

An ANALYSIS OF SECONDARY SCHOOL TEACHERES' PROFESSIONALISM FOR TEACHING ENVIRONMENTAL SUBJECTS

Yeon-A Son¹, Soojeong Myeong², Don-Hyung Choi³, Byeong-Mee Min¹

¹Dankook University

²State University of New York

³Korea National University of Education

ABSTRACT

The purpose of this research was to find out the problem areas to improve the quality of environmental subjects in secondary schools. A questionnaire survey and observation of class were conducted. A 5-point Likert scale self-evaluation questionnaire on their professionalism in environmental education was developed based on Hungerford et al.'s(1994) five evaluation areas. The questionnaire was responded by 249 junior high school teachers and 182 high school teachers from 34 schools in the City of Seoul and Gyeonggi Province, Korea. The class observations consisted of actual classroom observations, videotaping, and interviews of two junior high school teachers. The survey analysis revealed that teachers evaluated their professionalism on environmental subjects to be about in the middle of the scale. However, the class observations revealed that there was a big gap between their self-evaluation of professionalism and their actual classroom application. The two interviewed teachers also admitted that although they knew the importance of environmental education, they were not confident in applying it in the classroom. The results of this research can serve as a basic reference in improving environment-related subject education.

Key words: environmental education, teachers' professionalism

1. Statement of the Problem and the Purposes of the Study

Environmental education should be conducted through an integrative and interdisciplinary approach rather than through fragmented knowledge in order to help the students to acquire the right attitudes toward environment (Choi et al., 2001; Kang, 1995; Kim et al, 2000; Kwon et al., 2002; Ministry of Education, 1997; Lee and Park, 2002; Nam et al, 1999). Because of this characteristic of environmental education, competent and enthusiastic teachers are indispensable for effective environmental education in school (Pooley & O'Connor, 2000). As there is a saying that the quality of education cannot surpass the quality of the teachers, the success of environmental education depends on the ability of the teachers (Kim et al., 1995; Jegede & Taplin, 2000; Kirk & Macdonald, 2001).

The environmental education in Korea was first mentioned briefly in the 4th National Curriculum (promulgated in 1981), and was infused, in the 5th National Curriculum (promulgated in 1987), in diverse school subjects, to be treated separately. The 6th National Curriculum (promulgated in 1992) newly included "The Environment"

for middle school and "The Environmental Science" for high school as separate and independent subjects, although they were given as elective courses. An eclectic approach was used to teach the subjects. The 7th National Curriculum (promulgated in 1997) maintained the two environmental subjects, although the title of "The Environmental Science" was changed to "The Ecosystem and the Environment." The 7th National Curriculum consists of the National Common Basic Curriculum for 1st to 10th Grade and the Elective Curriculum for 11th and 12th Grades (Choi et al., 2004).

The main problem of environmental education in this kind of curricular system is what we call "the peripheral treatment of the subject matter." In other words, although environment-related contents are taught not only in the environment subjects but also in almost all other subjects, they are not taught properly in any subject.

The surveys with the environment teacher retraining programs (Choi et al., 1992; Eyun et al., 2001; Kim et al., 1995; Lee & Park, 2002; Park & Choi., 1997; Whang & Nam, 2001) revealed that the sporadic and non-continuous programs made it difficult for teachers to actively participate and that the content of the programs was lopsided towards environmental pollution and preservation measures, failing to capitalize on the characteristic of environmental education which requires interdisciplinary and multidisciplinary approaches.

In addition, the method of education was mostly lecture oriented and knowledge-centered, lowering the teachers' level of satisfaction with the training programs (Choi et al., 2000). What is urgently needed, therefore, is developing and operating a quality training program to enhance the professionalism of secondary school teachers.

To do so, it is necessary to analyze the professionalism of teachers who teach environment at the secondary schools.

This study aims to 1) investigate how teachers of secondary schools evaluate their professionalism in environment education; 2) analyze the professionalism in actual environment classes; 3) find out if there is any gap between self-evaluation and actual practice in terms of the professionalism; 4) extract the points which should be reconsidered to improve the environment teacher education programs.

2. Method

First, the secondary school teachers' self-evaluation of professionalism about environmental education was conducted through survey. Then the environment-related classes of two teachers selected from the participants of the self-evaluation were analyzed to see the strengths and weakness. Third, the degree of the self-reported professionalism of the two teachers was compared with their observed professionalism. Finally, the points to consider were derived from the research results in order to develop the professionalism of the secondary school teachers.

