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Environmental Education Centers and Local Communities: A Case Study

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Abstract

The International Community has designated the “Sustainable Development” as a central issue for the future of humanity. Unesco has named the decade 2005-2014 as the decade for the “Education for the Sustainable Development”. It has also engaged with the promotion of this project in order to “...integrate the values and practices of sustainable development to all the forms of education”. The Environmental Education Centres (EEC) were created during the past twenty years and they emerged from the growing interest in the issue of Environmental Education. Of course, the places where EEC are created are places of rich natural resources. The institution of EEC is highly connected to the environmental movement and it is internationally considered one of the most important factors of extra curriculum education. The Environmental Education Centres are encouraged to cooperate with the citizens in decision-making [2]. They are also encouraged to connect with the lifelong learning, the traditional learning, the local administration and the production units in the appropriate places and with the appropriate members, in order to become an effective structure of Education for Sustainable Development [6]. They can influence the local communities and create an environmental friendly situation. In 2013, at the place Meliti in the prefecture of Florina, an empirical research was carried out in order to explore the role of an Environmental Center in distant areas. The research shows that the operation of Environmental Education Centres influences the students and the local communities, especially when the centre operates in peripheral and disadvantaged areas. The EEC Melitis has a positive impact on the local community. It brings profit to local community, to local businesses (coffee shops, restaurants, ect.), it empowers the local pride, it makes children familiar with the natural and economic identity of their area and with their parents’ professions. Most importantly, the children are being environmentally informed and they can evolve into future protectors of sustainability.

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1. Introduction

Lifelong learning and adult learning are some of the main characteristics of Education for Sustainable Development ([4], [1]). In this context, the activities of an EEC should develop in a more expanded and complete way so as to include environmental, economic and social issues that address a wider audience. This expansion should be supported on the concept of social learning. Social learning is a particular kind of learning that can possibly contribute to the realization of a society of learning that is the key ingredient of sustainability. There is no sustainability where there is no learning [5]. Social learning is an important tool that needs to be exploited in order to bring sustainability in the communities.

The concept of social learning refers to learning processes that bring people with different backgrounds together. People with different values, learning perspectives and experiences [7]. The aim of this learning process is for the participants to commit themselves to a creational pursuit of answers to problems that have no obvious or ready solutions.

The purpose of social learning is to motivate people reflect upon hypothesis and frames of reference, trying to create new perspectives and design new forms of actions [7]. Thus, what is important is the collective process and evaluation of the knowledge that a society of learning produces.

The meaning from social learning emerges from all the people that participate. Differentiation is social learning is an advantage and pluralism is the basic value. The creation of the appropriate climate of trust, acceptance, respect and consistency is a necessary element for the existence of social learning. The “chemistry” that is developed between the people that participate in social learning is the “social capital” [7].

The Environmental Education Centres were created during the past twenty years and they emerged from the growing interest in the issue of Environmental Education. Of course, the places where EEC are created are places of rich natural resources. The institution of EEC is highly connected to the environmental movement and it is internationally considered one of the most important factors of extra curriculum education.

In Greece, the institution of the Environmental Education Centres was introduced in 1993 [3]. Up until now the EEC are operating in a specific institutional framework and their objectives are:

1. Make young people sensitive to environmental issues and environmentally responsible through educational programs.
2. Further educate the educational community on Environmental issues through seminars.
3. Educate and sensitize the local community for local, environmental and social issues through educational meetings.
4. Cooperate with different organizations (scientific institutions from Greece or abroad, NGO, schools ect.) and with members for the web itself.
5. Produce educational material in order to support the programs.

The activities of the EEC mainly concern the student and the educators’ community and they include educational programs and informational seminars. The activities that concern the local community are usually restricted in educational meetings.

2. The region of the case study

The region of the former Municipality of Meliti now consists of the following provinces: Ahlada, Vevi, Itea, Lofoi, Neohoraki, Palestra, Papagiannis, Sitaria, Skopos, Tripotamos. The population of the Municipality is 7120 people and it covers 269.477 acres. The region of the Municipality is mainly lowland and partly highland until Skopos.

