

# Environmental summer camp in a Greek Island

S. Apostolopoulou<sup>1</sup>, G. Grigoroglou<sup>1\*</sup>, M. Karamperis<sup>1</sup>, C. Skanavis<sup>1</sup>, A. Kounani<sup>1</sup>

<sup>1</sup>Department of Environment, University of the Aegean, University Hill, 81100, Mytilene, Greece

\*Corresponding author: E-mail: env12061@env.aegean.gr, Tel +30 22510 36234, Fax: +302251036234

## Abstract

Nowadays, many researchers have proved that environmental summer camps could help children to become acquainted with nature and develop environmental values. This paper aims into analyzing a comprehensive thirty-day environmental summer camp- its operations and effectiveness in promoting responsible citizenship behavior. The instructional program is aimed at children between 6 to 13 years old, residing on Greek islands. This review examines an environmental summer camp on the island of Skyros, as a case study. The study incorporates participant survey data; interviews will be conducted with the attendees. The change of knowledge and environmental awareness, prior to and at completion of this summer camp, will be assessed. The goal of this project is to develop an environmental educational program that would be delivered as a summer camp and design the evaluation tools that would assess its effectiveness into shaping children's environmental behaviors.

*Keywords: Environmental summer camp, Skyros Island, Greece.*

## 1. INTRODUCTION

Since the 18th century the relationship between nature and man has changed its core, as humans and technological innovations have been in obvious contrast as far as what is acceptable to waste or use from energy resources. Nowadays, the natural environment is used as a deposit of wastes for the satisfaction of the ever-growing human needs. Therefore, the first signs of the modern ecological crisis can be observed [1].

As long as the environmental degradation of the planet continues to be an issue, the quality of human life is bound to deteriorate [2]. The need for radical change in the relationship between nature and man is now imperative. Furthermore as the capitalistic/consumer theory spreads over the world, we are now facing the crucial point where superficial and temporary solutions will not be enough to fix the ecological crisis to its root. According to Sterling (1996) [3] education is not just part of the solution, but it's also a big part of the problem. Also Sterling tried to bring to light the complications and problems that can be caused due to lack of the education.

If real sustainability is to become increasingly meaningful and mainstream, rather than devalued and marginalized, education in all forms and in all sectors has a vital role to play. But this requires fundamental change in education.

### 1.1 Forms of education and their role

Today, education is provided in three different interdependent forms: formal education, non- formal education and informal education. Formal education takes place within the formal education system (kindergarten, school, university and other schools) and leads to certified knowledge according to the educational grade the participants are at. Informal education refers to lifelong learning with which a person acquires attitudes, values, skills and knowledge through everyday experience and through the educational influence of their environment. Finally, non-formal education refers to every organized educational process that takes place outside of the formal system and functions as a part of a bigger process that aims to achieve certain learning goals and educational objectives [2].

## **1.2 Environmental education (EE)**

According to the definition, given by UNESCO in 1978 at the Conference in Tbilisi, environmental education (EE) is the process of shaping a global population, which should be informed, interested in the environment and its issues, and have the knowledge, skills, attitude and will to work, as much alone as collectively, on solving the current environmental issues and preventing the appearance of new ones [4].

In order to achieve a satisfying deepening in environmental education, it is necessary to connect it to all three forms of education. Formal EE is being developed solely within the confines of the educational system (infant, primary, secondary and higher education) and is defined by the obligatory presence of the parties involved placed in learning groups according to their characteristics, such as age and level of education [2]. On the other hand, informal EE is a form of lifelong learning. During this process people come in contact with the process, clearly voluntarily, purely by their own choice. Informal EE is not confined by time or space and includes the transmission of environmental information through the media, the internet and all social contacts. Very often we use the term environmental communication [2].

Finally, non-formal environmental education, which is what we will focus on most in this paper, is the kind of intentional education that aims to developing environmental skills and attitudes, as well as, environmental ethos [5]. The main pillar of non formal EE, is the interpretation of our heritage. According to Freeman Tilden, father and creator of the interpretation of our heritage, "Heritage Interpretation" is an educational activity, which aims to reveal meanings and relationships through the actual use of the surrounding environment, by firsthand experience and by illustrative media, rather than simply to communicate factual information [6]. It is important to note that in order to complete EE successfully the aforementioned three views would have to be combined.