2.1. The self-evaluation of environment teachers' professionalism

The researchers surveyed 249 junior high school teachers (from 19 schools) and 182 high school teachers (from 15 schools) in the City of Seoul and Kyunggi Province, Korea, with a self-evaluation questionnaire of five-point Likert-type scales in order to investigate how the teachers evaluate their own professionalism in environment education.

The instrument of classroom evaluation was adapted from Hungerford et al.'s (1994) evaluation criteria for environment teachers (See Table 1). The Cronbach alpha's of the instrument were as follows: $\alpha = 0.8679$ for Level 1, The Foundations; $\alpha = 0.9007$ for level 2, Conceptual Awareness; $\alpha = 0.8838$ for level 3, Investigation; and $\alpha = 0.8766$ for level 4, Environmental Action Skills. The Cronbach alpha for Level 5 (Educational Application) was not calculated since that category had a single evaluation item.

Table 1. The framework for self-evaluation of environmental education professionalism (Hungerford *et al.*, 1994)

Goal Level	Evaluation Criteria	score *				
		5	4	3	2	1
Level 1 [The Foundations level]	The abilities to communicate and apply major ecological concepts					
	The ability to understand ecological principles in order to investigate, evaluate, and solve the ecological issues					
	The ability to use the ecological knowledge in analyzing the cases of sustainable development and understanding ecological principles					
Level 2 [The Conceptual awareness level]	The ability to understand and communicate about the impact of cultural activities on environment					
	The ability to identify environmental issues and their ecological/cultural implications					
	The ability to identify environmental solutions and their ecological/cultural implications					
	The ability to clarify the roles of different value systems for environmental issues and the personal values in decision making					
Level 3 [The Investigation level]	The ability to use the knowledge and skills of investigation in integrating data					
	The ability to analyze the value systems regarding environmental issues from the perspectives of ecological and cultural implications					
	The ability to identify the value systems regarding the solutions for environmental issues					
	The ability to clarify own value system regarding the solutions for environmental issues					
Level 4 [Environmental action skills level]	The abilities of various citizenly actions including environment-friendly action strategies					
	The ability to evaluate chosen actions from the ecological/cultural perspectives					
	The ability to apply citizenly action skills for solving environmental issues and for sustainable development					
Level 5 [Educational application]	The ability to apply educational materials for developing students' environmental attitude					

* 5: very high, 4: high, 3: average, 2. poor, 1: very poor

2.2. Analysis of the Environment-related Classes

Two middle school teachers from Gyeonggi Province and northern Chungcheong North Province were chosen for an in-depth study. Their classroom teaching was analyzed to investigate their strengths and weaknesses, using the techniques of classroom observation, videotaping, and interviewing. The two teachers' self-reported professionalism was compared with their professionalism revealed in their classroom teaching. The two participating teachers and their classes are as shown in Table 2.

Table 2. The Observed Teachers and Their Classes

	School location	Grade	Total number of students	Class Theme	Class type	Class time	teacher	
							Gender	years
Observation class 1	Gyeonggi Province	9th	41	1st taping: ecosystem and humans	lecture	1	female	2
				2nd taping: The compartments of environment	Presentation	1		
Observation class 2	Chung-cheong Province	7th	34	1st taping: the meaning of ecosystem/the compartments of ecosystem	game	1	female	2
				2nd taping: Bioaccumulation	lecture	1		

The criteria for the evaluation of classroom teaching and interview results were adapted from Hungerford et al.'s (1994) evaluation criteria for environment teachers, which were also used for the teachers' self-evaluation.

The researchers separately evaluated the two teachers' professionalism based on the collected observation data, such as the observation notes, transcripts of the videotapes, and interview notes. Differences among the researchers' ratings were corrected through discussions.

3. Results and Discussion

3.1. The Results of the Teachers' Self-evaluation

For the 249 middle school teachers, the level with the highest mean was Level 4, Environmental Action Skills (M=2.901), followed by Level 5, Educational Application (M=2.850); Level 3, Investigation (M=2.812); Level 2, Conceptual Awareness (M=2.808); and Level 1, The Foundations (M=2.804) (see Table 3).

