

We are IntechOpen, the world's leading publisher of Open Access books Built by scientists, for scientists

6,900

Open access books available

185,000

International authors and editors

200M

Downloads

Our authors are among the

154

Countries delivered to

TOP 1%

most cited scientists

12.2%

Contributors from top 500 universities



WEB OF SCIENCE™

Selection of our books indexed in the Book Citation Index
in Web of Science™ Core Collection (BKCI)

Interested in publishing with us?
Contact book.department@intechopen.com

Numbers displayed above are based on latest data collected.
For more information visit www.intechopen.com



The Role of Environmental Education of New Curriculum in North Cyprus

Serife Gündüz and Mirati Erdoğan

Additional information is available at the end of the chapter

<http://dx.doi.org/10.5772/intechopen.71561>

Abstract

Environmental education is extremely important when it comes to protecting the environment and consequently life on Earth. Agenda 21, which is a big international agreement, has called for a “re-orientation” of all education toward sustainability. From this point of view, a project was launched in June 2015 with the purpose of developing new curricula in North Cyprus on environmental education. Through the development of innovative and technology-enhanced curriculum materials, the project aimed to empower awareness of Turkish Cypriot and teachers and students on issues pertaining to the environmental problems in North Cyprus. In the context of the project, curriculum materials were prepared and workshops were offered to teachers. By using a combination of face-to-face and online strategies, educators collaborated on developing and implementing projects and activities on environment and technology. Collaborating teachers provided an opportunity to work in teams to identify specific thematic units in the areas of environment that are critical for Turkish Cypriots and which will serve as the focus of the professional development program. During this project, five new curricula were prepared about environmental education and discussed with teachers.

Keywords: environmental education, North Cyprus, Turkish Cypriot, curriculum, ecology

1. Introduction

Environmental education is defined as the process that provides the development of environmental awareness in all sections of the society. This is mainly managed by raising individuals who are interested in environmental issues and making them actively participate in environmental activities as well as take responsibility on the protection of natural, historical and cultural values.

In the Turkish Cypriot community, environmental education in the curriculum fails to cover all the environmental issues sufficiently. For this reason, there is a need to a curriculum that would include all possible educational cases based on environment. However, there are some priorities that must be considered firstly which are declare in some conferences and tried to be taken into consideration by the government and municipalities because of the deteriorated situation. These major environmental trends and needs can be briefly mentioned as the waste management (recycling, reduce, reuse, compost), conservation of biodiversity (especially endemics) and ecosystems, rehabilitation of the Cyprus Mining Corporation (CMC), maintaining and, if possible, increasing the water quality and quantity, and lastly protecting the lands having environmental and agricultural importance.

Besides the increase in environmental problems, for the time being in Cyprus, there is only one subject in primary schools about environment “Environment and Traffic” and only traffic is being taught to the students in class. It is, therefore, clear that the lack of the environmental education in primary schools makes it more difficult to find a solution to the environmental problems, which approximately are caused by the negative and unconscious effects of human beings.

This research aims to provide information about environmental education in primary schools in North Cyprus and to help to develop an environmental education curriculum.

2. Historical overview of environmental education and the curriculum

The local curriculum for the Turkish Cypriot community can be divided into two main intervals as before the war and after the war. The period before war can also be divided into two intervals as mentioned below [1].

- English rule (1896–1959)
- Independence period (1960–1974)

During the first era of the English rule, one characteristic of environmental awareness was the introduction of the “School Garden” as a school subject. Although such a topic is not in complete alignment with contemporary view on environmental education, it was an interesting introduction to raising environmental awareness, something that was to be achieved within the school community and the physical space. During the independence period, the introduction of “Science” as a subject matter was another boost to environmental education.

3. Current status of environmental education

After the war, unfortunate, it was not possible to mention about an environmental education in the Turkish Cypriot community. Sometimes, environmental education was given under “Environment and Traffic,” and unfortunately, only traffic was taught in the class. Sometimes, this subject was also omitted from the curriculum. Nowadays, with the increasing pressure of the environmental problems, there are some studies trying to recur the environmental education and make it better.