## **1.3 Responsible environmental behavior**

By promoting responsible environmental behavior, we can develop the bases for the active participation of citizens of each local society in environmental issues. By the term active participation, we refer to the participation of citizens in the process of decision-making concerning such issues. It must be noted that in order to drive citizens into active decision-making participation, they need to have an informed opinion on the environmental issue of concern, something that can only be achieved which could be achieved with proper environmental education/ briefing [2].

Environmental concern and the resulting environmentally responsible behavior are affected by a complex interaction of attitudes, beliefs and socio-demographic variables. In an effort to detect, which characteristics make citizens participate in the protection and restoration of the environment, several researchers have attempted to develop models and techniques for assessing responsible environmental behavior and have shown how a behavioral manipulation of many variables can result in people's participation in desirable environmental behaviors [7].

The greatest challenge for environmental education is to create, educate and activate motivated, conscious and committed students who behave in a consistently pro-environmental manner. The education about the environment aims not only to increase educational knowledge of the individuals but also to translate the positive attitudes about the environment into successful behavioral characteristics [7]. A knowledgeable, skilled and environmentally active citizenry is vital in resolving the environmental issues our planet is facing. Since most environmental issues are surrounded by great ubiquity, reaching a solution is difficult. Environmental literacy does not just happen, it requires a united effort by all those concerned with education to use all relevant information in order to develop and deliver the right programs and materials to those who are trying to influence through environmental behavior tactics [8].

#### **1.4 Active participation**

Living in a democratic country everyone has the power to decide on issues affecting the quality of his life, meaning that he has the right to influence the decisions connected to his everyday life. Regarding the decision-making processes on environmental issues public participation seems to have the greater significance of all [9].

Since 1969 the participation in environmental decision-making has been a part of the national agenda National Environment Policy Act (NEPA) in the United States. Subsequently, through international forums, such as the United Nations and the World Bank, the movement to involve citizens in environmental policy has spread to other countries as well. Simultaneously, an increasing focus on matters of public participation had been led by controversies over a wide variety of environmental issues, like natural resources management, land use, environmental justice and climate change. The goal of participation is to improve the quality, legitimacy, and capacity of environmental assessments and decisions [10].

Therefore, it is becoming perceptible that the active participation of citizens in the environmental issues of concern is the best way to deal with arising problems. Every citizen can participate on the protection of the environment, individually or in groups, through organizations either with a well-structured legislative frame or without one [2,11]. Also the participation gives the right of opposition in any decision and especially if it has been taken in the bodies of relevant administration. A governmental decision is not legalized and successfully enforced without the support of citizens. However, when citizens do not react in the decisions that do not agree with, it is recorded as a silent approval of the decision in question [2].

#### **1.5 Outdoor environmental education**

Increasing environmental knowledge level, promoting favorable environmental attitude, enforcing environmental awareness, changing environmental behavior, supporting active participation in the solution of environmental problems etc., are varied outputs, named as 'elements of environmental literacy', that bring about different approaches in environmental education [12,13,14,15,16,17].

Outdoor Environmental Education (OEE) is one of the ways of succeeding environmental literacy [12,18]. Within OEE, the natural environment is used as real conditions hands on laboratory. It has been found that nature-based outdoor education programs are effectively improving environmental awareness and sensitivity towards the natural environment. The OEE is supported by the Environmental Education and Training Partnership and is not just a fun type of program, but it is based on solid educational structure and concrete theory [12].

Recently outdoor education has become an important teaching method in order to increase environmental awareness. OEE focuses on first hand experiences outside the classroom walls, with the aim of achieving better understanding of complex environmental relationships and sustainable development. Having knowledge and being aware of environmental problems are important skills in order to understand the complex environmental relationship [19].

#### **1.6 Environmental education in Greece**

In Greece formal environmental education in the mandatory grades of education (primary and secondary) hasn't fully reached the desired results on a responsible environmental behavior of participating students.

In summer of 2015, an environmental campaign program was designed and delivered at the island of Skyros, from the Research Center of Environmental Communication and Education, of the Department of Environment at the University of the Aegean. During its first year operation, an

environmental camp for children was also offered to the local community children. The project was known as SKYROS 2015 and it is going to be repeated this summer as well as SKYROS 2016 project.

