

THE MAJOR PHASES OF LIFELONG LEARNING IN ENVIRONMENTAL EDUCATION

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Abstract

Lifelong learning contains the idea of deliberating learning occur throughout each person's lifetime. The earlier European educational theorists such as Comenius and Matthew Arnold also emphasized 'Lifelong Learning' in ancient writings. It is not a new subject. Recently Lifelong learning adaptation to Environmental Education (EE) researches occurs new approaches to achieve environmentally sensitive behaviors.

This Manuscript mentions about three main phases for lifelong learning in EE. Generally Lifelong Learning emphasizes higher education and more focuses on enhance the adult education such as factory based courses, joint programmes. Differently for EE's lifelong learning, the lead role goes to the children's EE to gain the customs of environmentally sensitive behaviors.

Life long learning for EE can be distinguished mainly three phases. Namely; pre-school age, School period (primary, secondary and high schools) and professional life EE. From the aspect of achieving the target of imbibing the view of sensitivity on environment; pre-school age, school age and adults in professional life comes orderly. In developed countries, the education system of these societies are taken into consideration, it is observed that they used the lifelong education as a tool to reach some targets and never made any restrictions about it because of education being their top priority. Environmental education process in developed countries which includes the childhood, youth and adult periods are observed. As a result, the activities improving environmental awareness are put forward by scrutinizing the various educational methods.

Keywords: Environmental education, Environmental awareness, Lifelong learning.

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Çevre Eğitiminde Hayat Boyu Öğrenme Temel Aşamaları

Özet

Yaşamboyu öğrenme, her insanın hayatı boyunca öğrenmesine yönelik oluşturulan plan fikrini kapsamaktadır. Bireysel bir yaklaşım içermektedir. Avrupa eğitim teoristlerinin ataları olan Comenius ve Matthew Arnold da hayat boyu öğrenimin önemini çalışmalarında vurgulamışlardır. Günümüzde araştırmacılar; bireylere çevreye duyarlı davranış alışkanlıkları kazandırabilmek için yaşamboyu öğrenimin çevre eğitimine manipulasyonu ile farklı yaklaşımlar ortaya koymaktadırlar.

Bu çalışmada, hayat boyu çevre eğitiminin 3 temel aşamasından bahsedilmektedir. Bunlar okul öncesi dönem, okul dönemi ve profesyonel veya iş hayatındaki çevre eğitim dönemlerini kapsamaktadır. Hayat boyu öğrenmede mesleki eğitimler ve yüksek eğitim sonrası çeşitli kuruluşlar ile ortaklaşa gerçekleştirilen yetişkin eğitimlerine daha fazla önem verilmektedir. Ancak bu durum; çevre eğitiminde, okul öncesi döneme daha fazla önem verilmesiyle karşımıza çıkmaktadır. Çevre eğitiminde çevreye duyarlı davranış alışkanlıklarının kazandırılması açısından en önemli hedef okul öncesi yaş grubudur. Hedefe ulaşmada bu üç dönemi sıraya koyacak olursak; okul öncesi dönem, okul dönemi ve iş yaşamı gelmektedir. Bu üç temel dönemi ele alarak gelişmiş ülkelerdeki çevre eğitimi çalışmaları ve metotları incelenmiştir. Ülkemizde çevre eğitimine yönelik yine üç temel aşamayı içeren çalışmalar tespit edilerek, toplumumuzda çevresel bilinci artırıcı faaliyetler ortaya konmuştur.

Anahtar kelimeler: Çevre eğitimi, çevre bilinci, hayat boyu eğitim.

Introduction

The goal of imbibing environmental awareness in societies is comprehending, preserving and caring the living and natural environment. The affection of nature could occur by identifying it. Environmental education (EE) is necessary to implement identifying the nature. People can be made sensitive towards environment, can improve positive attitudes towards environment and take political decisions in favor of environment by EE. The major target of EE,

is achieving the environmental problems. But achieving this; requires much time like a lifelong education. Briefly EE must cover human life.

Inceptive EE for infants shows us reaching targets in EE is more successful with small childrens. And also this education could be maintained in other life stages like school and business life. Otherwise catching a level in EE and achieving the targets will be difficult. The targets of the EE are, the development of attitudes, values, and behavioral skills in the area of environmental decision-making and problem-solving. So we could explicitly say that initiation of EE for pre-school ages, turn into decision makers for adults. Therefore EE for adults is important. EE is a process involving generally three kinds of educational experiences;

1. Environmental discovery and inquiry
2. Environmental evaluation and problem identification
3. Environmental problem-solving (Bennett 1974).

