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ENVIRONMENTAL EDUCATION AND SUSTAINABLE DEVELOPMENT FROM A CURRICULAR PERSPECTIVE

Abstract:

Education is one of the most effective tools to shape the world and solve its problems. Furthermore the earth and its well-being is heavily dependent upon the education and the number of educated inhabitants who are well aware of the fact that the resources are limited and the environmental protection is essential for the future of the human race. Taking this fact into consideration, the focal point of this paper will be environmental education and sustainable development. Admitting the fact that curricula of educational institutions and educational approaches cannot be the only cure to the environmental problems, they can be used as invaluable tools to develop environmental awareness and help sustainable development. By the help of instructors and educational administrators, educational programs could be developed in such a way that they not only include traditional school subjects like mathematics, science, and reading but also involve courses and/or projects aiming at developing environmental competence of the learners. Designing the programs interdisciplinary approaches rather than traditional ones would be of great contribution to provide the society with citizens respecting the natural resources as social assets. In this respect teachers play an important role and teacher education programs are expected to raise environmental awareness of the prospective teachers. Under the light of those facts, this paper will analyze both some of the teacher education programs of Turkish universities and some of the educational practices in Turkish secondary schools' programs with a critical approach to set the elements pertaining to environmental education. Furthermore some of the environmental education practices in various countries will also be discussed to illustrate good examples. Recommendations on curricular issues to improve environmental education and sustainable development will also be provided.

Keywords:

Environmental education, sustainable development, curriculum, teacher education

JEL Classification: I00

1. Introduction

Throughout the centuries mankind lived on nature and natural resources have become the core determinant of the Homo sapiens' survival on this earth. During the early ages when the mankind was living a fragile life in a wild nature, human beings all respected nature and some even valued it to such an extent that they regarded it as God and worshipped it. Though realizing the value of nature and living in harmony with it is a sine qua non for the survival of human race in this world, peoples of 21st century are not valuing the nature which is still providing us with vital resources such as food and water. Civilized consumers of modern ages are disregarding the value of nature and constantly polluting the environment while they are using up all the resources as if they are infinite. Since the development and survival of today's civilizations are heavily dependent on natural resources, for sustainable development it is an essential need to raise the environmental awareness of the public and make people live in harmony with nature as it has been for centuries.

Education has been one of the most effective tools to enforce development and solve the societal problems. Furthermore the earth and its well-being has all been dependent on the education and as the number of educated inhabitants increased the welfare of communities boosted. So, in order to increase environmental awareness and ensure sustainable development in other words for saving the earth it is essential for the human race to dwell on education. Nelson Mandela stated that "Education is the most powerful weapon which you can use to change the world". Since the resources are limited and the environmental protection is a vital issue for the future of the human race, environmental education for sustainable development is essential.

At that point the terms education and sustainable must be defined clearly. Education is defined as; "the knowledge, skill, and understanding that you get from attending a school, college, or university." (<http://www.merriam-webster.com/>) "the process of teaching and learning, usually at school, college, or university." (<http://www.ldoceonline.com/>). Sustainable is defined as; [1] "involving methods that do not completely use up or destroy natural resources." [2] "able to last or continue for a long time." (<http://www.merriam-webster.com/>). Defining the two critical terms the terms "environmental education" and "sustainable development" are easier to understand. Environmental education is defined by UNESCO as "a learning process that increases people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action" (UNESCO-UNEP, 1978). On the other hand the term "sustainable development" is defined by the UN-sponsored Brundtland Commission as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (UNWCED, 1987). Education for sustainable development is also supposed to develop the necessary skills and values and fostering attitudes to take responsible action.

During the last decades the efforts to ensure sustainable development have been quiet visible in the form of summits and world conferences. United Nations' contribution to these activities is of great importance. In 1987, The World Commission on Environment and Development chaired by

Mrs. Gro Harlem Brundtland prepared a report entitled as “Report of the World Commission on Environment and Development:Our Common Future”. This report not only defined the term sustainable development but also drew the attention of international community to the terms economic growth and social equity.Furthermore this report as a UN document had an impact on political arena and led to United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro, in 1992.Johannesburg summit in 2002 is another important event focusing on the world’s environmental problems and preservation on natural resources.

For a better future, our schools, colleges and, universities should take the initiative and through the process of teaching and learning practices a conscious and planned action should be taken to raise the awareness of the pupils about the environment.Educational institutions are also supposed to build positive attitudes towards environment and make them to protect the environment they are living in. In order to achieve this end, programs should be designed in such a way that they favor interdisciplinary approaches rather than traditional ones. In this respect teachers play an important role and teacher education programs are expected to raise environmental awareness of the prospective teachers. At that point an analysis of some of the teacher training programs of Turkish universities and the Turkish preschool education curriculum would be of great help to get a picture of Turkish educational institutions pertaining to environmental education.