The purpose of this paper is to analyze the operation set up and the effectiveness in promoting responsible citizenship behavior, of a thirty day environmental summer camp on the island of Skyros under the project SKYROS 2016. In addition to this, it is going to assess the change of knowledge and environmental awareness, prior to and at completion of this summer camp. The main goal of this project is to develop an environmental educational program that could be delivered as a summer camp. In the objectives is to also design the evaluation tools that would assess its effectiveness into shaping children's environmental behaviors.

## **2. CASE STUDY: PROJECT SKYROS 2016**

The Project "Skyros 2016" following the footsteps of the prior year's similar and multi awarded program is based on a successful cooperation between two governmental organizations, the University of the Aegean and the Skyros Port Fund. The geographic area that talks place is at the Linaria Port of Skyros Island, a boutique port that has been assessed as the best one of its category in Greece.

This year's program, Skyros 2016, similar to the last year's one, consists of a group of researchers from the Research Center of Environmental Communication and Education of the University of the Aegean, that aims to best implement a comprehensive environmental campaign focusing at disseminating information and raising environmental awareness. It includes environmental campaigns targeted at citizens, tourists, boat passengers and children, providing printed information about the biodiversity of Skyros. A Tourism Observatory has been set-up as well as an environmental camp. The environmental activities include overseeing that the Linaria Port is clean and well taken care of. Various outdoor activities in collaboration with the Port Fund of Skyros are going to be organized in order to attract residents and visitors environmental interest.

### **2.1 Environmental summer camp**

Based on a well-prepared schedule, children are going to be confronted with various environmental issues during the 6 weeks that the summer camp will last. Firstly they are going to be introduced to the unique environmental treasure of the island of Skyros, namely its biodiversity, the flora and fauna of the region, the endangered species and some of the environmental problems that the island is facing. Then they are going to learn about global environmental issues, such as food chain, biodiversity concerns, water cycle, water pollution, air pollution, endangered species, climate change, greenhouse effect, forests, forest fires, natural disasters, floods, droughts, earthquakes, litter, energy, renewable energy, non-renewable energy, recycling etc.

## **3. METHODOLOGY**

The research area is the island of Skyros, and specifically the port of Linaria. The small tourist port of Linaria is considered a key port, with a high tourist interest. In the last ten years, it has generated lots of attention and is presented as the most complete and friendly public port in the country, with arrivals in the tourist haven, showing an increase of 479% [20].

The tourist port of Linaria has adopted a new way of sustainable approach to the management of its environmental impact, without spending lot of its limited financial resources [20, 21]. For its adoption of strict environmental standards, the Linaria Port has been awarded a silver award in the Management of Solid and Liquid Waste. Also, a series of innovative measures, such as the establishment, construction and waterways, the use of electric bicycles and the collaboration with

the University of the Aegean, resulted in intense public interest in the innovative activities of the small port of Linaria, at Skyros Island, increasing this way the environmental support from citizens [20].

The research sample will be local children, aged 6 to 12 years old. The data will be collected through personal interviews with each child individually. The interviews will be held before the camp starts and after its end. Two questionnaires tailored to the specific needs have been put together in order to address and assess the understanding of environmental issues. The participants' attitudes and environmental behavior would also be evaluated.

Questionnaire number one is composed of 58 questions. They were selected after an extensive literature search [22,23,24,25,26,27]. The first 4 questions inquire demographics information (e.g. gender, age, educational class). The next 30 questions will assess the children's knowledge on local environmental issues, such as local biodiversity, endangered species of their region etc., and global environmental issues as well, such as climate change, global warming, greenhouse effect, air pollution, biodiversity, water cycle, extinct species, endangered species etc. Subsequently, the next 16 questions are going to assess whether or not children have environmental friendly attitude and the last 8 questions are going to give some data about their environmental behavior and their willingness to participate in activities to protect the environment or to influence the decision-makers.

The final questionnaire consists of 66 questions [22,23,24,25,26,27]. The first 5 of them will be about demographics' information (e.g. gender, age, educational class). The next 29 questions are going to assess the changes on children's knowledge on local environmental issues, such as local biodiversity, endangered species of their region etc., and global environmental issues as well, such as climate change, global warming, greenhouse phenomenon, air pollution, biodiversity, water cycle, extinct species, endangered species etc., after the participation to the summer camp and the rest 20 questions are going to evaluate the changes on their attitude. The last 12 questions are going to give data about the changes on children's environmental behavior.

Some of the teaching methods that are going to be used are lecture, brainstorming, simulation and modeling, outdoor education, field study, environmental walks and field games. This project anticipates favorable results on children's knowledge, attitudes and environmental behavior.