After determining the goals of EE, There must be some principles about practices. These seven principles explained below can guide through the practices of EE.

1. Development of personal affinity with the earth through practical experiences out-of-doors and through the practice of an ethic of care,
2. Grounding learning in sense of place through the study of knowledge possessed by local elders and the investigation of surrounding natural and human communities,
3. Induction of students into an experience of community that counters the press toward individualism that is dominant in contemporary social and economic experiences,
4. Acquisition of practical skills needed to regenerate human and natural environments,
5. Introduction to occupational alternatives that contribute to the preservation of local cultures and the natural environment,
6. Preparation for work as activists able to negotiate local regional and national governmental structures in an effort to adopt policies that support social justice and ecological sustainability,

7. Critique of cultural assumptions open which modern industrial civilization has been built, exploring in particular how they have contributed to the exploitation of the natural world and human populations (Smith and Williams 1999).

The approach to EE in U.S.A. is detailed and authorities want to teach every person (containing all ages) how to aware and percept the environment. So, with this approach, they believe they could prevent environmental problems.

Stapp and his friends have made the definition of EE as such: "Environmental education is aimed at producing a citizenry that is knowledgeable concerning the total environment and its associated problems aware and skilled in how to become involved in helping solve these problems, and motivated to work their solution" (Stapp 1974).

EE is a comprehensive topic. Because of this, it requires elaboration. On the other hand sustainability of EE is important so that targets can be achieved in this study. We will consider EE in three major parts of human life. These are; pre-school age EE, school period EE (this contains primary, secondary and high school EE) and professional life EE (this group also contains the university students in order to get professional courses).

Although adult education is the most extended period, the lowest expectations are also in this part. This period is late for commencing EE and must be perceived as a continuation of previous periods. The knowledge obtained in previous educational periods is expanded in this period. To bring in some attitudes sensitive for the environment to the people in this period is difficult. The shortest period of the education is pre-school age period but it has the highest expectations. This is the core and the beginning point of the education. Core carries the raw material which a waits to be formed.

Pre-school Age EE

Pre-school age EE period, comprises of infant and toddlers and children till age 6. Infants and toddlers cover the ages of 6–36 months. World is new and wonderful for these children. Things in nature move on their own and change. Colors, texture and sounds are real. This is the best time to introduce natural environments to toddlers as they began to enjoy the freedom to move, experience the freshness of the outdoors and become comfortable in the natural

environment. In this phase of learning, the most important thing is discovering and scrutinizing. In the activities of EE, children accompanied by an adult, are left in nature unobstructed in a controlled manner. Some considerations must be taken when teaching infant and toddlers, like staying within a few yards of children at all time, encourage clothing that protects children from sun, cold, rough and sharp natural objects, keep hands and fingers out of holes, remove anything you don't want toddlers to touch from their reach.

The second important thing that must be taken into consideration is teachers' behaviour in nature. Adults and teachers must show appreciation and respect for nature near them because in these ages children impersonate their parents or adults. For example they should touch turtles, cats, dogs or other animals gently and explore safe natural things with their senses (Oltman 2006).

At this period, many activities can be realized for EE. A terrarium or a formicarium can be composed with children. To make a terrarium children allowed to the nature to pick some branches, leaves, soil, sand, gravels, mosses, lichens and other natural pieces. After this, materials are put in a glass or mica box. That is all for terrarium. To make a formicarium the same materials are picked besides a group of ants. An observation of these formicarium and terrarium could be expected from children. Also children can draw their observations. Student drawings of their observations and their verbal conclusions can help assessing their discovery (Fuchs 2006). In class, "matching colors in nature" activity can be suggested for children. In this activity children will match colored pieces of paper to the colors of natural items. They will explore same and different colored objects and shade of colors (Bailey 2006).

EE of pre-school age embrace the integrated education approach for perception of the world as a whole. Integrated education has been planned in three phases:

1. Getting to know the world and ourselves,
2. Skills and actions,
3. Values and relationship to the world and ourselves. Activities in EE for pre-school ages can be realized by considering these phases.