The Ministry of Education has been replacing textbooks since the year 2004, and in this context, new units on environment have been added to textbooks. However, due to the fact that these new units were not sufficient, the preparation of the book "Environment and Mankind" for the ninth grades had become an issue and the book was prepared by a committee of six people and with the help of the Biologists Association. The textbook "Environment and Health" for the ninth grades were prepared both in the form of teacher's book and in the form of student's book and it will be included in the curriculum in February. The book "Environment and Mankind" includes units on healthy life and diseases, first aid methods, harmful addictions, sexuality and family, ecosystems, biological diversity, pollution and sustainable earth. Especially within the unit on environment, the biological diversity in Cyprus, the important ecological areas in Cyprus, general environmental problems in Cyprus and their possible solutions, the environmental responsibilities of Cyprus in the sustainable earth and both regional and international dimensions of alternative energy are explained thoroughly. Cyprus is the only island located between the three continents, namely Europe, Asia and Africa. The Cyprus Island with its pine, cypress and cedar shrouded mountains had been very rich in its natural resources, which inspired people to call it "The Green Island of the Mediterranean Sea." Today, remains of the true Mediterranean forest in Cyprus, mainly as a result of man's influence over many centuries, systematically cultivating and modifying much of the land, causing its degradation to maquis and garrigue, planting different vegetation types, creating habitations, terracing, groves and orchards. And so, now it is not possible to call it with same name.

The climate has favored the evolution of a correspondingly individual and extremely variable flora, largely dominated by evergreen trees and shrubs, often with tough leathery, dull green leaves. The richness of the flora can partly be explained by the uniqueness of the Mediterranean climate, favoring a great regional variation in certain groups of plants. Forest areas, plus the maquis areas, specific to the Mediterranean, are namely the backbone of any terrestrial ecosystem. The high maquis in Cyprus (grows as high as 4–5 m) includes the strawberry tree (*Arbutus andrachne*), oaks, junipers, Judas tree, olives, Aleppo pines, myrtle and fig tree. The low maquis (grows 1.5–2 m high) includes lentisk, rosemary, sage, *Cistus salvifolius*, *Cistus creticus*, *Cistus parviflorus* and so on. The *Cistus* maquis is a common characteristic of the low maquis of the island, and they are dominating large areas. In addition, Cyprus, being an island and thus isolated from the mainland, is rich in endemics, with a large number of variable species typical of the region. There are about 109 endemic plants in Cyprus in which 19 are endemic to North Cyprus which occur here and nowhere else in the world.

The North Cyprus endemics:

1. *Brassica hilarionis* Post
2. *Arabis cypria* Holmboe
3. *Silene fraudatrix* Meikle
4. *Dianthus cyprius* A. K. Jackson et Turrill
5. *Hedysarum cyprium* Boiss.
6. *Rosularia cypria* (Holmboe) Meikle

7. *Rosularia pallidiflora* (Holmboe) Meikle
8. *Sedum lampusae* (Kotschy) Boiss.
9. *Ferulago cypria* H. Wolf
10. *Pimpinella cypria* Boiss.
11. *Limonium albidum* ssp. *cyprium*
12. *Onosma caespitosum* Kotschy
13. *Origanum syriacum* var. *bevanii*
14. *Salvia veneris* Hedge
15. *Sideritis cypria* Post
16. *Phlomis cypria* var. *cypria*
17. *Scutellaria sibthorpii* (Benth.) Hal.
18. *Teucrium cyprium* ssp. *kyreniae*
19. *Delphinium caseyi* B. L. Burt

The above-mentioned endemics are mostly dense on the higher mountains, especially around the St. Hilarion and in the Karpaz Peninsula. Karpaz Peninsula is also well known with its old traditional buildings. In addition to these, the wonderful environment (with junipers, endemic plants, migratory birds and feral donkeys) of the area increases its importance. The Bay of Ronnas, declared as the fourth most important nesting beach in the whole of the Mediterranean for Marine Turtles during the first Mediterranean Conference on Marine Turtles held in Rome on 24-10-2001, is also found in Karpaz Peninsula. The dunes area of Ronnas Bay is probably the only place on the island where rosemary grows wild. The Karpaz Peninsula is a special area where the juniper predominates beyond the monastery of Apostolos Andreas into the Cape Andreas region. On the other hand, Klidhes Island is of outstanding importance for many migratory birds which rest, or pass the winter, mainly on the Karpaz Peninsula and along the northern range.

