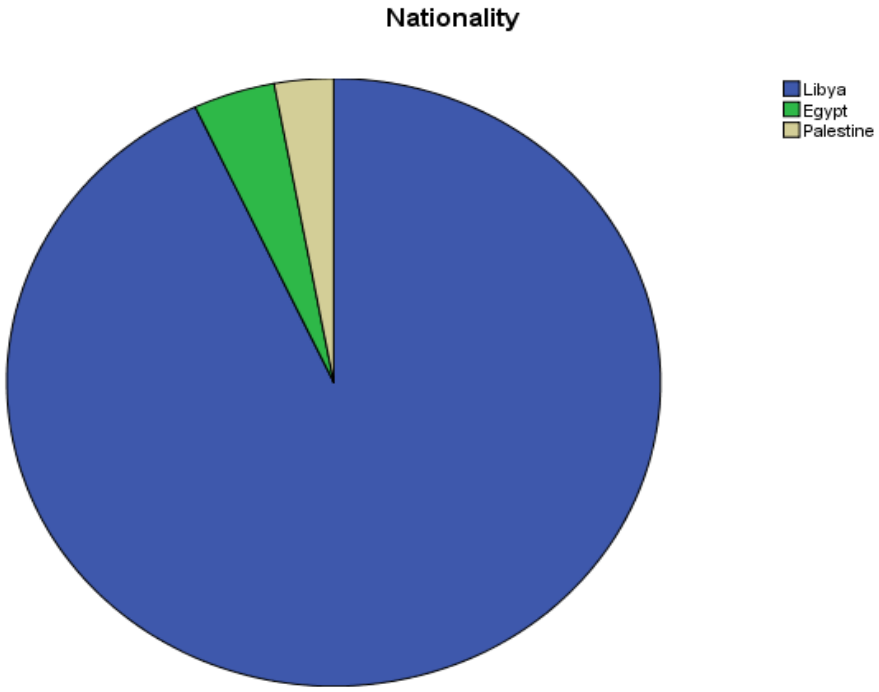
By looking at Figure 4, the students between the ages 19-22 are more.

Table 7.
Distribution of Sampling According to Nationality

		Frequency	Percent
Nationality	Libya	414	93,0
	Egypt	18	4,0
	Palestine	13	2,9
	Total	**445**	**100,0**

As Table 7 showes, % 93 of the studentswa are Libyan, %4 Egyptian, and % 2,9 are Palestinians.

Figure 5.
The Percentage of Sampling According to Nationality



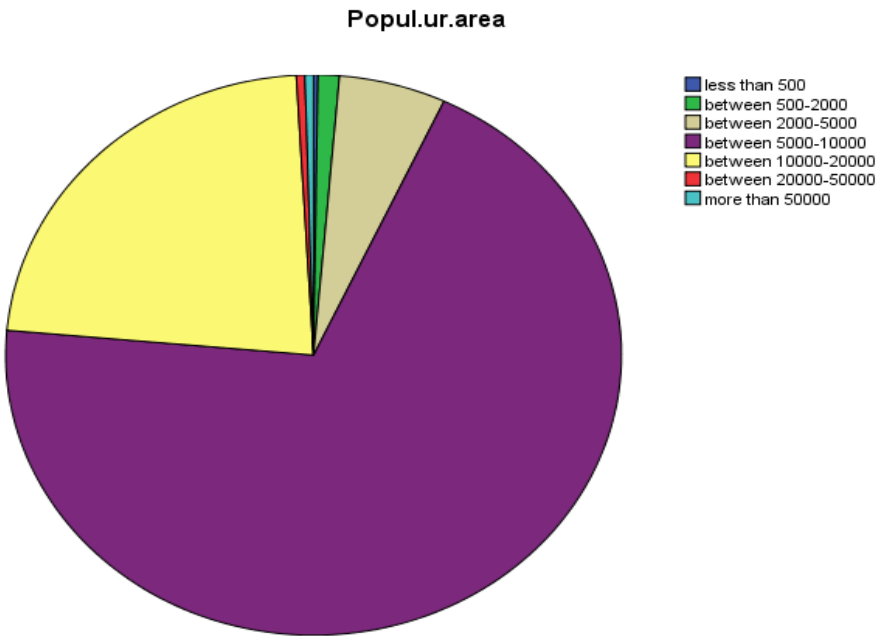
As it can be seen in Figure 5, most of the students who participated in the study are Libyans.

Table 8.
Distribution of Sampling According to Population

		Frequency	Percent (%)
Population Area	Less than 500	1	,2
	Between 500-2000	5	1,1
	Between 2000-5000	25	5,6
	Between 5000-10000	309	69,4
	Between 10000-20000	101	22,7
	Between 20000-50000	2	,4
	More than 50000	2	,4
	Total	**445**	**100,0**

As it can be seen on Table 8, %0,2 of the participants are from an area with a population less than 500, %1,1 from an area with a population between 500-2000, %5,6 an area with a population between 2000-5000, %69,4 come from an area with a population between 5000-10000, %22,7 from an area with a population between 10000- 20000, %0,4 from an area with a population between 20000-50000 and %0,4 from an area with a population of 50000.