In most European countries, pre-school care and education begins at the age of three. Pre-school and early schooling demand particular care and

attention. Childhood is a period of very intense development of all areas of the personality, in which about a half of a person's intellectual potential is developed. A study implemented about environmental knowledge assessment in Poland with 320 children of 5 to 6 years of age. This questionnaire study resulted in that, approximately % 60 high level of knowledge about nature determined in the group. Also they have the knowledge of basic rules for environmental protection; like to know the names and characteristics of plants and animals which are endangered, not to break branches, not to pick flowers in nature, to throw rubbishes in bin. The majority of children, desire to live where there are attractive, healthy plants, animals, clean water, where the sun is shining and in a law-abiding environment. Study indicates that children don't know much about animals, they think animals should always work for people also they dislike wolves, amphibians, reptiles, spiders. In the result of this study children's ability to notice the cause-effect relationship in the actions of humans towards nature was weak. This weakness had been seen related with the educational system and deficiencies of activities about EE. Children should be included in actions for the environment. Conclusion of this study is implementing the curriculum format for EE should be prepared by pre-school teachers, by cooperating with parents, local community and educational authorities. Although, in accordance with the rules of national strategy these points are suggested:

1. Widening and deepening the program of studies for pre-school teachers,
2. Providing access to attractive teaching materials,
3. Increasing the number of television and radio programmes presenting environmental content (Domka 2006).

The pre-school phase should be thought fundamental for EE and should support by various educational materials. This is the shortest period of EE but the quality and quantity of stimulatives are important.

School Period EE (Primary, Secondary and High School EE)

This is the phase of reinforcement of the environmental knowledge given in the previous, pre-school EE phase, with scientific lessons about environment. Paul Krapfel, The educator of Carter House Natural Science Museum in California, had taken the 4th and 8th class students into a camp for a week for

ecological teachings. He asked students for an observation of any natural event during the camp. Another observation study had been implemented in the class. Every student had a flower which they were responsible to take care of. They had observed their flowers and noted the changes. This well received technique could have been applied to these slowly change flowers by marking. For example an ephemeral flower, petals exist only few hours, or there can be a very slowly flowering plant. They will investigate the natural process of the flowers. This will help them to percieve the natural life dynamizm. When students are aware of the ongoing changes happening to specific individuals, then they can begin measuring and graphing the changes. Awareness is limited to the obvious. By marking, they clearly can observe the changes in nature. These are examples of experimental studies of school period.

EE. Natural experiments can have various results. These variousnesses must be clearly explained to the children. Krappfel had found the solution of explaining the variability by discussions in the class. He let the children to discuss their solutions then they apprehend the cause of variables. Even if the experimental subjects are same, results can be different. Class disscussions concerning all the variables, might be shaping the results and different possible interpretations could explain them. Krapfel thinks; as making the world more understandable for children by simplifying is a big mistake. He believes children's ability to grapple with the complex as long as they are given opportunities to talk about it and do follow-up investigations. He believes that complexity attracts and invigorates their minds (Krapfel 1999).

What is aimed to be learned in EE? And why? This must be explained to the children. They should know the reason to believe what to do. To make the EE creative, some different spontaneous activities could be implemented in school period. Educators must consider the following points;

1. Deeper participation,
2. Awareness expanding beyond the obvious,
3. Revelling in complexity,
4. World as interconnected and dynamic,
5. Fusion of intellect and emotion,
6. Emergent diversity.

Some of the schools have comprehensive EE program. One of these schools is established in 1995 in the Portland Public School District, in Oregon as the consequence of a proposal that allowed a group of parents, students, teachers and other community members to start a new Environmental Middle School. This proposal approved by the Portland School Board. The school implemented the EE in the field. Environment would be at the core of the educational program and the program would ensure direct experiences with nature. This school aimed to teach students totaliter approaches to the environmental problems and different overwies to improve. To achieve this, the importance of working in an interdisciplinary way is emphasized. This approach makes the overview real, analytic and wide (Williams and Taylor 1999). For this phase of EE, environmental subjects should be supported by environmental activities and experimental studies.

Professional Life EE (EE in Business)

This is the phase of recalling the knowledge of EE of the previous phases. Also at this time, knowledge has brought into life by attitudes. People forget the knowlegdes they had got before due to economical concerns. Administratral authorities should help implementation of EE in this period. These authorities could be nongovernmental organizations, local administrations or private companies. Private companies should give EE to their stuff whether they have environmental impacts in the extent of their business facilities or not. If they cause some environmental impacts with their facilities they should notify their employees about these effects. At this subject Canada could be pointed out as an exemplary. A study implemented in two electricity companies in Canada for measuring the environmental knowledge of employees and to acquaint the environmental impact of the companies. Briefly it could be seen as an EE in private companies. It is implemented in three levels. First level was to determine the employees' views about EE program. The second level was to determine the awareness of employees' about environmental problems. At least if they are aware the positive or negative effects of their work on the environment. The third level was the level of assessment of the employees' environmental knowledge to understand whether it is, close to achieving the targets or not. Assessment had been implemented by a questionnaire included 48 multiple – choice questions and six open – ended questions in three sections. These sections are; environmental knowledge, environmental attitudes and,