Despite to these beauties, unfortunately, there are a lot of environmental problems (mostly caused by the negative effects of human beings) threatening the life in Cyprus [2].

The major problems are summarized as follows:

1. Threats on the biodiversity (especially endemics) and ecosystems.
2. Waste problems.
3. Cyprus Mining Corporation (CMC).
4. Decreasing water quality and quantity.
5. Incorrect land use and so on.

For the time being in the world, environmental problems are rapidly increasing and it is not sensible to continue like this. Human beings cannot continue to consume and produce at the rate they are doing now, as human population continues to grow. As if there is only one world, the only way to escape from this chaos is to be more compatible with the natural environment which we are a part of and this may give a possibility to improve the quality of life.

In order to overcome these environmental problems and achieve economic, social and cultural development, one must not sacrifice the natural environment. To protect natural environment and to reach these goals, these are some suggestions that can be done in these areas: biosphere reserves, national parks, national protected areas, natural monuments, wildlife protected areas, migratory birds places and so on. It is therefore of paramount importance to pass a new legislation providing the legal basis for the protection of the natural environment with an increase pressure on the biodiversity and ecosystems. Eco tourism will help minimize the damages caused by the mass tourism, while increasing the overall tourism income, it will increase the number of tourists and the quality of the tourists.

However, legislations themselves are not necessary to achieve the desired aims and overcome the environmental problems. Thereafter, one of the most important ways of doing this is through environmental education. If human beings want to survive on the earth, every nation, government, school and teacher must make it a priority to create an environmental ethos within our educational institutions. An environmentally literate population must be developed to promote knowledge and responsible action dealing with sustainable use of natural resources. Education for environmental literacy must begin in early childhood and continue throughout the formal school experiences of students.

Therefore, the aim of the environmental education programs should be teaching about the nature and built environment provides a real-world context for learning by linking the classroom to the students' community. The students should be engaged in hands-on, active learning that increases their knowledge and awareness about the environment. The students should be well educated to develop critical thinking, problem-solving and effective decision-making skills. Environmentally literate students become citizens who are able to weigh various sides of an environmental issue and make responsible decisions as individuals and as members of their community.

In conclusion, it is therefore important to pass new (and hard) legislations to protect natural environment and increase the awareness of people by environmental education for a sustainable Cyprus.

4. Challenges

- Need for policy, curriculum and assessment reform.
- The deteriorated situation and lack of knowledge.
- Lack of time and support.
- Inadequate number of educated and well-informed teachers to teach these subjects.

5. Discussion and recommendations

Environment is the aggregate of all the conditions that support living things. Here, living things include human beings. The environment consists of both natural and human-made systems. The state of the natural environment ultimately determines the quality and survival of life on the Earth. For this reason, environmental education is so important to protect the environment and so our future. Therefore, the aim of the environmental education programs should be teaching about the nature and built environment, providing a real-world context by linking the classroom to the students' community. The students should be engaged in hands-on, active learning that increases their knowledge and awareness of the environment. The students should be well educated to become critical thinkers, problem-solvers and effective decision makers. Individuals who are well aware of the environment can evaluate environmental issues and make sound decisions. Therefore, students should be well educated in the environment to improve themselves and become protectors of human health and natural resources.

A well-prepared environmental education program should aim to:

1. Develop environmental education. It should be an interdisciplinary approach rather than a subject.
2. Urge individuals to use specific pedagogical theories and applications which develop respect for nature and human involvement in nature aiming at creating environmental ideas.
3. Insistently make individuals feel actively responsible for the whole environment.
4. Educate individuals in related issues to the natural world and all social systems in the environment
5. For global and regional development, we should critical thinking on environmental, political, economic, social and cultural things [3].