A percentage of the inhabitants are cultivating the land (the area between Sitaria and Vevi used to be a big estate during the Ottoman rule). Others are working on animal husbandry and apiculture. The place hosts many beehives.

The subsoil ground is rich in lignite. The lignite mines of Ahlada and Vevi employ a large amount of people. The construction of the steam-electric unit is an important investment for the area but it has negative impact on the environment. The emissions of carbon from the lignite unit of Melitis (Florina) were 1.955.721 in 2005.

In the borders of the Municipality there is the Industrial area of Florina where entrepreneurial units of the secondary sector, units that alter cultural products and the Centre of Transitional Trade are located. The forests of the area are very significant natural resources of ecological and aesthetic value.

3. The Environmental Education Centre Melitis

The EEC Melitis was founded in 2003 and was staffed in January 2004. It is funded by the Ministry of Education, Lifelong Learning and Religious Affairs and by the Co-financed Development Programs. It is housed in Vevi. Among other, the centre accepts schools of the primary and secondary education. 70% of them are from the neighbour prefectures and the others are from the rest of Greece. What is more, the centre organizes seminars-meetings on environment (local, national and international). The pedagogical team is comprised by teachers from the primary and secondary education.

The purposes and targets are:

- Information and sensitization of students, educators and other social groups.
- Understanding of the problems that emerge from the relationship between humans and the natural or structured environment.
- Find solutions regarding sustainability.
- Development of a responsible standpoint and attitude and understanding of one's personal and collective responsibility.

More particularly, the most important objective of the program is to make the students capable of understanding the value of the water ecosystem and the particularity of sour water as a natural resource. It is also crucial for the students to adopt a positive attitude towards the environmental issues.

The educational programs developed by the EEC Melitis are:

Program: "The treasure was... carbon!"

Program: "A journey to the land of the lignite mines"

Program: "A journey to the Land of the Lakes"

Program: "The school goes to the Lakes"

Program: "Water... with a taste!"

Program: "The routes of the water in the basin of Pelagonia"

In the context of the Long life learning for Adults, the EEC Melitis introduced three projects (from March until June). The projects were developed in cooperation with the School of Visual and Applied Arts in Florina, University of Western Macedonia and with the State Primary schools and High schools of the prefecture of Florina. The theme was: "Artistic Recycling".

The objectives of the project "Artistic Recycling" are multiple:

Educational objective: the students realize the artistic value that lies with every material, even those that seem worthless.

Education of teachers: teachers learn how to use recycling material in the process of education.

Cultivation of ecologic conscience: the participants (students, teachers, educators) work hard in order to improve the environment of their cities and consequently their quality of life.

Development of the sense of social responsibility: the collective process of making art, cleaning the river Sakouleva makes the participants realize the importance and the dynamic of team work and social responsibility.

The first action and beginning of the project was the organization of a meeting-laboratory for 20 students from the School of Visual and Applied Arts and 30 professors from primary and secondary education, especially teachers of art and other specialties as well. The aim was to familiarize the educators with the techniques and methods of artistic utilization of everyday and already used materials. This activity helped to promote the idea of creative recycling, waste reduction and finally to form an ecological conscience.

During the second action the educators and the college student were given the methodology and are ready now to transfer it to their students from the primary and high schools of the prefecture of Florina. The students learn how to be creative using old materials or changing the utility of new ones.

Finally, the third action took place on the day of Environment (5th July) and it was an exposition of the artworks that were produced during the second action by the river of Florina.

At the same day another activity took place, "The treasures of the river". Members of the EEC Melitis, students from the School of Visual and Applied Arts, educators and students from the participant schools participated in this activity. The activity was to clean a part of the river Sakoulevas and the creating of a piece of art using the waste found in the river. The aim of the activity was to embrace the whole city. Sakoulevas is the backbone of the city. This process relieved the river from all the burden of the concentrated waste.

Finally, the EEC Melitis was released a number of significant publications, which are electronically available.