environmental policy. Same questionnaire is applied in two different companies in the same sector. For the first section the results were nearly the same for two companies. But in the third section appreciable differences can be seen from the results. The first company had a good score in environmental policy section of the questionnaire. Also companies' employees are degreed for this assesment too. There were 5 degree of employees. These were in order of upper management, first level management, customer service, internal maintenance and external maintenance. Customer service stratum showed the lowest mean scores in the environmental knowledge section. Environmental awareness of company employees were different. Employees in lower position were less aware of environmental impacts of the company. These assessments should be taken into consideration when providing environmental awareness training. Companies and other organizations aiming for a more sustainable approach to their activities should increase the environmental awareness of their members (Perron, Côte, Duffy 2006)

Another study implemented in Ningbo which is a port city in Zehejiang Province located in the middle of China's coastline. Study based upon a survey on household electronic and electrical equipment. People living in Ningbo have comparatively higher income. Higher income stimulates consumption of different kinds of products so that the standart of living is improved quickly. The household electrical and electronic equipment (HEEE) is focused on household appliances including TV sets, airconditioners, refrigerators, computers and mobile phones. Chinese government is now facing the challenge of how to deal with household waste electrical and electronic equipment (WEEE). Establishment and implementation of WEEE reuse and recycle management systems depend on public awareness and involvement. This can be realized by EE for citizens. In the survey study; color TV sets, refrigerators, air conditioners, personal computers and mobile phones were selected as representative items for WEEE. Study contains only a survey implementing by a questionnaire and provides information on the public's perception of the local environmental quality, environmental awareness and environmental performance, and of their willingness to pay for improving environmental quality and making green purchases. The results indicate that Ningbo residents are not satisfied with the local environmental quality, and they would like very much to share environmental responsibility. About % 64 of the respondents are aware of Chinese environmental labelling. Nearly % 70–80 of the respondents

are willing to pay for environmental improvement and to purchase environmentally friendly products, respectively. According to the questionnaires, selling items to waste collection centers is the main method to dispose of wastes. The second method should be giving them to others or selling them in the second hand markets. Of all the respondents, % 61 choose to reuse and recycle waste electrical and electronic equipment. The successful experiences in developed countries show that it is necessary to develop different recycling systems according to the different types of electrical and electronic equipment, since there are different kinds of electronic components. A governmental policy instrument, called the extended producer responsibility which has been implemented in some industrialized countries, has minimized solid waste effectively. The percentage of reused and recycled products has been enhanced enormously (Huang, Zhang, Deng 2006)

The other study implemented in 22 business school departments of universities and high schools of Finland. In business schools, students are seen as an administrative staff of future. So, they will be the authorities of the decision makers. Because of this reason, EE have been regarded more important and necessary for business schools. With this education, students can think of the sustainability of ecology as well as the sustainability of economy. Holistic education approach is adopted for EE in business schools. This means that in the learning process, knowledge, skills and attitudes should be combined in order for environmentally friendly action to be achieved (Rohweder 2004).

EE activities in this period contains higher education, people in business life, home workers, retired people also. Addresses very comprehensive mass of people. To achieve the implementation of EE in this period, needs the contribution of nongovernmental organisations, local authorities, private or governmental companies, institutions. There has to be legal obligation preparations for EE.

EE Approaches in Turkey

In Turkey, EE starts with parents' teaches for infant and toddlers. EE in pre-schools is restricted by environmental subjects of curriculum. On the other hand, there are opportunities for children to make trips in natural gardens, parks in Turkey. One of them is Atatürk Arboretum, which is located on the south part of Belgrad Forest in Istanbul. Atatürk Arboretum has an area of 345 ha and contains many native and exotic trees, plants and native tree collections of

Europe and Istanbul (Figure 1). For pre-schools' EE, there are courses containing environmental subjects. Some of these courses are "Our House and Family", "Our Health", "Forests", "Summer Season" and "Plants and Animals". Some of the private pre-schools have their own outdoor activity program about EE. Activity programs are prepared by each school independently.

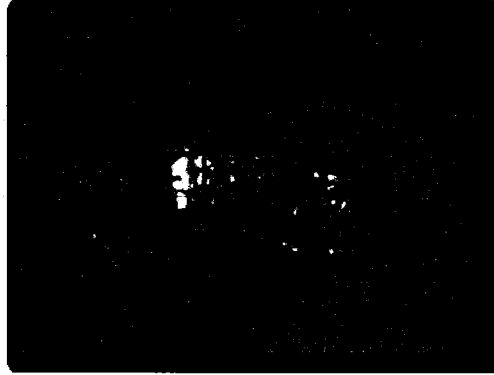


Figure 1: EE activities for pre-school age at Atatürk Arboretum.