Figure 6.
The Percentage of Sampling According to the Population



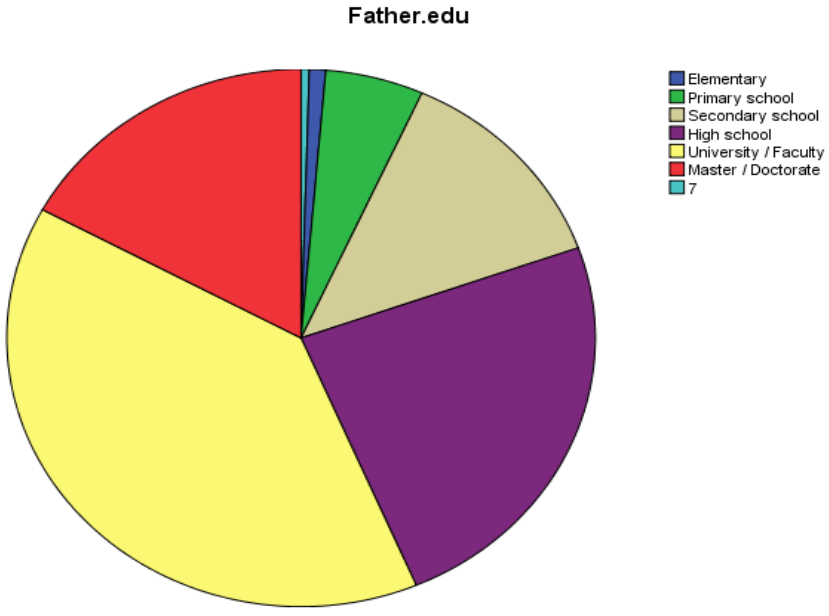
In Figure 6, the distribution of sampling according to population is 5 000-10 000 (%69,4).

Table 9.
Distribution of Sampling According to Father's Education

		Frequency	Percent (%)
Father's Education	Elementary	4	0,9
	Primary school	24	5,4
	Secondary school	57	12,8
	High school	107	24,0
	University / Faculty	175	39,3
	Master / Doctorate	76	17,1
	Total	**445**	**100,0**

As in Table 9, %0,9 of the fathers are elementary school graduates, %5,4 is primary school, %12,8 secondary school, %24 are high school, %39,3 is university or faculty graduate and %17,1 are master or Doctorate graduate. The indication is that most fathers are university graduates (%39,3) and a very small numbers (%0,9) are elementary school graduates.

Figure 7.
The Percentage of Sampling According to Fathers' Education



According to Figure 7, most fathers (%39,3) are university graduates in terms of their education, and (%0,9) are primary school graduates.

Table 10.

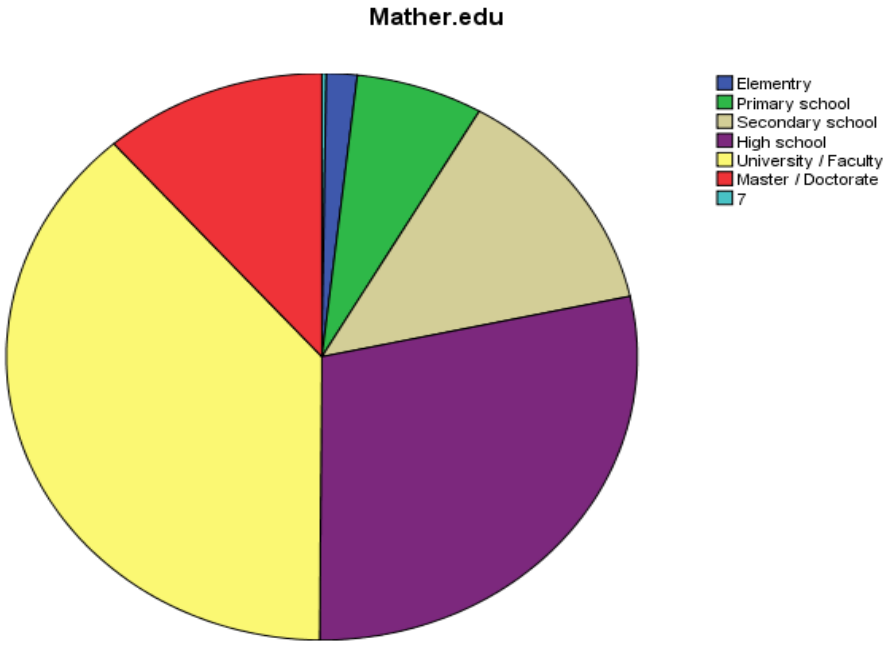
The Distribution of Sampling According to Mothers' Education

		Frequency	Percent
Mothers' Education	Elementary	7	1,6
	Primary school	29	6,5
	Secondary school	59	13,3
	High school	127	28,5
	University / Faculty	171	38,4
	Master / Doctorate	51	11,5
	Total	**445**	**100,0**

As can be seen in Table 10, %1,6 the mothers are elementary graduates, %6,5 primary school graduates, %13,3 secondary school, %28,5 are high school, %38,4 are University or faculty graduates, %11,5 is Master or Doctorate

Figure 8.