So, children will hopefully turn into active citizens and will eventually participate as adults in the environmental decision-making processes. They will get to rethink their preexisting views and behavior with different criteria and only then they will fully understand the environmental issues of concern [28].

Participating children will get involved in activities that will take place, preferably, outdoors, where learning is more fun and tangible, since there is a direct connection to nature. Field study, environmental walks and field games are three ways through which children will come in touch with nature. During field study, children aim to observe, calculate, analyze process and interpret the elements they gather, present their results, express their opinions and suggest actions in order to solve the problem or issues that they are studying [29].

With Field games children are going to learn how to play outdoors and experience an adventure. Also they will learn how to research and how not to lose their interest through nature. Additionally they will be taught how to interact with each other. All these ways will help them create a beautiful relationship with nature, with a higher desire for active participation in environmental issues [30].

#### **4. DISCUSSION AND CONCLUSIONS**

The environmental summer camp of the project Skyros 2016 is a way to deepen in some important environmental issues that the planet is facing and to channel them to children. Through the project “Skyros 2016” and especially through the environmental camp, it is aimed to sharpen the children’s’ curiosity over the way the environment functions, by supporting activities tailored to:

- Transmit and foster environmental knowledge at a young age;
- Motivate to solve environmental issues;
- Increase active environmental participation at their port of Linaria, and the rest of the Island;
- Understand potential environmental consequences due to their acts;
- Come in touch with nature through all their senses.

All the activities will aim to support everyone to understand the importance of the interactive relationship between man, natural and social environment. The priorities have to do with promotion of an environmentally ethical code of behavior. The ultimate goal is to give everyone the right of environmental choice through the responsibility of rightful participation.

One of the objectives of project “Skyros 2016” is to give the spark for the creation of a new society, environmentally conscious and responsible for its acts. An environmentally sensitive society is one that has knowledge and skills to solve environmental problems. This project is an effort to make children comprehend that they are part of nature’s ecosystem. Therefore loving and protecting the environment means that they respect their own life. The process of learning is a life long process that should never stop or be interrupted for no reason [31].

## References

1. Aivazidi M., 2004. Research of knowledge and attitudes of environmental educators of West Attica referring the environment. Athens: Athens University of Economics, Statistics Department, Athens (in Greek).
2. Skanavis C., 2004, *Environment and Community*, 1<sup>st</sup> Edition, Published by Kalidoskopio, Athens.
3. Sterling S., Cooper G., 1992. *In Touch: Environmental Education for Europe*, WWF HB
4. UNESCO, 1978. *The Tbilisi Declaration Intergovernmental Conference on Environmental Education*. 14 - 26 October.
5. Tahir F., 1997. *Adult education and the environment in Pakistan*
6. Tilden F., 1977. *Interpreting Our Heritage*, 3rd Edition. University of North Carolina Press, Chapel Hill. USA.
7. Arslan S., 2012. The Influence of Environment Education on Critical Thinking and Environmental Attitude. *Procedia - Social and Behavioral Sciences*, **55**, 902–909.
8. Skanavis C., Matsinos G.Y., Petreniti V., 2004. Environmental education potential for Greek ecotourism, *International Journal of Environmental Studies*, **61(6)**, 735-745.
9. Kiss G., 2014. Why Should the Public Participate in Environmental Decision-Making? Theoretical Arguments for Public Participation, *Periodica Polytechnica*, **22(1)**, 13-20.
10. Karakitapolu E.B., 2015. *Public participation in EIA process of small hydro power plants (HES) in Turkey*, Swedish University of Agricultural Sciences, Department of Urban and Rural Development, Master’s Thesis, 30 HEC, Environmental Communication and Management- Master’s Programme, Uppsala
11. Pollaki S. P., Skanavis C., 2015, Environmental Education in Action: The Case Study of WWF “School Program” in Greece, Innovation in Environmental Education: ICT and intergenerational Learning, *International Conference Proceedings*, 24- 25September 2015 Firenze, Italy.
12. Okur-Berberoglu E., Ozdilek H.G., Yalcin- Ozdilek S., Eryaman M. Y., 2014. The Short Term Effectiveness of an Outdoor Environmental Education on Environmental Awareness