For school period EE; in primary and secondary schools; especially first three years of primary schools "Life Knowledge" courses contain the subjects of EE, and in 4th and 5th grades of the primary schools, "Science Knowledge" and "Social Knowledge" courses contain environmental subjects. Especially the "Science Knowledge" courses have a wide content for EE. Courses containing the subjects such as "World and Sky", "Earth Waters and Surrounding Air", "Matter and Energy", Biologic Earth Researches", "Our Anatomy" and "Healthy Life" are given in 4-5.th grades. In 6th grade nearly the same subjects are given by widely, different courses are "Diversity of Organisms" and "Man and Biosphere". "Solar System and Space" courses given in the 7th grade and in the 8th grade, given courses are "Matter Constitution", "Propagation of Organisms and Heredity", "Man and Biosphere", "Surface and Subsurface Resources". Furthermore these courses; there are variable EE activities implemented like scout camps. Courses and grades match can be seen clearly on Table 1 (Doğan, 1997).

Table 1: Environmentally subject courses given in primary schools in Turkey

	Grades				
	1-3	4-5	6	7	8
Courses	Life knowledge	Science knowledge	Diversity of orgsnisms	Solar system and space	Matter constitution
		Socialscience knowledge	Man and biosphere		Propagation of organisms and heredity
		World and sky			Man and biosphere
		Earth, waters and surrounding air			Surface and subsurface resources
		Matter and energy			
		Biologic earth researches			
		Our anatomy			
		Healthy life			

For professional life EE in Turkey, there are no obligatory rules for private companies. In departments of universities which concern the environmental subjects, there are courses of detailed environmental knowledge. Furthermore for adult education, there are variable facilities of environmental associations and nongovernmental organizations like Nature Association, Natural Life Preservation Association, Foundation of Tema, ÇEKÜL, Environmental Foundation of Turkey, Environmental Education Foundation of Turkey and Environmental Education Associatio. In this phase of EE in Turkey, universities' courses intended to EE are so detailed. To make students sensitive and conscious towards the environmental problems in universities; Ecology, Environmental Problems of Turkey, Environmental Law, Environmental Philosophy, Ecosystems, Man and Biosphere, Environmental Biology courses

are given optionally. In directly relevant departments with environmental subjects, courses are indispensable (Doğan, 1997).

RESULTS AND DISCUSSION

Compared to developed countries, in Turkey outdoor activities for EE are relatively weak. Briefly program contains theoretical courses but this is not sufficient. To make people sensitive and conscious towards environment requires assimilation. Assimilation can be implemented by facilities and activities in nature. Children must have the knowledge of the fact that they are a part of nature. They should make observations, experiences in natural environments. We should make them perceive the holistic world and natural systems.

A comparative study including 8th grade students for environmental knowledge in U.S.A and Turkey is implemented by Tosunoğlu in 1988. Consequently, the level of environmental knowledge of students in Turkey was found deficient. The main reason for this result, can be perceived as the lack of the environmental activities. Children can not initiate the education. They are getting courses theoretically without any chance to compare or experiment the knowledge practically. Especially visuality is a main learning method for children. Pictures, photos, images are all reminding objects. These are effective teaching materials. Theoretical courses must be supported with activities and experiments, observations in nature. Briefly gripping methods can be used by teachers. Also drama is an effective learning method too. In developed countries, every province or every town has at least one botanical garden, arboretum, park or botanical park, because the importance of visuality in learning process of EE.

Generally EE activities in Turkey contain Pre school and school periods. For adult or business EE period we can only mention about courses in universities about environmental subjects and club facilities like trekking, camping and climbing. For private companies' EE, imperative directives about environmental issues should be thought. Especially, companies which impact the environment, must be considered in this concept.

To make people sensitive and conscious towards the environment and imbibing environmental awareness in societies requires a long time and lifelong

learning processes. The significance of EE and for effective EE in Turkey these recommendations should be implemented:

1. EE must be classified elaborately by considering people's interests especially for adult education (Public questionnaires can help to determine people's interests).
2. For pre-school and school period EE, visual education methods and spontaneous activities must be followed.
3. Environmentally content media programs must be increased.
4. Non-governmental and public organizations must be associated with people about environmental problems, and they must be effective on political decisions in favor of environment as the result of environmental awareness.
5. There must be legal obligations for private companies to bind the EE activities in professional life because companies have an environmental impact with their facilities and they are responsible to notify these positive or negative impacts to their staff.
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