The Percentage of the Sampling According to Mothers' Education



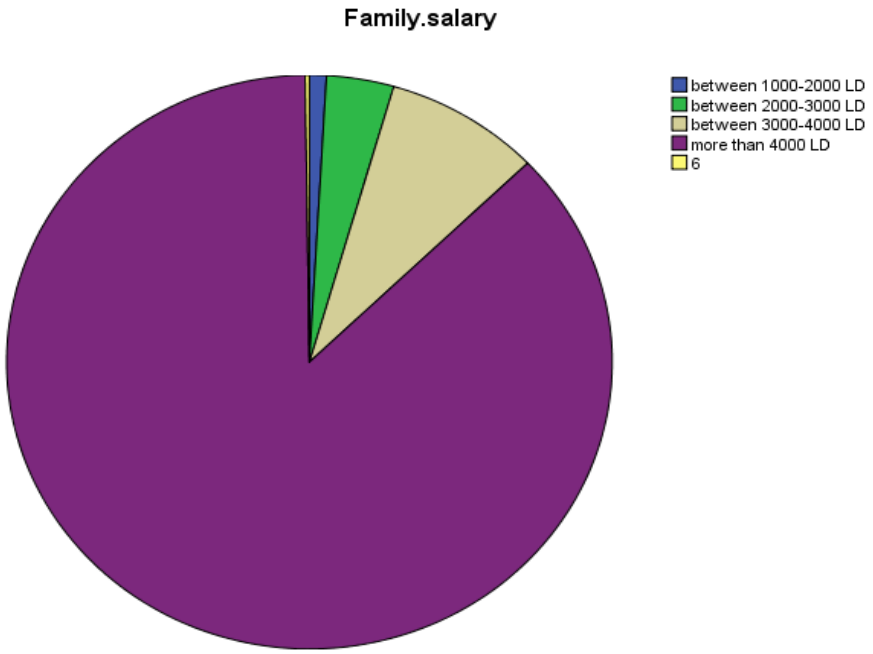
Is in Figure 8, (%1,6) of the mothers are primary school and (%38,4) are university graduates.

Table 11.
Distribution of Sampling According to Monthly Salary

		Frequency	Percent (%)
Monthly Salary	Between 1000-2000 LD	4	,9
	Between 2000-3000 LD	16	3,6
	Between 3000-4000 LD	37	8,3
	More than 4000 LD	387	87,0
	Total	**445**	**100,0**

As it can be seen in Table 11, %have month %0,9 the families have a monthly salary between 1000-2000 LD, %3,6 have between 2000-3000 LD, %8,3 have between 3000-4000 LD and %87 have more than 4.000 LD. This indicates that %0,9 of the families have the lowest salary, 1000-2000 LD and %87 have the highest, 4000 LD.

Figure 9.
The Percentage of Sampling According to Monthly Salary



According to Figure 9, the least monthly salary of families is between 1000-2000 LD (0,9) and the highest is over 4 000 LD (%87).

Table 12.
The Distribution of Sampling According to Environmental Course Background

		Frequency	Percent
Environmental Course	Yes	416	93,5
	No	29	6,5
	Total	**445**	**100,0**

As in Table 12, %93,5 of the students have on Environmentalof Course background, about %6,5 do not.

Figure 10.
The Percentage of Sampling According to Environmental Course Background

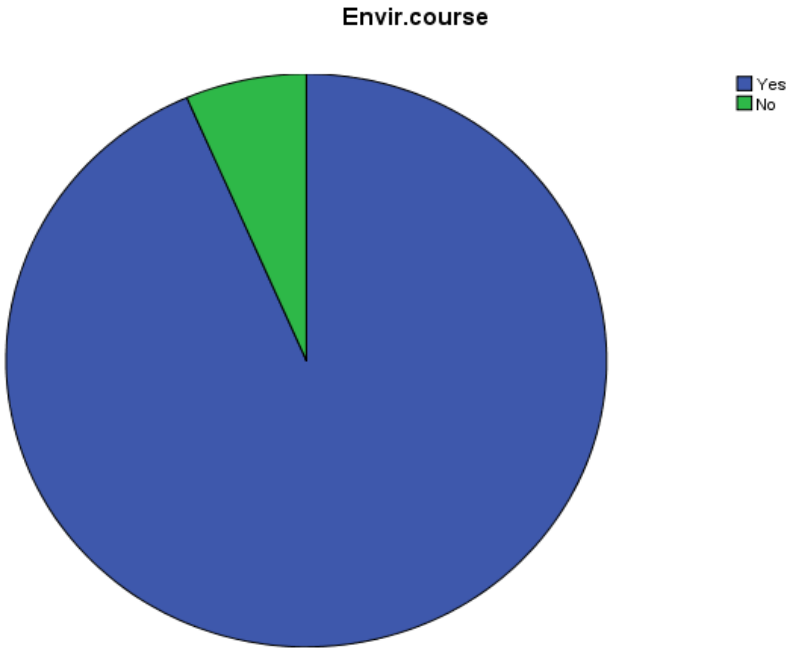


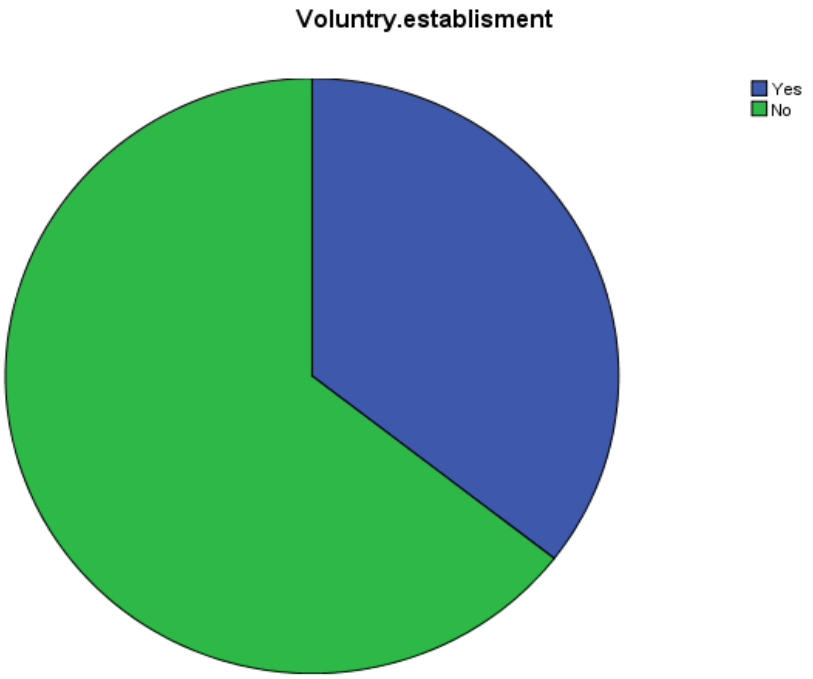
Figure 10, indicateds that %93,5 of the students have on environmental background but %6,5 do not.