4. The empirical research

4.1. The methodology of the research

In 2013, at Meliti in the prefecture of Florina, an empirical research was carried out in order to explore the role of an Environmental Center in distant areas. The Environmental Educational Center in Meliti was established in 2003. The study was carried out by questionnaires that were filled in by personal interview. The questionnaires were addressed to three target groups: High School students, local residents and teachers who work at the Environmental Center. Through the analysis of the study's findings many conclusions arise. Those conclusions concern the relation between the center and the local productive and economic fabric and also the relation between students and environment.

The questionnaires were completed by personal interviews. Then the number of days in the month of February (28) was multiplied with that random number and rounded down to the nearest integer, thus producing a random day in February 2013.

$$\text{RANR} () = 0.727154$$

$$\text{Random day} = 28 \times 0.727154 = 20,360312 = 20$$

In this way the day chosen for the investigation was Wednesday 20th of February 2013.

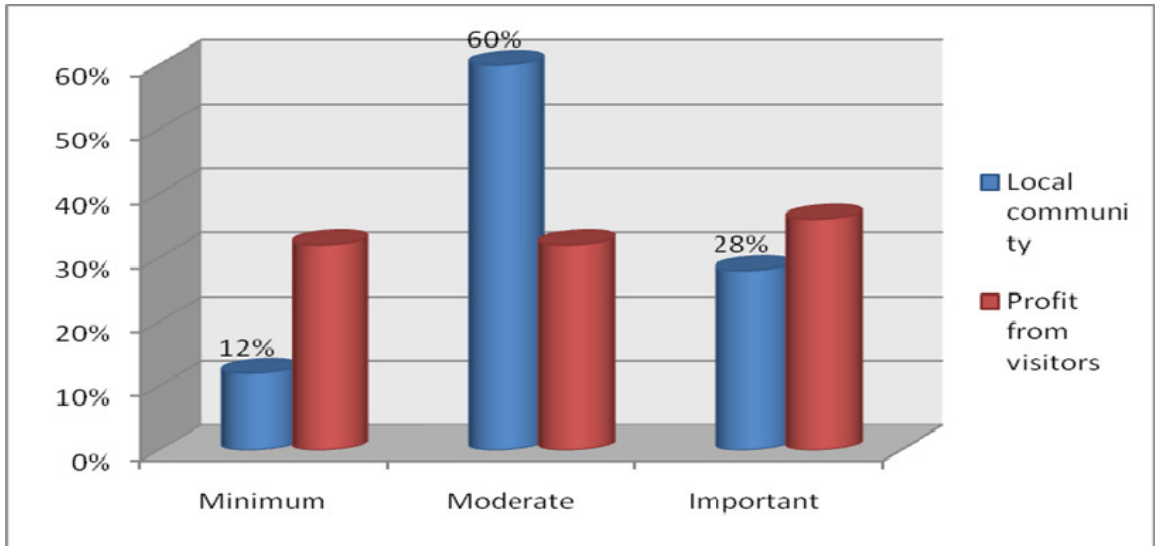
The time of the research was chosen according to the habits of the inhabitants. Around 7-9pm they have completed their responsibilities and they gather in the local coffee shops. 30 interviews were completed on the whole.

The questionnaires were different for the educators and different for the students. They were completed in a working day of February. The questionnaires for the students were completed in the school environment, after the consent of the staff of the school. Nineteen students completed the questionnaires during their daily timeline in school. Totally 30 questionnaires were completed with residents, 5 with educators and 19 with students.

