

INVESTIGATION OF THE INTERVIEW AS A MEASURING TOOL FOR THE ENVIRONMENTAL ILLITERACY IN GREECE

Joanna Barota, Hara Giannakopoulou*, Constantina Skanavis*

Department of Environment

University of the Aegean

Research Center of Environmental Communication and Education

Email: env10062@env.aegean.gr

Email: env09018@env.aegean.gr

Email: cskanav@aegean.gr

*Corresponding author

ABSTRACT

The purpose of this study was the pilot investigating into the effectiveness of interviews about of environmental' illiteracy. The survey was conducted in children first and second class of High school. After the review of relevant literature and questionnaires that occasionally have used for environment we were led to the drafting of a structured interview. The interview examine six main lines, starting with introductory questions, questions investigating the knowledge and opinions of students about the environment, comprehensive questions about the children's attitudes, actions about their environmental sensitivity. From the research findings revealed that interviews are a very useful and effective tool, because they can lead to the formulation of alternative proposals for solving environmental issues. As the process of conducting was pilot, is proposed more and more extensive research, the results of which will contribute to the understanding and prevention of environmental literacy. Through this survey highlighted the great need for knowledge on environmental education and the proper choice of models for children. Take as positive the preference was shown by the students in the interview as a tool, it appears that further research in the future will give quite reliable results, in contrast with other methods, which from children were found boring and tedious. The examination of individual results according to the structure of the interview results in the export of valuable conclusions. Almost half of children separate some of the waste into recyclable and non. The children were ready to save energy and

water and urge people to be recycling aware. Only $\frac{1}{4}$ of the students have discussed with their parents how to help on environmental problems. Regarding the environmental awareness of children rates given to questions such as whether they take part in family outings in the countryside and in camps, were low (10% -15%). The replies highlighted the great desire of children to take action for the environment, but at the same time the inertial in action the show in the environmental issues. The research concluded that the above comes from the indifference of most parents to be active and environmentally aware and active. In conclusion, it fully understood that through the interview process, each student has the opportunity to express free his personal opinion, without leading it to specific answers. Possibly a combination of methods could provide more reliable and detailed results.

KEYWORDS: environmental illiteracy, environmental education, interviews, Greek High school, environmental issues

INTRODUCTION

Environmental issues not only turn the world into an uninhabitable place, but also threaten human existence. To cope with these issues, the activities aimed at transforming the behaviors of individuals are vital in addition to technological advances. It is possible only through environmental education (Erten, 2012:90).

To provide an awareness and develop an ability in young people to look at ecological subjects with more of an integrated approach, individuals must comprehend that solving an emerging problem successfully, developing and integrating environmental perception in children at an early age must be a priority and therefore the fundamental basics need to be taught, ideas need to be shared and discussed within the family and at school. Socioeconomic activities such as transportation, commerce, industry, and tourism, which are always improved on a compulsory level for economical development, mean that natural environmental elements such as air, land, water, and plants are being constantly interfered with as part of this process, and young people should be aware of and they should be educated regarding this (Yanik, 2006, Louv, 2008).

According to Tanaka (2000), environmental knowledge can be defined as individual understanding on how environment functioning; how human interact with the environment; how environmental problems arise; and in what way these problem can be overcome. For Rohiza (2004), environmental knowledge can be explained in the context of environmental literacy component regarding

the knowledge of issues related to environmental sustainability and its influence on human life.

Over several decades, educational programmers' attention has been drawn to the phenomenon of environmental destruction. Many people, after learning the value of natural resources and the environment, work diligently to prevent their destruction. Teaching about the environment should first train active and aware people of the environment and their responsibility in conserving it. Consequently, teaching must increase the awareness of people in the physical, biological, social, economical, and cultural reactions to the environment, and the connections and complex relationships of socioeconomic development and improving the environment. Through training, students must obtain a set of values and interests in the environment and become motivated to engage in active partnership in conserving and improving the environment (Palmer, 1998). In fact, to train aware and responsible citizens about the environment and its problems, awareness about and eagerness to discover solutions to its problems are extremely important to the teaching environment (Veeravatnanond and Singseewo, 2010).