Table 13.
The Distribution of Sampling According to a Voluntary Establishment

		Frequency	Percent (%)
Voluntary Establishment	Yes	158	35,5
	No	287	64,5
	Total	**445**	**100,0**

Table 13 according to the students' responses, %35,5 are members of either environmental clubs or voluntary establishments, whereas %64,5 are not members of any organisations.

Figure11.
The Percentage of Sampling According to a Voluntary Establishment



By looking at Figure 11 whether they are a member of any environmental club or voluntary establishment, %35,5 of them said "Yes" and %64,5 of them said "No". In the distribution of the sampling %64,5 of them said "No" as not being a member.

4.2. Problem Sentences

What are factors that affect the levels of environmental attitudes and knowledge of secondary and high school students in Libya?

4.2.1. First Sub-Problem

- Does gender have an effect on environmental knowledge and environmental attitude?

Table 14.
The Comparison of Secondary and High School Students in Libya According to Gender (T-test)

	Gender	N	$\overline{X}$	SS	t	df	p	Description
Knowledge	Female	151	12,32	2,41	3,402	443	,258	p>.05
	Male	294	12,04	2,66				Insignificant difference
Attitude	Female	151	171,07	8,24	,265	443	,927	p>.05
	Male	294	171,15	9,89				Insignificant difference

As it can be seen on Table 14; there is not a significant difference between environmental attitude and knowledge by gender of secondary and high school students in Libya.

4.2.2. Second Sub-Problem

- Do high school students in Libya have effect on environmental knowledge and attitude?

Table 15.
The Comparison of Environmental Knowledge and Attitude of Secondary and High School Students in Libya and Their Current Class(T-test).

	School	N	$\overline{X}$	SS	t	df	p	Description
Knowledge	Secondary	205	12,18	2,75	2,663	443	,746	p>.05 insignificant difference
	High	240	12,10	2,42				
Attitude	Secondary	205	170,68	9,04	,563	443	,354	p>.05 insignificant difference
	High	240	171,50	9,61				

As it can be seen Table 15, there is no any significant difference between the classes and the environmental knowledge and attitude of secondary and high school students in Libya.

4.2.3. Third Sub-Problem

- Does the education of mothers of secondary and high school students in Libya affect their environmental knowledge and attitude?

Table 16.
The Comparison of Environmental Attitude and Knowledge and Education of Mothers' of Secondary and High School Students in (ANOVA test)

		Sum of Squares	df	Mean Square	F	p	
Knowledge	Between Groups	80,607	5	16,121	2,459	,033	p<.05 Significant difference
	Within Groups	2878,032	439	6,556			
	Total	**2958,638**	**444**				
Attitude	Between Groups	542,774	5	108,555	1,244	,288	p>.05 No difference
	Within Groups	38224,163	438	87,270			
	Total	**38766,937**	**443**				

As can be seen in Table 16, while there is a significant difference(p=,033) between environmental knowledge and education of mothers of secondary and high school students in Libya, there is no significant difference in their environmental attitude (p=,288).

In order to find this difference, which was observed in environmental knowledge test, Tukey test was held and according to the results of it; the knowledge level (X=11,14) of primary school graduate mothers is less than university/doctorate graduate mothers relatively (X=12,69).

4.2.4. Forth Sub-Problem

- Does the level of education of the fathers of secondary and high school students in Libya affect their environmental knowledge and attitude?

Table 17.
The Comparison of Environmental Knowledge and Attitude and Education of Fathers of Secondary and High School Students in Libya (ANOVA test)

		Sum of Squares	**df**	**Mean Square**	**F**	**p**	
Knowledge	Between Groups	48,327	5	9,665	1,458	,202	p>.05
	Within Groups	2910,311	439	6,629			No difference
	Total	**2958,638**	**444**				
Attitude	Between Groups	239,976	5	47,995	,546	,742	p>.05
	Within Groups	38526,961	438	87,961			No difference
	Total	**38766,937**	**443**				

As can be seen in Table 17, there is no any significant difference between secondary and high school students' environmental knowledge and attitude in Libya and the education of their fathers.

4.2.5. Fifth Sub-Problem

- Is there any effect of taking environmental courses or training of secondary and high school students in Libya on environmental knowledge and attitude?

Table 18.
The Comparison of Case of Taking Environmental Lesson of Secondary and High School Students in Libya and Environmental Knowledge and Attitude (T- test).

	Environment Courses	N	$\bar{X}$	SS	t	df	p	Description
Knowledge	**Yes**	416	12,25	2,46	13,429	443	,009	P<.05
	No	29	10,41	3,48				Significant difference
Attitude	**Yes**	416	170,94	8,86	11,129	443	,312	p>.05
	No	29	173,85	14,80				Significant difference

As can be seen in Table 18, there is a significant difference in current environmental knowledge level and secondary and high school students' environmental lessons in Libya (p=,009), but no significant difference in environmental attitude (p=,312). It can be seen that the students' environmental knowledge level is positively affected due to their taking previous environmental lesson (X=12,25).