Table 3. The results of self-evaluation of environment education professionalism (middle school)

Evaluation category	N	Mean (M)	Standard Deviation (SD)
Level 1: The Foundations level	249	2.8039	.8060
Level 2: The Conceptual Awareness level	249	2.8079	.7926
Level 3: The Investigation level	249	2.8119	.7479
Level 4: Environmental Action Skills level	249	2.9056	.8196

Level 5: Educational Application	249	2.85	.98
----------------------------------	-----	------	-----

For the 182 high school teachers, the highest mean was marked by Level 4, Environmental Action Skills (M=2.995), followed by Level 2, Conceptual Awareness (M=2.929); Level 3, Investigation (M=2.874); Level 5, Educational Application (M=2.840); and Level 1, The Foundations (M=2.790) (see Table 4).

Table 4. The results of self-evaluation for the professionalism of environment education (High school)

Evaluation Category	N	Mean (M)	Standard Deviation (SD)
Level 1: The Foundations level	181*	2.7901	.9642
Level 2: The Conceptual awareness level	182	2.9286	.9203
Level 3: The Investigation level	182	2.8741	.9529
Level 4: Environmental action skills level	182	2.9945	.9814
Level 5: educational application	182	2.84	1.15

* For Level 1, 181 teachers were evaluated since one teacher did not respond.

The means values of the items were also calculated. There were three evaluation items in Level 1, the Foundations level. The means of the items are as follows:

Items	Middle School Mean (SD)	High School Mean (SD)
(1) The abilities to communicate and apply major ecological concepts	2.90 (.91)	2.96 (1.03)
(2) The ability to understand ecological principles in order to investigate, evaluate, and solve the ecological issues	2.79 (.91)	2.76 (1.01)
(3) The ability to use the ecological knowledge in analyzing the cases of sustainable development and understanding ecological principles	2.73 (.94)	2.65 (1.14)

There were four evaluation items in Level 2, the Conceptual Awareness level. The means of the items are as follows:

Items	Middle School Mean (SD)	High School Mean (SD)
(4) The ability to understand and communicate about the impact of cultural activities on environment	2.94 (.92)	2.99 (1.09)
(5) The ability to identify environmental issues and their ecological/cultural implications	2.74 (.88)	2.96 (1.03)
(6) The ability to identify environmental solutions and their	2.74 (.91)	2.83 (1.04)

ecological/cultural implications		
(7) The ability to clarify the roles of different value systems for environmental issues and the personal values in decision making	2.80 (.88)	2.93 (1.02)

Level 3, the Investigation level, too had four evaluation items. The means of the items are as follows:

Items	Middle School Mean (SD)	High School Mean (SD)
(8) The ability to use the knowledge and skills of investigation in integrating data	2.85 (.88)	2.83 (1.10)
(9) The ability to analyze the value systems regarding environmental issues from the perspectives of ecological and cultural implications	2.72 (.88)	2.83 (1.10)
(10) The ability to identify the value systems regarding the solutions for environmental issues	2.79 (.84)	2.90 (1.08)
(11) The ability to clarify own value system regarding the solutions for environmental issues	2.89 (.86)	2.93 (1.08)

Level 4, the Environmental Action Skills level, had three evaluation items. The means of the items are as follows:

Items	Middle School Mean (SD)	High School Mean (SD)
(12) The abilities of various citizenly actions including environment-friendly action strategies	2.93 (.94)	3.04 (1.12)
(13) The ability to evaluate chosen actions from the ecological/cultural perspectives	2.86 (.84)	3.02 (1.07)
(14) The ability to apply citizenly action skills for solving environmental issues and for sustainable development	2.92 (.96)	2.92 (1.09)

The results reported so far indicate that the secondary school teachers evaluated their own professionalism to be in about the middle of the scale, as the level means ranged from 2.790 to 2.995, and the item means from 2.65 to 3.02.

3.2. Qualitative Analysis of Environment-related Classrooms

3.2.1. Teacher A's Classes

Y.-D. Cho's (2001) model of five stages of classroom instruction was used to segment the teachers' classroom instruction for analysis. The five stages are: (1) the ceremonial stage, (2) the checking stage, (3) the main stage

(topical set), (4) the summary stage, and (5) the ceremonial stage. Teacher A mainly used the lecture method in order to explain the environmental content, using the topics and materials that the students experienced through TV or radio.