For the time being in the world, environmental problems are rapidly increasing and it is not sensible to continue like this. Human beings cannot continue to consume and produce at the rate they are doing now, as human population continues to grow. It is clear that the majority of the human populations on the Earth live below the poverty line and our environment is in a state of chaos, so much so, that some have called our manipulation of the environment as an irreversible human experiment [4]. As if there is only one world, the only way to escape from this chaos is to be more compatible with the natural environment, which we are a part of, and give a chance to improve the quality of life. Thereafter, one of the most important ways of doing this is through environmental education. If human beings want to survive on the Earth, every nation, government, school and teacher must make it a priority to create an environmental ethos within our educational institutions [5].

The birth of environmental education is due to the discovery of the negative effects of human beings on the environment. Mentioned below is the classical definition of environmental education by the reference [6] "Environmental education is recognizing values and clarifying concepts to develop skills and attitudes to help understand and appreciate the interaction

among people, their culture, and their biophysical surroundings. It also involves practice in decision-making and self-formulation of a code of behavior related to environmental quality."

The Earth Summit held in Rio de Janeiro, Brazil, from 3 to 14 June is an important date for environmental education. Environmental education and sustainability were brought to the forefront of global importance. This global conference, held on the 20th anniversary of the first International Conference on the Human Environment, "Stockholm 1972," brought together policy makers, diplomats, scientists, media personnel and nongovernmental organizations. A total of 172 governments participated in this conference where 108 were at the level of heads of state or government and representatives from 179 countries. The goal of the conference was to help governments rethink economic development and find ways to stop the destruction of irreplaceable natural resources and pollution of the planet. At the end of the conference, five basic documents were produced, namely Rio Declaration, Agenda 21, Forest Principles, Climate Change Convention and Biodiversity Convention. Agenda 21 explained nations' responsibilities in the twenty-first century for a sustainable development. Chapters in Agenda 21 had included suggestions for environmental education and sustainability, and Chapter 25 had suggestions on "Children and Youth in Sustainable Development" and Chapter 36 on "Promoting Education, Public Awareness and Training."

The European Union's environment policy has developed over the last two decades, and environmental education can be considered to be a part of its effective implementation. The resolution adopted by the Council of Ministers in 1988 explains the role of education in increasing awareness of the problems in the environment and suggests possible solutions and well awareness and active individual efforts to protect the environment and careful and reasonable use of natural resources.

[7] stated that, besides environmental knowledge, values, ethics, attitudes and behaviors added to the programs provide the teachers with environmental education which may not be included in any other parts of the programs. In terms of policy recommendations, it is clear that there are points of convergence and divergence in relation to environmental education across the European Union—particularly in the way in which it is embedded across the curriculum and in terms of the tendency for it to address values, ethics, attitudes and behavior.

Nowadays, a new concept "Sustainable development" has started to be used widely in all over the world. The Brundtland Commission defined it as "development that meets the needs of the present without compromising the ability of the future to meet its own needs [8]." Thereafter, education on sustainability and sustainable development is a part of the formal understanding of what environmental education is and what it is about [9].

Here, the most important question is: "How should Environmental Education be implemented and presented to students?"

To reach this goal, the curriculum should aim to equip students with knowledge and abilities that would foster the development of an environmental ethos. The best way to do so is to integrate environmental education into every subject taught in schools, from chemistry to social studies. This is one of the two ways and may be the best and the most difficult at the same time. The other way is to incorporate environmental education into the school system as a different discipline [10].

In this case, the first way is seen as the best, because it brings together environmental education with other disciplines in the classroom and integrates environmental education into the programs with all other subjects to create environmental ethic in the same line of how ethic and democracy were taught in a particular way [11]. However, for the situation in Turkish Cypriot community, there is not a discipline with the name of environmental education and by being realistic it is very difficult to integrate environmental education into the curricula of all other subjects. But, the same situation (having no environmental education discipline) can be accepted as a chance that the discipline would be newly prepared and well constructed. Therefore, first of all, it would be better to incorporate environmental education into the curricula as a different discipline (for Turkish Cypriot community) and then try to integrate it into every subject.