4.2.6. Sixth Sub-Problems

- Are the environmental knowledge and attitude of secondary and high school students of Libya affected by their being a member of an environmental club or voluntary establishment?

Table 19.

The Comparison of Voluntary Establishment in Environmental Clubs of Secondary and High School students in Libya and their Environmental Knowledge and Attitude (T- test)

	Voluntary Membership	N	$\bar{X}$	SS	t	df	p	Description
Knowledge	**Yes**	158	12,19	2,62	1,888	443	,722	p>.05 İnsignificant difference
	No	287	12,10	2,56				
Attitude	**Yes**	158	172,37	9,87	3,708	443	,000	p<.05 İnsignificant difference
	No	287	168,86	7,86				

As can be seen on Table 19, the voluntary establishment in environmental organizations by secondary and high school students in Libya and their environmental knowledge have no significant difference (p=,722), but there is a significant difference in environmental attitudes (p=,000). Among the students the environmental attitudes (X=172,37) of voluntary establisher is higher than the involuntary establishers relatively (X=168,86).

4.2.7. Seventh Sub-Problem

- Does the monthly salary of the families of secondary and high school students in Libya affect the students' environmental knowledge and attitude?

Table 20.
The Comparison of Monthly Salary of Families of Secondary and High School Students in Libya and Students' Environmental Knowledge and Attitude (ANOVA test)

		Sum of Squares	df	Mean Square	F	p	
Knowledge	Between Groups	807,669	3	269,223	55,197	,000	p<.05 Significant difference
	Within Groups	2150,969	441	4,877			
	Total	**2958,638**	**444**				
Attitude	Between Groups	619,709	3	206,570	2,383	,049	p<.05 Significant difference
	Within Groups	38147,228	440	86,698			
	Total	**38766,937**	**443**				

As can be seen in Table 20, significant differences were observed among the monthly salary of secondary and high school students in Libya and their current environmental knowledge (p=,000) and environmental attitudes (p=,049). In order to specity these differences, in terms of groups, Tukey Test was held and according to its results; the environmental knowledge level of the ones with a monthly salary between 1000-2000 LD (X=9,25) was less than the ones with a monthly salary more than 4000 LD (X=12,63).

Again, the ones with a monthly salary between 1000-2000LD (X=158,75) have lower environmental attitude than the ones with a monthly salary as more than 4000 (X=171,24).

CHAPTER V
RESULTS AND RECOMENDATIONS

The findings obtained in this research will be shared in two parts, the results of environmental knowledge of middle school and high school students in Libya and the results of environmental attitude.

5.1. Result

When the effects of gender on environmental information and environmental attitudes were examined, no significant difference was found between environmental knowledge and environmental attitudes between genders of secondary and high school students in Libya. This result is in conformity with the results of studies conducted by Timur and Yılmaz (2011), Makki et al., (2004), Yücel et al., (2006).

According to the survey, the grade level at school does not affect the environmental knowledge and environmental attitudes of middle school students. No significant difference was found between environmental knowledge and environmental attitudes of secondary and high school students in Libya depending on the class they were educated in. Arslanyolu (2010) found out that class level was not effective on students' attitudes towards the environment. This result shows parallelism with the result of the research.

Whereas, a significant difference between the mother's educational background and their environmental knowledge was observed (p=,033).There was no significant differences in the attitude of middle and high school students towards the environment (p=,288). The environmental knowledge level of students with literate mothers is higher than students with illiterate mothers. Findings supporting that the level of education of the mother affected the environmental information of the students were also determined by other researches (Makki et al., 2004).

According to the survey, there are no significant differences between the educational status of the secondary and high school students' fathers in Libya and their attitudes towards the environment and their environmental knowledge. The result of this study is consistent with the research done by Timur and Yilmaz (2011). Studies conducted by Özdemir (2003), Makki et al. (2004) and Gündüz et al. (2012) have found out that, contrary to the result of this research, the fathers education affects environmental information.

A significant current environmental knowledge difference between students that have taken a class or education related to the environment (p=,009) was observed, no difference in their attitude towards the environment (p=,312) was seen. It is seen that the environmental knowledge level of students was positively affected by having taken classes regarding the environment before ($\bar{X}$=12,25). The results of this work are supported by the results of Alp et al., (2006), Timur et al. (2013) and Aslanova et al. (2017) studies. Makki et al., (2003) have reached results contrary to the results obtained in this study.

No significant difference between the middle and high school students' environmental knowledge and benevolent work in an environmental organization (p=,722), a significant difference towards their attitude towards the environment (p=,000) was observed. It is seen that the students' attitude towards the environment ($\bar{X}$ = 172,37) was higher than those who did not engage in voluntary environmental work ($\bar{X}$= 168,86).

There was a significant difference between monthly income and the current environmental knowledge level of students (p =. 000) and environmental attitude (p = .049) of secondary and high school students in Libya. The Tukey test results showed that level of environmental knowledge was lower in those with a monthly income of 1000-2000 LD ($\bar{X}$ = 9,25) compared to those with a monthly income of 4000 LD ($\bar{X}$ = 12.63). Again, it was also found out that those with a monthly income between 1000-2000 LD ($\bar{X}$ = 158,75) had a lower environmental attitude than those with a monthly income over 4000 LD ($\bar{X}$ = 171,24). Atasoy (2005), Erol and Gezer (2006), Gökçe et al. (2007), Kesicioğlu and Alisinanoğlu (2009) did not find any significant difference in economic status and attitude towards the environment. Researchers found outcomes contrary to this result in this study.