The teacher did not check well the learning of the previous class during the "checking stage." Nor did she evaluate the students' learning during the "summary stage." An activity to enhance the students' environmental sensitivity and literacy is desirable at this stage, by reflecting upon the learning materials and exchanging the students' feelings about the lesson.

The Korea Institute of Curriculum and Instruction (2002) (henceforth, KICE) suggested five aspects of a good classroom instruction as follows: (1) curriculum and content, (2) instructional method, (3) classroom environment, (4) evaluation, and (5) the teacher's effort for professional development. Teacher A had a belief that the objective of environmental education should focus on the affective domain. A prerequisite to achieving this objective, according to her, was an awareness of the environmental problems. Accordingly, she designed the curriculum and content in the way to raise the students' awareness level.

The subject matter, therefore, centered around ecological knowledge. The teacher seemed to design the lesson to make the students aware of the environmental issues based on their ecological knowledge. The content was to develop the environmental sensitivity and literacy. In the actual classroom teaching, the teacher showed the pictures of naturalized plants and animals or the videotapes that reveal the importance of the foreshore, as a means to provide an opportunity to feel the nature and to think about environmental issues.

The strength of Teacher A, therefore, was found in this aspect of teaching method. She prepared the teaching materials from the Internet, TV documentary footage, and the environment teachers' online cafes. She organized her instruction to help the students feel and think about environmental issues through indirect experience from the visual materials.

Although Teacher A emphasized, during the interview, the importance of experiential learning in environmental education, she did not incorporate experiential learning in her classes. She said that she tries to enhance the students' environmental sensitivity and understanding by leading them into the outdoor to help the students identify themselves with the trees that they draw and to compare their own lives and the trees' in order to feel affections for the trees. In her classroom, however, she did not use a variety of method but focused more on ecological knowledge getting than on experiential learning. She also acknowledged the importance of integrative teaching during the interview; however, her class dealing with the theme of environment did not integrate her learning with various subjects.

3.2.2. Teacher B's Classes

In the "main stage" in the model of Y.-D. Cho's (2001) five stages, Teacher B facilitated the students' participation and understanding of the content by adopting a variety of teaching method. During the first observation period, the teacher taught the food chain and the ecological components through an ecosystem game. She also helped the students understand the interaction of humans and environments, using bonus cards to illustrate that humans can exert both good and bad influences on the ecosystem. In this stage, she not only provided the fun of the game but also helped the students to think about the importance of the food chain and ecological components, and about the impact of human beings on the ecosystem.

During the second observation period, she introduced a case of bioaccumulation in the island of Borneo, before she explained the content of the textbook. Using the worksheets, she had the students understand that the bioaccumulation happened in Borneo in the food chain, which eventually victimized the humans, too. The activity taught the students not only the bioaccumulation in Borneo but also how the ecological equilibrium can be disturbed by the humans, as well as the meanings of the natural enemy and food chain. The students could feel the significance of the environmental issues caused by human activities. Therefore, the strength of Teacher B was that she developed a variety of teaching methods to suit the lesson content and used them in teaching.

For the "curriculum and content aspect" in the KICE model of the components of a good instruction, Teacher B provided the students with various and interesting materials by reorganizing the content of the textbook, rather than simply arranging the content along the curriculum and textbook units. For example, in teaching the unit on bioaccumulation, she first introduced the case of bioaccumulation in Borneo in order to help the students understand the meaning of bioaccumulation. Then she discussed the bioaccumulation and related concepts in the textbook.

Teacher B set the goal of environmental education at the students' experiencing, feeling, and expressing. She took the environmental sensitivity and environmental understanding into consideration when selecting the lesson topics. In the classroom, she introduced the Mad Hatter's Disease that broke out in the island of Minamata, Japan, as an example of the humans suffering from the environmental problems, in order to make the students see the seriousness of the environmental problems.

She also tried to teach the class with the theme of the environment through an integrative approach. For example, she discussed the locations, whether, and climate of Borneo in comparison with those of Korea before she brought up the bioaccumulation in the island. In other words, she taught the geography (social science) of Borneo first before teaching the environmental issues. This approach made the students interested in the lesson content and see the environmental problems from a wider perspective to seek the solutions.