Erten (2004) views environmental education for the protection of the environment attitudes, values, knowledge and skills development, eco-friendly behaviors. Moseley (2000) defines environmental education as a life-long interdisciplinary approach contributing to the solution of current environmental problems, with the goal of creating a world population who is responsible for the things they have done to the environment. When all definitions are taken together, on the one hand with environmental education environmental awareness is thought to be important, which aims encouraging people to actively participate in the solution of problems as responsible individuals (Özdemir, 2007).

The concept of environmental literacy was firstly defined by Charles E. Roth in 1968 as an individual's environmental knowledge and awareness level. Morrone indicates that an environmentally literate individual should have a basic and deep scientific background, converting knowledge into action with increased environmental values, attitudes and skills (Kisoglu et al, 2010).

Disinger & Roth (1992, cited in Tuncer et al., 2009) defined environmental literacy as "the capacity to perceive and interpret the relative health of environmental systems and take appropriate action to maintain, restore, or improve the health of those systems". They found that environmental knowledge was correlated with environmental concerns and perceptions of environmental behavior.

There is a profound, but subtle, distinction between environmental education and environmental literacy. While environmental education is process based, the goals of environmental literacy are more outcomes based. Environmental literacy is defined as the capacity to perceive and interpret the relative health of environmental systems and to take appropriate action to maintain, restore, or improve the health of those systems.

Environmental literacy is the understanding of the interactions between natural systems and human social systems (Barrett et al., 1997). The working definition of an environmentally literate person is one who uses critical thinking, problem solving, and effective decision-making skills to weigh all sides of an environmental issue (McBeth, 1997).

In Greece, Environmental Education Centers, which were introduced in 1993 could be utilized in the promotion of environmental literacy of the visiting students. Furthermore the establishment of school gardens can be planned as an ecological field for students who have no chance to attend ecological education programmes or extra-curricular environmental activities can be organized in these places (Erdogan, 2011).

Children cannot be taught about the future environmental problems yet to happen. However, they can be helped and encouraged in: generating their mental abilities which identify and foresee problems related to the habitat, gathering information about relevant subjects from the field, providing problem-solving opportunities and making reasonable decisions with these pieces of information and in turn, solving environmental problems (Uzunoglu, 1996).

Teachers play important role to ensure their students get adequate knowledge to preserve and conserve the environment. However, study by Che Kalbi (1999) and Khor (2006) showed that teachers' knowledge on the environment is between moderate to high level.

Young people can have benefit from personal experiences and develop skills in many areas: cultural, biogeographic knowledge of underground processes and the participant's own senses (Smeds et al., 2011).

Another study (Alp, Ertepinar, Tekkaya, & Yilmaz, 2008) showed affective variables seemed to have greater influence on students' behaviors, emotional bonding, for example, and sensitivity toward nature, traits that may have influenced their environmental literacy.

RESEARCH AND RESULTS

At the beginning of the analyzing of the results of the interviews, the first questions give us information about respondents. In the first question about

their gender, we have 60% of them boys and 40% girls. In the question about the residence 100% of students are village residents. On the next question about the age of children 65% of them are students of first class of secondary school and the 35% of them of second class of secondary school. The first of introduction questions was about the garbage separation (waste sorting) in recyclable or not, 45% of them answered positive and 55% of them negative. 65% of students have already participated in an environmental program, while the 75% of them would like to participate in such a program. 70% of them believe the greatest environmental problem is the greenhouse effect (global warming), by contrast, the 30% of them believe that the ozone hole is the most important environmental issues. Moving to analysis of the results we addressed the following question: according to children's opinion who is more responsible for the pollution. The majority (70%) answered that the most responsible are the factories, 25% of the state and only 5% of them the households. Equally interesting are the results coming from the referring to which habits in your daily routine could contribute to the protective of the environment. The answers and their percentages are the following: 25% believe that an effective way is saving water, 20% energy saving, 10% different actions such as reforestation, beaches cleaning, while the 45% of them think that recycling is another effective way.