- and Sensitivity of In-service Teachers, *International Electronic Journal of Environmental Education*, **5 (1)**, 1-20.
13. Stevenson R. B., 2007. Schooling and environmental education: Contradictions in purpose and practice. *Environmental Education Research*, **13(2)**, 139-153.
  14. Storksdieck M., Ellenbogen K., Heimlich J. E., 2005. Changing minds? Reassessing outcomes in free-choice environmental education. *Environmental Education Research*, **11(3)**, 353-369.
  15. Hadlock T. D., Beckwith J. A., 2002. Providing Incentives for Endangered Species Recovery. *Human Dimensions of Wildlife*, **7(3)**, 197-213.
  16. Kassas M., 2002. Environmental Education: Biodiversity. *The Environmentalist*, **22(4)**, 345-351.
  17. Dori Y. J., Herscovitz O., 1999. Question-posing capability as an alternative evaluation method: analysis of an environmental case study. *Journal of Research in Science Education*, **36 (4)**, 411- 430.
  18. Ford P., 1986. *Outdoor education: Definition and philosophy*. ERIC Publications; ERIC Digests in Full Text ERIC Clearing house. <http://www.eric.ed.gov/PDFS/ED267941.pdf>.
  19. Okur-Berberoglu E., Yalcin- Ozdilek S., Eryaman M. Y., Uygun S., Edizer Z. C., 2013. Effectiveness of an Ecopedagogy Based Outdoor Environmental Education Program on Environmental Awareness: Canakkale (Gallipoli), *International Journal for Research and Development in Environmental Education*, **2(2)**, 1-16.
  20. Antonopoulos K., Skanavis C., Plaka V., 2015, Exploiting further potential of Linaria Port-Skyros: From Vision to Realization, Conference Paper: *First Hellenic Conference on Marinas*, January 2015 At Athens, Greece (in Greek).
  21. Kuznetsov A., Dinwoodie J., Gibbs D., Sansom M., Knowles H., 2015. Towards a sustainability management system for smaller ports. *Marine Policy*, **54**, 59-68.
  22. Murphy T., 2004. *A survey of adult environmental knowledge, attitudes and behavior*. Minnesota Report Card on Environmental Literacy, Minnesota Office of Environmental Assistance, p.94.
  23. Alaydin E., Demirel G., Altin S., Altin A., 2014. Environmental Knowledge of Primary School Students: Zonguldak (Turkey) Example, *Procedia - Social and Behavioral Sciences*, **141**, 1150 – 115.
  24. [http://kpe-kastor.kas.sch.gr/climate\\_change/index.htm](http://kpe-kastor.kas.sch.gr/climate_change/index.htm) (Environmental Education Center of Kastoria, 2016, 99 Questions on Climate Change and Related Issues, Accessed March 1<sup>st</sup>, 2016)
  25. <http://2gym-evosm.thess.sch.gr/drupal/?q=el/node/185> (2nd Highschool of Evosmos, 2011, Questionnaire for the Environment, Accessed: March 1<sup>st</sup>, 2016)
  26. Simpson B., 1998, Environmental Awareness Survey, *Global Issues in Language Education*, **30**, 12 - 14 [reprinted by permission from Green Teacher Magazine, Issue 27 (p. 10)], Available at: <http://gilesig.org/30Sur.htm>
  27. Mrema K., 2008, An assessment of students' environmental attitudes and behaviors and the effectiveness of their school recycling programs, Dalhousie University, School of Resource and Environmental Studies, Halifax, NS, p.54 Available at: [http://www.dal.ca/content/dam/dalhousie/pdf/science/environmental-science-program/Honours%20Theses/Karen\\_Mrema.pdf](http://www.dal.ca/content/dam/dalhousie/pdf/science/environmental-science-program/Honours%20Theses/Karen_Mrema.pdf), accessed March 1<sup>st</sup>, 2016.
  28. Georgopoulos A., Tsaliki E., 1993. *Environmental Education. Principles-Philosophy, Methodology, Games and Exercises*. Gutenberg, Athens. (in Greek)
  29. Marcinkowski T.J., Volk T.L., Hungerford H.R., 1990. *An Environmental Education Approach to the Training of Middle Level Teachers: A Prototype Programme*, UNESCO: 178.

30. Zachariou A., Georgiou W., 2012. *Guide Programme Implemetation Studies Environmental Training-Education For Sustainable Development For Teachers of Primary Level.*
31. Habibe A, 2014. Learning Environments for Children in Outdoor Spaces .*Procedia - Social and Behavioral Sciences*, **141**, 846 – 853