As a result of the research, no significant difference was found in the environmental information and environmental attitudes of students according to the gender variable. Whereas, a significant difference between the pupil's educational background and their environmental knowledge was observed (p=,033). There was no significant difference in their attitude towards the environment (p=,288). The environmental knowledge level of students with literate mothers is higher than students with illiterate mothers.

There was no significant difference observed between the father's educational status and the pupil's environmental knowledge and attitude towards the environment. Whereas, a significant current environmental knowledge difference between students that have taken a class or education related to the environment (p=,009) was observed, but no difference in their attitude towards the environment (p=,312) was seen. No significant difference between the participants' environmental knowledge and benevolent work in an environmental organization (p=,722), a significant difference in their attitude towards the environment (p=,000) was observed. It was seen that the students' attitude towards the environment ($\bar{X}$=172,37) was higher than those who do not engage in voluntary environmental work (X=168,86). There was a significant difference between monthly income and the current environmental knowledge level of students (p=,000) and environmental attitude (p = ,049) of secondary and high school students. When these results are examined, it was determined that the level of environmental knowledge and attitude towards the environment of Libyan secondary and high school students were insufficient.

5.2. Recommendations

- In order to increase the knowledge of the secondary and high school students in the environment, internet sites should be established so that the students can easily get information about the environment and these sites should be updated in parallel with the new developments. The number of documentaries and programs related to the environment should also be increased.

- Necessary works to teach the importance of individual responsibility in solving environmental problems, and determining environmental problems by being conscious of the importance of environmental education at an early age and work for parents to behave coherently should be done small children in order to gain positive behavior towards the environment.

- If the frequency of middle and high school students visiting nature is increased the students' environmental knowledge and environmental behavior level would rise. In order to increase students' environmental awareness and attitudes, nature walks and nature trips should be increased.

- Student participation in environmental activities such as panels, seminars and conferences should be encouraged and civil society organizations related to the environment should be adequately promoted to the students.
- In order to improve students' attitudes towards the environment, they should be presented with an environment that can appeal to their emotions during the course of teaching and apply their teachings. School buildings and gardens should be designed to reflect a nature feeling.
- We should consider the mothers education which is very important in our Society because she will change the knowledge in her children to be more environmental friendly if she teaches the child to save clean our attitude and behavior will change to reache the highest level so that's why the mother education is important.
- In-school and out-of-school programs should be audited and organized at a more effective level to improve environmental awareness and environmental perceptions of pupils.
- The level of environmental knowledge of middle school students who acquire environmental information from television, radio and newspapers is higher than students who acquire environmental knowledge from the text book. According to this result, the number of publications in which information about the environment on television - radio and in newspapers should be increased.

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Appendix-1.

PERSONAL INFORMATION FORM

Dear Students,

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

Master Student:
Sobhi Omran Khalifa ALJWADI

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

Gender: Female ☐ Male ☐

Nationality: ☐Libya ☐Egypt ☐Other

The population of the area where you live:

☐Less than 500 ☐Between 500-2,000 ☐Between 2,000-5,000

☐Between 5,000-10,000 ☐Between 10,000-20,000 ☐Between 20,000-50,000

☐More than 50,000

Education status of your father:	**Education status of your mother:**
1 ☐Elementary	1 ☐Elementary
2 ☐Primary School	2 ☐Primary School
3 ☐Secondary School	3 ☐Secondary School
4 ☐High School	4 ☐High School
5 ☐University / Faculty	5 ☐University / Faculty
6 ☐Master / Doctorate	6 ☐Master / Doctorate

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

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

Please tick the appropriate option in the following question:

1. Have you received any environment lessons before?

1 ☐Yes 2 ☐No

2. Do you actively joining any environmental group's (foundations, associations, voluntary organizations and etc.) to work?

1☐Yes Name:…… 2 ☐No

Appendix-2.

ENVIRONMENTAL KNOWLEDGE TEST

1. Which of the following is a voluntary organization about the environment?
1. ☐Green Peace Movement
2. ☐Near East University
3. ☐Red Crescent Society
4. ☐Education Association
5. ☐The Turkish Cypriot Chamber of Commerce

2. Which country did the Chernobyl nuclear power plant accident occurred in 1986, country?
1. ☐USA
2. ☐Iranian
3. ☐Iraq
4. ☐The Soviet Union
5. ☐Japan

3. What is the <u>most important</u> factor giving rise to environmental problems?
1. ☐Rapid population growth
2. ☐Overgrazing and destruction of natural vegetation
3. ☐Air pollution arising from the use of poor quality coal
4. ☐Using pesticides causes pollution in the water
5. ☐Intensive production of the industrial plants without installing treatment plants

4. What name is given to the science that studies the relationships between live and the environment?
1. ☐Zoology
2. ☐Botanical
3. ☐Genetic
4. ☐Ecology
5. ☐Biotechnology

5. Which of the following <u>are not</u> the consequences of unconsciously tourism behaviour?
1. ☐Endangered endemic species
2. ☐The decline in soil fertility
3. ☐Destruction of historical monuments
4. ☐Biodiversity reduction
5. ☐The destruction of the natural beauty

6. Where the first atomic bomb was thrown?
1. ☐Nagasaki
2. ☐Hiroshima
3. ☐Vietnamese
4. ☐Baghdad
5. ☐Teheran

7. Which of the following is the reason for the prohibition of DDT?
1. ☐The lack of practical use
2. ☐To be effective on pests
3. ☐To be lost in a very long time in Nature
4. ☐Same product being produced for less money
5. ☐Damaging the product used on