For the question “how to present it to the students,” the answer is difficult, because every teacher has his/her own unique way of teaching, but in terms of education way, the answer is easy presentation should aim to make the students love and protect their environment by teaching all the facts and relating children to nature as a source of wonder, joy and awe rather than books and words. For this reason, teachers should encourage students to discuss and make dialogs. Another important way is having the lessons outdoors. What is **learnt inside** the classroom about environmental education needs to be reinforced and supported by what happens outside the classroom. Sometimes even the classroom itself can be transferred to another location to enhance students’ learning about environmental education. This manner of environmental education and integration can foster the development of a student’s esthetic appreciation for the environment, which is an important step in the creation of environmental ethos. The teachers should create a relationship between the child and the environment. The discussion of the current environmental problems with young students may cause the children to be hopeless. In this case, if it is necessary to discuss environmental problems with the students, it would be very helpful to mention about the solution of the environmental problems and convince children that it is not very difficult to overcome such problems and “only believing and starting the action is a problem.”

According to the “Environmental Education Policy for Schools” prepared by the NSW Department of Education and Training in 2001, the objectives of the curriculum should provide students with:

1. Knowledge and understanding of the nature and the function of ecosystems and their interaction, how the environment is treated by people, the role of the community, politics and market forces in making environmental decisions, the principles to sustain ecological sustainability and job opportunities related to the environment.
2. Technical skills in environmental context, identify, assess and communicate environmental problems, solve environmental problems, develop behaviors and practice to protect the environment and evaluate their achievements.
3. Values and attitudes to respect life, appreciate their cultural heritage and feel obliged to show effort for the environment by supporting long-term solutions to environmental problems.

Author details

Serife Gündüz and Mirati Erdoğan*

*Address all correspondence to: miratierdogus@hotmail.com

Atatürk Faculty of Education, Near East University, Nicosia, North Cyprus

References

- [1] Cardet. Curriculum and Needs Review for the Greek Cypriot Community. 2006
- [2] Viney DE. An illustrated flora of North Cyprus. An Essential Guide to the Wild Flowers of the Eastern Mediterranean. Jan 2011;1:697. ISBN-13: 9783906166865
- [3] Gündüz Ş. Environmental Consciousness and Education Levels of Elementary Grade 4 and Grade 5. Students in Turkish Republics of Northern Cyprus. Eurasian Journal of Educational Research. 2013;53(A):313-326
- [4] Caldeira K, Jain AK, Hoffert MI. Climate sensitivity uncertainty and the need for energy without CO₂ emission. Science. 2003;299(5615):2052-2054
- [5] Gündüz Ş, Bilir A. The study of attitude of students in northern Cyprus environmental education and water conservation. Hacettepe University Journal of Education. 2012;(Special Issue (1)):225-232
- [6] IUCN. International Working Meeting on Environmental Education in the School Curriculum, Final Report. Gland, Switzerland: IUCN; September 1970. p. 1970
- [7] Stokes E, Edge A, West A. Synthesis Report: Environmental Education in the Educational Systems of the European Union. Centre for Educational Research, London School of Economics and Political Science. 2001. p. 31
- [8] WCED. The Brundtland Report. Report of the World Commission on Environment and Development, forth-second session of UN, Agenda item 83 (e), 04-08-1987, p. 318
- [9] IIEP. Guidance for Planning Education in Emergencies and Reconstruction, Chapter 23: Environmental Education, Stage 5: Curriculum and Learning. Published by the International Institute for Educational Planning, 7-9 rue Eugene Delacroix, 75116 Paris. 2006. p. 15. ISBN: 92-803-1288-X
- [10] NSW Department of Education and Training. Environmental Education Policy for Schools, DET Sales, PO Box 218, Bankstown NSW 2200. 2001. p. 23. ISBN: 0 7313 7019 8
- [11] Mappin M, Johnson E. Changing perspectives of ecology and education in environmental education. In: Johnson E, Mappin M, editors. Environmental Education and Advocacy: Changing perspectives of ecology and Education. Cambridge: Cambridge University Press; 2005. p. 1-28