4.2. The findings of the research

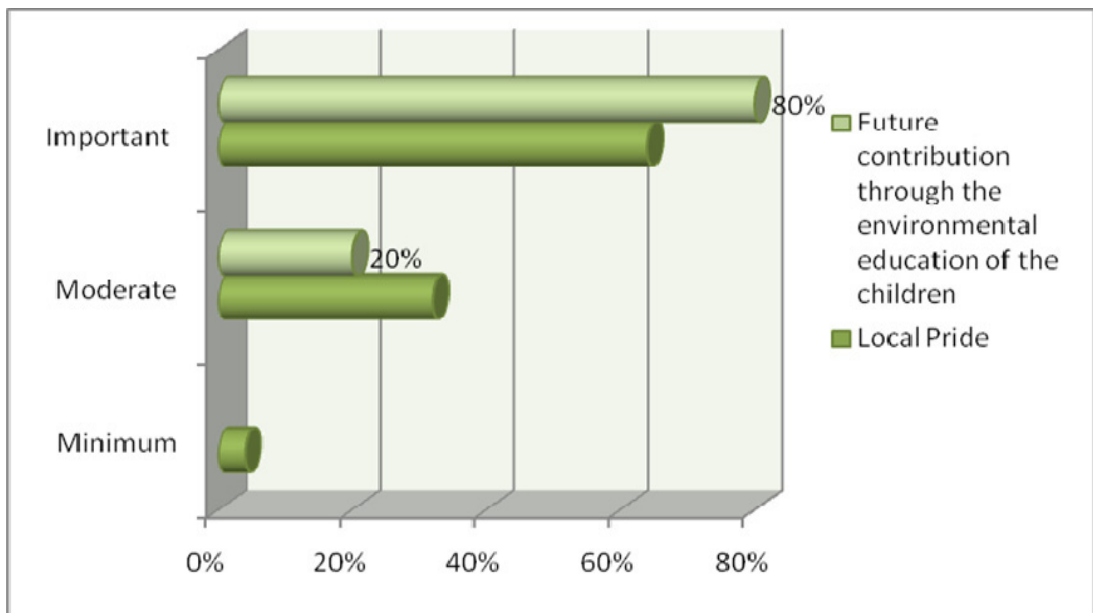
The participants in the research were totally 30. They are all make from 25 to 75 years old. 100% of them are aware of the Environmental Education Centre that operated in their region and they think positive of it.

Their evaluation for the contribution of the EEC on the local community is moderate for the local community (60%) and important (36%) to the profit from visitors.



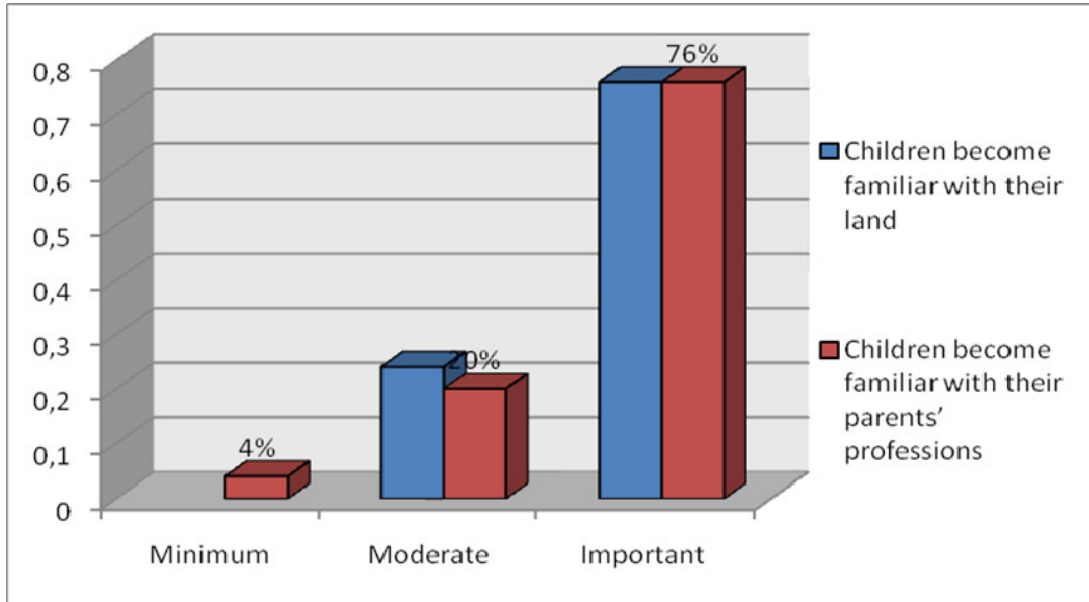
Graph 1. Contribution of the Environmental Centre

The contribution of the EEC on the local community is important (80%) to the Future contribution through the environmental education of the children and important (64%) to Local Pride.