8. Which / what are the basic aims of Environmental Education of the following?

i.Protection of nature, historical and cultural value with public awareness

ii. To gain sensitive and positive behaviour change towards the environment

iii. Ensuring active participation in the solution of environmental problems

1. ☐Only i
2. ☐Only ii
3. ☐i and ii
4. ☐ii and iii
5. ☐i, ii, and iii

9. Air pollution, which can cause the following situation?

i. Increase in respiratory disease in humans

ii. The formation of the greenhouse effect

iii. The occurrence of acid rain

1. ☐Only i
2. ☐Only ii
3. ☐i and ii
4. ☐ii and iii
5. ☐ i, ii, and iii

10. The task of the ozone layer is provided in the correct manner in which of the following?

1. ☐ It protects the earth from high temperatures
2. ☐ It protects the earth from ultraviolet rays from the sun
3. ☐ It protects the earth from the acid rain
4. ☐ It protects the earth from the poisonous gas
5. ☐ It protects the Earth from the greenhouse effect

11. Which of the following are not the main factors which pollute the soil?

1. ☐ The accumulation of organic waste
2. ☐ Mixing of pesticides
3. ☐ Irregular and excessive fertilizer use
4. ☐ Heavy metals used in industry
5. ☐ Increased acid rain

12.

i. Greenhouse effect
ii. Depletion of the ozone layer
iii. Global warming

Which / Which of the above are the result of the increase in CO2, 03, CH4 gas?

1. ☐ Only i
2. ☐ Only ii
3. ☐ i and ii
4. ☐ ii and iii
5. ☐ i, ii, and iii

13. Which/ Which of the below are the goals of Environmental Impact Assessment (EIA)?

i. Identify and eliminate the negative effects of industrialization on the environment
ii. To ensure sustainable development
iii. To ensure faster development

1. ☐ Only i
2. ☐ Only ii
3. ☐ i and ii
4. ☐ ii and iii
5. ☐ i, ii, and iii

14. Which of the following <u>is not</u> a positive impact to the environment?

1. ☐ The proliferation of green areas
2. ☐ The availability of treatment facilities in factories
3. ☐ Erosion prevention work
4. ☐ To increase the use of pesticides products
5. ☐ The creation of a national park

15. Because of the tourist resort made in our coasts, which of the following is the species in danger of entering the spawning areas?

1. ☐ Flamingo birds
2. ☐ Dalmatian Pelican
3. ☐ Sea turtles
4. ☐ Mediterranean seals
5. ☐ Bald ibises

16. What is the World Environment Day?

1. ☐ 5th of April
2. ☐ 5th of May
3. ☐ 5th of June
4. ☐ 5th of October
5. ☐ 5th of December

17. Which/ which one of the following measures has to be taken to protect the future of the environment?

i. Increasing the availability of renewable energy sources
ii. By using without wasting the consumer goods
iii. Using the scientific approach to solving the problem
iv. Conducted studies of sustainable development

1. ☐ i and ii
2. ☐ i and iii
3. ☐ ii and iii
4. ☐ ii, iii and iv
5. ☐ i, ii, iii and iv

18-22 place the appropriate questions of the following words between the empty places

1- Environment	2- Environmental Pollution	3- Global warming	4- rain acid	5- Ecosystem

18. ……., It is caused by the accumulation of the load on the environment of nature's self-cleaning power.
19. ……., the creation of acid combines with moisture in the atmosphere of gases and comes down to earth by rain.
20. ……, people and other living things continue their relationship in their lives and share the same environment in which they mutually interact.
21. ……., the heat energy absorbed by gases such as CO2 increase the heat which than is taken out to the atmosphere.
22. ……, it is a place where an organism or population naturally lives

Appendix-3.

SCALE OF ENVIRONMENT AWARENESS

	I Totally Agree	I Agree	Partly Agree	I Disagree	Disagree
1. The most important factor threatening the environment is the increase in human population.	( )	( )	( )	( )	( )
2. Because environmental self-cleaning human waste is no problem	( )	( )	( )	( )	( )
3. Industrial wastes pollute the environment more than household waste	( )	( )	( )	( )	( )
4. To turn off the lights when leaving the room does not provide more energy savings	( )	( )	( )	( )	( )
5. Environmental pollutants are the people who are environmentally conscious	( )	( )	( )	( )	( )
6. There are more water in the world for people to pollute	( )	( )	( )	( )	( )
7. Gradually warming in the earth could lead to tragedy in the future	( )	( )	( )	( )	( )
8. Battles offers the greatest harm to the environment	( )	( )	( )	( )	( )
9. Erosion is no longer seen in our country.	( )	( )	( )	( )	( )
10. Noise is one of the factors that damage our environment.	( )	( )	( )	( )	( )
11. Cell phones emit radiation that is damaging to the environment.	( )	( )	( )	( )	( )
12. The increase in cancer and other diseases in Turkey's Black Sea region caused by radiation in the region.	( )	( )	( )	( )	( )
13. The consumption of natural resources rapidly isan important issue for our future	( )	( )	( )	( )	( )
14. The ozone layer has thinned over America in particular, there is no danger to Libya	( )	( )	( )	( )	( )
15. The destruction of forests for homemade is inexcusable	( )	( )	( )	( )	( )
16. It is best to dry the wetlands and use that area to build houses.	( )	( )	( )	( )	( )
17. Coal should be preferred for heating homes and workplaces to prevent environment pollution	( )	( )	( )	( )	( )
18. Endangered creatures, which are highly overrated, there are already a large number of such species in nature therefore depletion some of them is not important.	( )	( )	( )	( )	( )
19. Production without treatment plants installed in the industrial establishments should be closed.	( )	( )	( )	( )	( )
20. Pesticides used in agriculture are beneficial to the environment	( )	( )	( )	( )	( )
21. Forest land which have lost their qualification, there is no objection to sale the forest in order to bring revenue to the country.	( )	( )	( )	( )	( )
22. State should allow the construction of buildings for tourism purposes in national parks and forests	( )	( )	( )	( )	( )
23. Building luxurious roads instead of spending money to historical places is more useful for our country.	( )	( )	( )	( )	( )
24. There are not enough importance on the environment in our country	( )	( )	( )	( )	( )
25. We are not a rich country to allocate money to protect nature	( )	( )	( )	( )	( )
26. I don’t warn someone when pollutes the environment, because it is the municipality's duty to clean up the environment, and we pay taxes for it	( )	( )	( )	( )	( )