Moving to the analyzing of the next chapter, examine the knowledge and opinions of children on environmental issues. Firstly asking them when a material called recyclable, 85% answered correctly, 10% wrong and 5% do not know / no answer. 50% of children had knowledge about composting, while the rest of them gave wrong answers. In this question was observed confusion. We continue with the question: Which of the following is a predator- prey relationship (the 3 indicative answers were given): 80% answered correctly that when a robin eats a worm, 15% gave wrong answers responding that when a fish eats aquatic plants and 5% when a flea bites a dog. Following, trying to understand if children know which is the original energy source for almost all living beings, we see that only 10% answered wrong, giving as answer the water. The rest answered correctly that sun is the original energy source. Another question with overwhelming results is the following: The majority of the oxygen in the atmosphere comes from: the 95% gave the correct responding that comes from the plants. On the contrary, only 5% responding wrong giving as answer the soil. Remarkable are the results of the below question: Which of the following is part of the water cycle? 95% answered correctly that is evaporating and only 5% answered wrong that is the tides of the oceans.

The fourth question shaft has questions that we can help us to understand how children think about the environment. 100% answered that they are willing to save energy using less air conditioning. Asking them if they are be willing to use less water when they take a bath to save water all of them answered 100% yes. 100% answered yes to the question if they could be willing to walk more in

order to reduce pollution. 95% answered yes to the question whether it would be willing to ask other people who do not recycle to begin to do, while the 5% answered negative.

Follows the chapter with questions referred to what children do for the environment. When we asked them if they have discussed with their parents how they could help to environmental problems. 75% said no, while 25% answered yes. Asking them if they turn off the water when the brush their teeth to save water. 40% answered yes, 60% said no. Also, asking them if they turn off the light when they don't need them. 40% answered yes, 60% said no. Asked them if has asked from their family to recycle some of the things they use. 75% answered no, 25% answered yes.

The next section refers to the environmental awareness of children who took participate in this research. We asked them in which grade they are environmental aware. 70% had moderate level of environmental awareness, 25% are quite environmental aware and the 5% are low. To our questions about family and to what extent take part in family holidays or excursion only the 15% of them gave a positive answer. Only 20% of children go to camps. Asking them "how many of you like reading books or magazine about nature or environment?", only 25% of them gave a positive answer. 70% of them told us that they have a teacher or a mentor as role model for being environmental aware.

INFERENCE

The purpose of this study was to investigate a tool of the interview to examine the current situation in Greece and the Greek schools on environmental literacy. So a small number of students first and second class of High School were interviewed to investigate this tool and its effectiveness. The findings of this study show that in general there were no signs in the interview that stumped children, with few exceptions.

Our interview offers valuable elements, which we could not have the opportunity to take from other ways of research. It's a dive to the inner world of children. Our interview was standardized and structured. In this way research created a climate of trust between the two parties. This relationship is essential so as the findings are true, rich expanding the research.

The knowledge of children about various ecological issues are satisfactory, as a result a large number of questions answered correctly. The majority of children know from where most of the oxygen in the atmosphere comes and what is the water cycle. The above, show that schools aim to make a new environmental culture through the knowledge and the cultivation of values,

attitudes and behaviors that support the correct management of natural resources for a sustainable society with a view to each individual welfare.

In last years, especially after the Rio Summit in 1992 and Johannesburg in 2002 crystallized the idea an Education for Sustainable Development. The Education for Sustainable Development gave a new vision and a different educational approach that will enable students to understand better the world in which they live, understand the interface problems (eg over-consumption / depletion of natural resources, urban decline , environmental degradation, etc.) cope with the complexity of reality.