2. Environmental education in Turkey

For ensuring sustainable development, it is a must to have individuals caring for theenvironment and dedicated to protect it. Developing school curriculums including sufficient amount of subject matter knowledge pertaining to the importance of protecting the environment and, emphasizing the effects of environmental corruption on sustainable development is not enough for raising environmental awareness among the pupils. Teachers being in charge of delivery of the curriculum content and acting as the role models for their students play a major role in all educational settings. In that respect teacher training programs are of great importance to application of environment friendly curriculums. Tilbury (1994) states that the early learning years of a child are critical for the environmental education and those years are usually underestimated. Stapp (1978) pointed out that environmental attitudes develop early in life and it is quite difficult to change them later. Furthermore Bryant and Hungerford (1977) stated that students’ positive attitudes toward the environment start to develop in the early years of their lives. Since pre-school teachers are the first teachers and role models of the students, three Turkish state universities’ the pre-school teacher training curriculums will be analyzed in this study. The first curriculum is one of the high ranking state university’s Pre-School undergraduate education programs. This program is composed of 142 credit hours. As it is described in the course content, among the compulsory courses “PRED 348 Community Service” course is the only course entailing the teacher candidates’ active participation in community service settings and making them create projects at individual or group levels(<http://www.fed.boun.edu.tr/default.asp?MainId=3&SubMainId=5&SubMainId2=17>).The teacher candidates in this program are also supposed to take some departmental and unrestricted

elective courses. Environmental education practices and the content related to the environmental issues may also be emphasized in those elective courses. But as long as the compulsory course contents are concerned, the two credit PRED 348 Community Service course offered to the students in the fifth semester seems the only course that might help to increase teacher candidates' awareness in social problems. Another top ranking Turkish state university's Early Childhood Education Department offers a highly elaborated program for prospective pre-school teachers. As it is in the previous case, the program is again made up of 142 credit hours. Though teacher candidates are offered a variety of courses including child health, drama, visual arts, assessment and evaluation, science, math and even gender equity in early childhood, they are not offered courses pertaining to environmental education and social problems (https://catalog.metu.edu.tr/program.php?fac_prog=411). Unlike the previous program, this Early Childhood Education program does not offer elective courses. So in this case it is for sure the program is free from environmental issues. The last pre-school teacher program is again offered by a state university teaching pre-school teacher candidates. This pre-school teacher undergraduate program offers a compulsory course OKU3016 Community Service Applications with quite comprehensive learning outcomes (<http://www.uludag.edu.tr/Bologna/dereceler/dt/33/dl/tr/b/3/p/32#mufredat>). The learning outcomes of this course are listed in Table 1.

1	Understands the importance of community service
2	Discusses the problems of society
3	Informs people who are non experts on social problems in this regard
4	Identifies current problems of society and prepare universal projects
5	To take part being volunteers in community service activities to develop positive attitudes
6	Communicates effectively while carrying out projects both within the project and outside of the project
7	Participates panel discussions, conferences, congresses, and scientific activities as speakers, or regulator.
8	Relates school and social environment

Table 1. OKU3016 Community Service Applications Learning Outcomes

Recognizing community service programs, determining current problems of community and preparing projects for solving those problems are the stated purposes of Community Service Applications course in the syllabus. As it is seen in the above table the last state university graduates comparatively much more social problem sensitive pre-school teachers.

Having many pre-school teacher education programs disregarding environmental issues in the curriculums, it is worth to analyze the preschool education curriculum in search of subject matters

serving to increase environmental awareness and thus helping to raise citizens fostering sustainable development. In Turkish pre-school education environmental issues are not held overtly. Environmental education is taught indirectly in curriculum and basically the curriculum emphasizes the terms and concepts about environmental issues. In 2009, a study carried out a content analysis of Turkish pre-school education curriculum to find out the proportion pertaining to environmental education. The results showed that learning outcomes directly related to environmental education makes up 15.5% of the overall learning objectives in the curriculum. When it comes to the basic terms/concepts in the curriculum environmental education related terms/concepts make up the 29% of the whole terms/concepts in the curriculum (Gulay and Ekici, 2010).

The results of the curriculum analysis of the pre-school education program state the fact that environmental issues are not the basic concern in pre-school education i.e. neither in pre-school teacher training curricula nor pre-school curriculum itself.

3. Environmental education in Denmark

Denmark is a country with a Ministry of Pollution Control established in 1971 as a response to the considerable water pollution in the country. Denmark also deserves to be a noteworthy country in environmental education with its organization Biologforbundet which was established again in 1971 to protect the environment and support the Danish biology teachers. Danish teachers are expected to lead environmental education intended to increase environmental awareness. Unlike environmental problems which are mostly having a technical solution (Ramsey and Hungerford, 1989), environmental issues are mostly debatable topics with no specific solutions (Schnack, 1995). So, environmental issues rather than the environmental problems are the focal point of environmental education. Danish primary and secondary school teachers used to have the freedom of choosing what and how to teach provided that their teaching practices are aligned with the state's curriculum. Beginning from preschools, Danish teachers have the opportunity to focus on environmental problems and raise environmental awareness of the students. As it is clearly stated in the document entitled "The Early Childhood Education and Care Policy in Denmark" raising environmental awareness is one of the objectives of Danish preschool education.