In terms of the "teaching method aspect," Teacher B was very resourceful, as she used a variety of teaching methods such as games, worksheets, and experiential activities. She made this point clear in her interview. She said that she tries to enhance the students' environmental understanding by leading them into the outdoor to help the students identify themselves with the trees by drawing detailed pictures of the nature in order to feel affections for the trees. In order to enhance the environmental sensitivity, she usually had outdoor play activities or showed videotapes so that the students could feel about the environmental problems. For example, she played a horse-ride game to teach the water pollution. She compared the "horse" with the river and the "rider" with the pollutant, saying that the river feels painful if the pollutant is thrown into it just as the horse feels painful if the riders jump on it.

Teacher B was developing her professionalism by attending various meetings and activities of "The Teachers Who Love the Environment" or "The Online Cafe of the Environment and the Teachers." Compared with the other teacher who was observed, Teacher B understood the integrative approach well and tried to employ the approach in classroom teaching. Notwithstanding such an effort, she confessed, during the interview, that she feels difficulty with the integrative approach to environmental education. In order to improve this difficulty, she suggested that it is urgently needed to improve the present in-service training of the environment teachers.

In particular, she claimed that opportunities for various subject teachers to explore the teaching-learning strategies through an integrative approach could enable the teachers to learn more about the integrative environmental education and adopt it in the classroom. She also said that an in-service camp of a certain period, even if it is a short one, for the teachers to actually demonstrate and exchange ideas about the integrative methods would enhance the teachers' professionalism.

The two teachers described so far both demonstrated their efforts to emphasize the environmental sensitivity in their classroom teaching. Hungerford et al. (2002) explained the "environmental sensitivity" as a viewpoint that sympathizes with the environment, environmental problems and issues, that values the ecological equilibrium, and that promotes the peaceful coexistence of the humans and the nature.

Considering the fact the ultimate goal of the present school education of the environment is to cultivate environmental literacy to make people make responsible decisions and engage in citizens' actions, neither of the two teachers treated this goal importantly in the classroom. Gayford (2002) explained "environmental literacy" as the motivating process to utilize the critical thinking, problem solving, and effective decision making in order for an individual to act on environmental issues.

Education for a sustainable future has emerged as a new paradigm of environmental education that can redefine the viewpoint of the environment and sustain the quality of our living. However, this aspect was not considered or emphasized in the classroom teaching of the two teachers.

4. Conclusion and Suggestions

The present study involved 249 middle school teachers and 182 high school teachers to investigate their professionalism in relation to environmental education through a questionnaire survey. Two middle school teachers were particularly selected from the participants, and their classroom teaching was analyzed to see how their professionalism is manifested, along with interviews with them to learn their philosophy about environmental education and the focus of their environmental education. The teachers' self-reported professionalism and their actual level of professionalism revealed by their classroom teaching and interview were compared.

The results showed that the secondary school teachers generally rated their professionalism to be in the middle of the five-point scale, as their means on the five levels of the criteria ranged from 2.79 to 2.99, and the item means ranged from 2.65 to 3.02. This means that the teachers were not very confident about their professionalism.

The classroom observation revealed that the two teachers rarely treated some of the aspects of environmental education. Those aspects were: (1) analyzing the environmentally sustainable development and applying ecological knowledge to understand ecological principles, (2) clarifying the diverse viewpoints of value regarding environmental issues and personal values regarding the decision making, (3) confirming, evaluating and clarifying one's position concerning environmental issues and solutions, and (4) adopting the citizen's action skills for the solution of environmental issues and sustainable development.

The two teachers noted that, since the teacher training and retraining in the college did not provide the teachers with necessary training, they had difficulty in developing materials and teaching the environmental subjects that

are characterized by interdisciplinary and practical application. Their views seemed to represent the majority teachers' apprehension about environmental education.

Suggestions drawable from the present study are as follows.

First, future in-service programs should include the latest theories of environmental education and the teaching method that incorporates the theories in the classroom. It is suggested that more than 70% of the in-service program curriculum should be allotted for the latest theories about the sustainable future and environmental education and the value education in the environmental education, and for the actual teaching method incorporating these theories.

Second, the courses in the methods of environmental education should properly include all of the five levels of ability proposed by Hungerford et al. (1994).

Third, in order to promote locally meaningful environmental education, it is desirable that local experts of environmental education be invited as lectures to the in-service program and that, rather than theory-based lectures, the teachers actually participate in the regional programs and outdoor fieldwork and experience.