Students of the first class of high school the through courses of "interdisciplinary activities Development Guide Environmental Education" and "Geography A School" get impulses on matters concerning the environment. They distinguish natural from the human environment, understand forms and causes of pollution and degradation of the environment, understand the interdependence of natural resources; human activities; land use and bearing capacity and realize the value of sustainability. Finally, they can determine the precise meaning of the terms: "Quality of Life", "Land use". Students of 2 class of High school who are taught of "interdisciplinary activities Development Guide Environmental Education", "Geology-Geography Gymnasium B" and "Chemistry B School", are able to indicate factors that disturb the water cycle, to describe the association of surface with groundwater, investigate the causes of abandonment or degradation of the environment of the cultural identity of a place at the local, national and global level and predict the consequences of continued neglect and environmental degradation. The findings of this study show that children are prepared to raise awareness on key issues for the ecosystem of the region and their sustainable management and are informed about the dangers that threaten them, become familiar with practices of sustainable forest management, as to save energy using less air conditioning save water not only turning off water while brushing their teeth, but also to use less water when they bathe.

Regarding questions about what respondents do for the environment, comes as a result that was they don't what they want. Only 45% of the kids recycle at home, while to the question whether they asked from other people, who not recycle start the 95% responded positive. Of course, we must note the important role family which is particularly crucial in the development of children. Parents can help their children in such a way that they establish environmentally friendly attitudes or behavior patterns, either through intentional and systematic educational interventions. Highly educated people as well as younger people tend to develop friendly environmental behaviors. Also, another factor that affects the appearance of environmentally friendly behavior, is gender, since women seem to react more emotionally towards environmental problems and show more interest.

Human impact is the main source of environmental problems while humans are also the answer to solve these problems (Bradley, Waliczek ve Zajicek, 1999). The configuration formation of environmentally responsible behavior is a complex process, on how endogenous and exogenous factors interaction. On the individual level, behaviors are a result of engagement of various factors, which interact different with every occasion in which will be found in each individual. Concluding, the environmentally friendly behaviors depend mainly on a network of personal and perceptual characteristics of individuals, such as attitudes, values, intrinsic motivation, etc.. Today we are try to re-establish the place of man in nature and his relationships with it. Even if we are to think the whole philosophic system regarding the relation between man and nature, if we are not going to implement them in the educational system at an early age, we will not manage to diminish this crisis. It should be noted the role of the teacher and the school for the students' attitudes, and teachers must change their role and knowledge transmitters to become animators-coordinators for the pupils, so interacting with each other to conquer the new knowledge. They give value to their interests, ideas and expectations of students and their design is open and flexible. This attempt to explore and capture the environmental awareness of students shows that respondents were honest. The majority of the question referred to what extent they are environmentally aware, answered "to a certain degree," and "whether they love the environment or hate" the answer was that love.

Individuals having environmental consciousness can put pressure on politicians to arouse them (Ileri, 1998). Investing in future approaches for environmental management and policies can be made possible by raising individuals who are educated and informed about environmental education and apply the results of this education in their attitudes and conscious lifestyles. Given the very important role of the family in environmental education and awareness of the child, it is necessary for parents to provide their children appropriate personal experiences, as well as a potential treatment framework, through which children will construct their own mental patterns and will be led to the gradual building of a value system in shaping attitudes and environmentally friendly.

BIBLIOΓΡΑΦΙΑ

1. Alp, E., Ertepinar, H., Tekkaya, C., & Yilmaz, A. (2008). A survey on Turkish elementary school students' environmental friendly behaviours and associated variables. *Environmental Education Research*, 14(2), 129-143.
2. Barrett G.W., Peles J.D., Odum E.P. (1997). Transcending processes and the level-of-organization concept. *BioScience* 47(8):531 5.