	I Totally Agree	I Agree	Partly Agree	I Disagree	Disagree
27. Libya should establish a nuclear power plants to produce energy	( )	( )	( )	( )	( )
28. One of the major problems in Libya is unplanned urbanization	( )	( )	( )	( )	( )
29. Light pollution is a major environmental problem	( )	( )	( )	( )	( )
30. Acid rain is a problem in developed countries, it does not affect our country	( )	( )	( )	( )	( )
31. I find it unfair for nuclear weapons tests made by Countries	( )	( )	( )	( )	( )
32. I share my knowledge about the environment with my friends	( )	( )	( )	( )	( )
33. I pay attention when buying a product to be recycled when waste	( )	( )	( )	( )	( )
34. I prefer the more expensive products that do not harm the environment	( )	( )	( )	( )	( )
35. I do not hesitate to alert someone that harms the environment	( )	( )	( )	( )	( )
36. I would like to volunteer to participate in an activity related to environmental clean-up if our school organizes it.	( )	( )	( )	( )	( )
37. My friends know me as one a person sensitive to the environment	( )	( )	( )	( )	( )
38. I've been watching the TV and radio programs about the environment	( )	( )	( )	( )	( )
39. I follow the developments related to the environment in daily newspapers	( )	( )	( )	( )	( )
40. I can work for free if necessary for creating a healthy environment	( )	( )	( )	( )	( )
41. I watch documentaries about environmental issues	( )	( )	( )	( )	( )
42. Apart from reading textbooks I also read books about the environment	( )	( )	( )	( )	( )
43. I follow popular magazine about the environment	( )	( )	( )	( )	( )
44. I follow scientific articles about the environment	( )	( )	( )	( )	( )

Appendix-4.

SCALE OF ENVIRONMENTAL ATTITUDE

		Absolutely I agree	**I Agree**	Neutral	**Disagree**	Strongly Disagree
1	I don't think that the use of liquid gas for residential and commercial is a contribution to the solution of the air pollution problem.	( )	( )	( )	( )	( )
2	Thinning in the ozone layer threatens all people.	( )	( )	( )	( )	( )
3	To participate in activities related to environmental contamination is a social responsibility.	( )	( )	( )	( )	( )
4	It is exaggerated news that the sea, rivers and soil are polluted.	( )	( )	( )	( )	( )
5	Drinking water in big cities is dirty enough to require the house to use water filters.	( )	( )	( )	( )	( )
6	Efforts to protect sea turtles in some cities are seen as a waste of time.	( )	( )	( )	( )	( )
7	Mediterranean climate zone has no problem of desertification.	( )	( )	( )	( )	( )
8	In order to meet the needs of people that need fresh air should be encouraged to make small houses located near the wooded area of the city.	( )	( )	( )	( )	( )
9	Air, water and soil are inexhaustible sources.	( )	( )	( )	( )	( )
10	No matter which country does the nuclear test should be protested?	( )	( )	( )	( )	( )
11	Rapid population growth is a serious environmental problem.	( )	( )	( )	( )	( )
12	People who throw garbage or spit on the floor should be intervened.	( )	( )	( )	( )	( )
13	Unplanned construction is an environmental problem.	( )	( )	( )	( )	( )
14	The idea of environmental protection, to prevent the development of developing countries is made up by Westerners.	( )	( )	( )	( )	( )
15	To be sensitive to environmental issues, does not prevent the development of a country	( )	( )	( )	( )	( )
16	The emergence of environmental groups, rather than protecting the environment stems from the need to make friends.	( )	( )	( )	( )	( )
17	No agency or organization including the United Nations have right to interfere to countries who wants to use their own natural resources.	( )	( )	( )	( )	( )
18	Gazette: magazines and television programs related to the environment should be given more space.	( )	( )	( )	( )	( )
19	Countries should establish the Ministry of Environment to solve environmental problems.	( )	( )	( )	( )	( )

Curriculum Vitae

My name is Sobhe OMRAN ALJWADI. I was born on 24.03.1981 in Libya in Kasr-khiar city. In 1996 I started high school and completed in 1999-2000. I got my high school Diploma in the fall of 2000 in the field of Medical and Health technology, Environment Section. I obtained a High Diploma degree in spring 2004. I got a job at the end of 2005 as teaching assistant at the same Higher Institute where I graduated from. In 2013 I left my country to complete my education and get a master's degree. Here I had the opportunity to travel to the Republic of North Cyprus to receive a good education in this country. My master’s study began in (2015-2016) in the field of Science and Environmental Education Management. In my first year in Cyprus I studied English language for one year to improve my English. Then I started my study in Environmental Education Management in Near East University.

Thesis

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