Fourth, as the in-service training program attracts teachers from diverse backgrounds, it would be meaningful to let the teachers share their information and communicate with each other. Teachers of different genders, regions, majors, and school levels could understand others in the program. The program could also stimulate the teachers by providing various viewpoints and by presenting other teachers who have unusual passion and enthusiasm for environmental education.

5. References

- [1] Cho, Y.-D. (2001). *Comprehension of Classroom Instruction in Korean Secondary School*. Seoul: Kyoyukkwahacsa.
- [2] Choi, D.-H. (2001). Current Status and Ways for Improvement of the Examination System for the Employment of Environmental Education Teachers in Secondary Schools. *The Environmental Education*, 14(1), 66-80.
- [3] Choi, S.-J., Lee, S.-K., Joo, H.-S., Lee, Y.-S., & Park, J.-S. (2000). *A Study on the Strategies for Strengthening Subject-Based Environmental Education*. Seoul: Korea Institute of Curriculum Evaluation & Korea Research Institute for Vocational Education & Training.
- [4] Gayford, C. G. (2002). Environmental Literacy: Towards a shared understanding for science teachers. *Research in science and technological education*, 20(1), 99-110.
- [5] Hutchison, F. (1995). *Educating for a Sustainable Future*. London: Peace Pledge Union.
- [6] Hungerford, H.R. (2002). Responsible Citizenship and the Affective Domain in Environmental Education. *The Environmental Education*, 15(1), 148-155.
- [7] Hungerford, H. R., Volk, T .L., & Winter, A. A.(1994). Issue investigation & citizenship action training; An instructional model for environmental education. In L. V. Bardwell, M. C. Monroe & M. T. Tudor(Ed), *Environmental problem solving: Theory, practice and possibilities in environmental education*. NAAEE.
- [8] Hwang, S.-Y., & Nam, Y-S (2001). The Current Status of Environmental Education Teacher In-service Training and Analysis of Programmes. *The Environmental Education*, 14(2), 68-75.
- [9] Jegede, O., & Taplin, M. (2000). Trainee teachers' perception of their knowledge about expert teaching. *Educational Research*, 42(3), 287-308.
- [10] Kang, W.-K. (1995). A Study on the System of Environmental Education Major in the Graduate School of Education. *The Environmental Education*, 8, 122-137.
- [11] KICE (2002). *Improving the Quality of Korean school education(II): A Qualitative Case Study of Good Science Teaching in the Secondary School*. Seoul: Korea Institute of Curriculum Evaluation.
- [12] Kim, I.-H., Lee, S.-K., Lee, J.-Y., & Kim, T.-K. (1995). The problems and improvement direction of certificate in-service training for 'Environment' subjects. *The Environmental Education*, 8, 138-150.

- [13] Kirk, D., & Macdonald, D. (2001). Teacher voice and ownership of curriculum change. *J. Curriculum Studies*, 33(5), 551-567.
- [14] MOEHRD (1999). *The Curriculum Guide for Middle School(I)*, Korea: Ministry of Education & Human Resources Development.
- [15] Nam, S.-J., Kim, D.-S., Kim, D.-L., Lee, S.-B., & Han, S.-I. (1999). *Principle and Practice in Environmental Education*. Seoul: Wonmisa.
- [16] Oh, K.-H., Min, B.-M., Son, Y.-A., & Choi, D.-H. (2004). A Comparative Analysis of TLSF Program for the Sustainable Future and the Curriculum for Korean Environmental Education. *The Environmental Education*, 17(1), 25-42.
- [17] Park, J.-Y., & Choi, K.-H. (1997). The Perceptions of Teachers Attended the Second Annual Environmental Education Program for Certification Towards a Second-Major in Environmental Education. *The Environmental Education*, 10(2), 145-155.
- [18] Pooley, J. A., & O'Connor, M. (2000). Environmental Education and Attitudes: Emotion and Beliefs Are What Is Needed. *Environmental Behavior*, 32(5), 711-723.
- [19] Son, Y.-A., Jung, M.-K., Min, B.-M., Choi, D.-H., & Chung, W.-H. (2005). A Study on the Evaluation of Environmental Education Programs in Primary and Secondary School. *The Environmental Education*, 18(1), 82-96.