3. Bradley, J. C., Waliczek, T. M. & Zajicek, J. M. (1999). Relationship Between Environmental Knowledge and Environmental Attitude of High School Students. *Journal of Environmental Education*, 30 (3), 17-21.
4. Carlsen, W. S. (1999). Domains of teacher knowledge. In J. Gess-Newsome & N. G. Lederman (Eds.), *Examining Pedagogical Content Knowledge*. Netherlands: Kluwer Academic Publishers.
5. Che Kalbi Mohd Ali. (1999). Tahap pengetahuan isu-isu alam sekitar di kalangan guru pelatih kursus diploma perguruan Malaysia semester 5 Maktab Perguruan Kota Bharu. Unpublished master's thesis. University Malaya.
6. Erdogan, M. (2011). Ekoloji Temelli Yaz Doga Egitimi Programinin İlköğretim Öğrencilerinin Çevreye Yönelik Bilgi, Duyusal Eğilimler ve Sorumlu Davranışlarına Etkisi. *Kuram ve Uygulamada Eğitim Bilimleri*, 11(4)
7. Erten, S. (2012). Türk ve Azeri öğretmen adaylarında çevre bilinci. [Environmental consciousness among Turkish and Azeri candidate teachers] *Education and Science*, 37(166), 88-100.
8. Erten, S. (2003). Okul Öncesi Öğretmen Adaylarında Çevre Dostu Davranışların Araştırılması. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 28, 91-100.
9. İleri, R. (1998). Çevre Eğitimi ve Katılımın Sağlanması. *Cevkor – Ekoloji, Temmuz – Ağustos – Eylül Cilt: 7 Sayı: 28 (3 - 9)*
10. Khor, C. Y. 2006. Keprihatinan Alam Seitar di Kalangan Guru-guru prasekolah di pulau pinang. Unpublished master's thesis. University putra Malaysia
11. Kisoglu, M.; Gurbuz, H.; Sulun, A.; Alas, A.; Erkol, M. (2010). Çevre Okuryazarlığı ve Çevre Okuryazarlığı ile İlgili Türkiye'de Yapılan Çalışmaların Değerlendirilmesi. *International Online Journal of Education Science*, 2(3), 772-791
12. McBeth, William C. (1997). An Historical Description of the Development of an Instrument to Assess the Environmental Literacy of Middle School Students. Dissertation.: Unpublished doctoral dissertation, Southern Illinois University at Carbondale, Carbondale, IL.
13. Moseley, C. (2000). Teaching for Environmental Literacy. *Clearing House* 74 (1): 23-25.
14. Özdemir, O. (2007). Yeni Bir Çevre Eğitimi Perspektifi: Sürdürülebilir Gelişme Amaçlı Eğitim. *Eğitim ve Bilim Dergisi*, 32 (145), 23-38.
15. Palmer, J.A. (1998). *Environmental Education in the 21st Century: Theory, Practice, Progress and Promise*. London: Routledge.
16. Rohiza Jamaluddin. (2004). Pencapaian guru sains sekolah menengah dalam pernyataan tentang isu alam sekitar. Unpublished master's thesis. University Malaya

17. Smeds, P.; Jeronen, E.; Kurppa, S.; Vieraankivi, M. (2011). Rural Camp School Eco Learn – Outdoor Education in Rural Settings. *International Journal of Environmental & Science Education*
18. Tanaka, H. (2000). Environmental chemistry education for the 21st century. *Journal of Indian Chemical Society*. 77: 531-538
19. Uzunoglu, S. (1996). Cevre Egitimin Amaclari, Ugrasi Alanlan ve Sorunlari. *Ekoloji, Ekim – Kasim – Aralik Sayi: 21*
20. Veeravatnanond, V., Singseewo, A. (2010). A Developmental Model of Environmental Education School. *European Journal of Social Sciences*, 17(3), 391 403.
21. Yanik, F. (2006). *Dogaperest: Ali Demirsoy Kitabi*. Istanbul: Is Bankasi Kultur Yayinlari