Graph 2. Contribution of the Environmental Centre

It seems that the Environmental Centre helps children to become familiar with their land and their parents' professions in a very important level (76%)



Graph 3. Contribution of the Environmental Centre

The assessment of the educators for the contribution of the EEC in the local community is presented in the following table.

Table 1. Assessment of the educators for the contribution of the EEC in the local community.

An example of a column heading		Degree of contribution	
Factor of contribution	Minimum	Moderate	Important
Local community		40%	60%
Profit from visitors		60%	40%
Local pride		20%	80%

The students that participated in the research are permanent inhabitants of the area and they are from 11 to 13 years old. 74% are boys and 26% are girls.

37% of the students answered that their parents work in the lignite mines or in the Public Power Corporation.

All of them have visited the Environmental Education Centre and have participated in an educational program. 89% of the students have visited, through the EEC, the lignite mines and have watched the program “The treasure was carbon”. They are informed about the amounts of lignite, the history of its mining, its economic and environmental dimension, the operation of the Public Power Corporation and the production of energy.

74% of the students have visited the EEC and attended a program from 2 to 5 times. 10% of the participant students have visited the EEC from 8 to 10 times and they are the older students. The younger students (16%) have visited the EEC only once.

The degree of satisfaction according to the students for the EEC and its programs is in a scale of five choices (not at all, little, moderately, very, and extremely): 63% of the students are very satisfied and 37% are extremely satisfied.

5. Conclusion

In the crossroad of education and sustainable development, Environmental Education Centres can play a very important role for the development of lifelong learning activities in a local community. EEC redirect the purposes and the learning approaches that are implemented according to the Social Learning. They can contribute to the evolution of a local community into a community of learning that embodies creatively everybody. This is how a community creates the perspective to achieve sustainable development

The operation of Environmental Education Centres influences the students and the local communities, especially when the centre operates in peripheral and disadvantaged areas. This shows the necessity to improve Environmental education, which is a corner stone for sustainable development in these regions.

The EEC Melitis has a positive impact on the local community. It brings profit to local community, to local businesses (coffee shops, restaurants, ect.), it empowers the local pride, it makes children familiar with the natural and economic identity of their area and with their parents' professions. Most importantly, the children are being environmentally informed and they can evolve into future protectors of sustainability.

References

- [1] Huckle J. Education for Sustainable Development. A briefing paper for training and development Agency and schools; 2006. <http://johnhuckle.org.uk/publications>
- [2] Unece. "UNECE strategic for Education and Sustainable Development" (CEP/AC.13/2005/3/Rev.1, 23 March 2005, Agenda points 5 and 6) in the meeting of the Ministers of Environment and Education that took place in Vilnius, Lithuania in 17-18 March, 2005.
- [3] Katsakiori M, Flogaiti D, Papadimitriou B. Environmental education in Greece today - Centers for Environmental Education (CEE). Thessaloniki: Greek Biotope Wetland. 2008 accessible at: <http://repository.edulll.gr/edulll/bitstream/>
- [4] Orr D. Four challenges of Sustainability. School of Natural Resources, University of Vermont, Spring Seminars, Ecological Economics. 2003. <http://www.cereo.wsu.edu>
- [5] Scott W. & Gough St. Sustainable development and learning. Framing the issues, RoutledgeFalmer, London; 2003
- [6] Tsaliki B. Environmental Education Centers: luxury or necessity? A brief description and evaluation of the operation of the CEE on Greece in Georgopoulos A. Environmental Education: The new culture that emerges. Publications Gutemberg; 2005
- [7] Wals A.E.J., Hoeven N. & Blanken H. The acoustics of social learning, Wageningen Academic Publishers, The Netherlands; 2009