Culture and nature. Day-care facilities must also give children an opportunity to achieve a broad understanding of Danish culture, as well as a good understanding of other cultures they meet in daily life. In addition, it must be possible for children to acquire knowledge about and experience with fundamental aspects of the natural environment, the purpose being to increase their awareness of environmental matters (The Ministry of Social Affairs, 2000).

Located in forests or other natural settings, over ten percent of Danish preschools enjoy the positive school environment. Through outdoor activities that all the preschoolers take part in nature, those schools enable the children grow in nature (<http://denmark.dk/en/meet-the-danes/forest-preschools/>).

Developing action competence of the students have been the utmost importance in environmental education and improving critical thinking skills are regarded as an essential component of action competence approach to environmental education (Breiting and Mogensen 1999). Denmark is also well known of its MUVIN program launched in 1991. The program aimed at improving the teachers' environmental education skills and making environmental awareness a value for all the participant students (Breiting, Hedegaard et al. 2009). Danish teachers were empowered with ongoing in-service teacher training activities carried out to sharpen their pedagogical skills and provide them with the changes in the course contents. This form of environmental education lasted till the students started to get disappointing results in some of the international tests (Mejding et al. 2004). This was a turning point in Danish environmental education. The liberal teachers enthusiastic about the environmental issues concerned about the learning outcomes in their subjects and started to focus on subject matter teaching and the number of the schools curious about environmental education becomes less and less day by day (Breiting, Læssøe et al. 2009).

4. Environmental education in Sweden

Sweden has been one of the exemplary countries in environmental education. Environmental education has been given importance since the 1900s. The National School Plan of 1919 stressed the importance of education for protecting nature. Later in 1960s, the Nature Protection Agency was established in Sweden in 1967. The Swedish Ministry of the Environment favoring environmentally driven growth and welfare, assumed the responsibility of developing strategies for sustainable development. Furthermore environmental protection for growth is regarded as crucial to the achievement of sustainable development in Sweden. With its high environmental awareness rate and environmental protection standards Sweden sets a good example in the globe. As a leading country in environmental education, environmental work in schools and environmental education in the regions are supported to attain the Sweden's environmental objectives. Swedish National Preschool curriculum dictates respect for all living creatures and care for the surrounding environment. Just like Danish environmental education, Swedish environmental education puts strong emphasis on outdoor activities. Outdoor environmental activities makes up an important part of Swedish preschools and it provides the students with quality experiences (Ärlemalm-Hagsér, 2006).

With the intention of fostering environmental awareness and promoting an environmentally friendly approach Swedish Pedagogical Program for the preschools was adopted in 1987. Swedish preschool teachers play an important role in the implementation of the environmental education practices in schools all over the country. Preschool teachers in Sweden act as role models to change children's behaviors towards environment and environmental issues. Preschool teachers also design preschool environmental education activities in accordance with student input which acquired via the pupils' questions asked to the teachers.

As a concrete reflection of the importance given to environmental issues, Sweden also offers an award called "Award for Environmental School". This award has become "The Award for a

School for Sustainable Development” since the beginning of 2000s. As of 2008-2009 the number of preschools working for this award was 151.

5. Conclusion and recommendations

Environmental education is essential for the future of mankind and environmental issues should form the basis of the curricula especially in early childhood education. The early childhood is the most important period for establishing the foundations of environmental awareness and during this period the children should be regarded as the stakeholders of the learning process (Barratt-Hacking, Hacking & Scott, 2007). It is also essential to recognize the active participants and partners sharing the responsibility of the process in the local and global context.

Attitudes influence individuals' behaviors (Ramsy and Rickson, 1976). So attitude and value development should be an essential component of educational practices carried out in schools. As the above examples illustrate, the early childhood education influence children in such a way that the participants of this education acquire the values and develop responsibility and respect to societal issues. Hence this period is regarded as the most important period, environmental issues are naturally supposed to be the focal point in early childhood education and teacher training. Since environmental education and sustainable development are the two interrelated terms, a systematic approach to the development of curricula favoring environmental protection is needed. Denmark and Sweden are the two countries setting good examples in environmental education. Turkey needs to develop a more sensitive approach to teacher education and adopt a curriculum for young learners in such a way that subject matter pertaining to environmental issues is more and more visible in the new curricula. In order to achieve this end the following measures are recommended.

1. Providing the teachers with environmental knowledge and skills through teacher training curricula,
2. Carrying out continuous in-service-training for all teachers,
3. Implementing environmental awareness programs for all stakeholders,
4. Developing attractive and high-quality environmental education materials,
5. Assisting the practitioners implementing the designed program,
6. Defining clear-cut learning outcomes and educational practices designed to attain these goals,
7. Importing outdoor activities into school curricula,
8. Developing action competence and improving critical thinking skills,
9. Educating pupils as wise consumers of the limited resources,

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