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Engagement of students in environmental activities in school

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Abstract

The paper presents results of research related to students' attitudes about the activities they would prefer to engage in, which independent variables their willingness to engage depends on, and how the knowledge that students possess and their willingness to engage in ecological activities are related. The survey was conducted on a sample of 225 seventh grade primary schools students in urban and rural areas, polluted and unpolluted environment, urban area - 148 students; rural area - 77 students). The sample of students was adjusted according to two criteria. The first criterion was the place where students live so we took into account the urban and rural areas; the second criterion was the level of pollution, i.e. non-contamination of the environment in which students live. The structure of the sample of students was presented with respect to gender, place and environment in which students live. Results indicate that students are more interested in activities that occur in nature where they are direct participants and they have a subjective feeling of really doing something to protect the environment. In addition, the results show that girls from both samples and students from the country are more willing to engage in environmental activities. Life in polluted and unpolluted environment is not a statistically significant variable that would affect the willingness of students to engage in these activities. We believe that the most interesting result of this research is the finding that a higher level of environmental knowledge of students and life in a polluted environment do not guarantee a greater willingness of students to engage in environmental protection activities. In this study, we used the descriptive method of research. For data collection, we used two research techniques: testing and interviewing. Both techniques were accompanied by relevant instruments: Test for students and for Questionnaire for students (anonymous).

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1. Introduction

The only myth that will be worth thinking about in our near future is talking about the planet Earth - not for particular cities, and not for particular people, but for the planet and everything that is on it.

We can see clearly what is currently happening if we look more closely at individuals, communities, nations and the global human society, as existing systems embedded in each other. What astonishes us today is looking at a civilization that is destroying itself because it is unable to challenge the validity of the economic ideology under completely new circumstances.

Preparing students for their future requires active classrooms and successful learning. Students spend nearly a third of their life in schools, shaping their personalities that are hard to change later. Their integration into society later on in life depends on their personal qualities and skills that are largely the product of a well-organized and well completed education, including the warm atmosphere of mutual understanding and experience in all school subjects.

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Several questions arise:

What are the psychological, pedagogical and social factors that influence successful learning of students about the environment?

How should successful learning about environmental education be assessed?

These questions build the foundation of a successful society tomorrow. These challenges motivate us to try and find some solutions.

Farmer and colleagues (Farmer, Knapp and Benton, 2007) point out that environmental education is a process that attempts to increase understanding of the environment and promote ecological values. The goal is to motivate the citizen/student to act both individually and collectively and to encourage environmentally conscious behaviour that balances social, economic and environmental needs of present without compromising the needs of the future.

The ultimate goal of environmental education is to produce environmentally educated and responsible citizens, or someone who can make decisions that will curb environmental problems which are increasing in the new century (Knapp, 2000). As defined by UNESCO, environmental education aims to develop an environmentally responsible citizen who has the knowledge, skills, attitudes, motivation and ability to work individually and collectively toward solutions of contemporary problems, while also preventing the formation of new ones (Zak and Munson, 2008).

When we place the so formulated goals in the context of school, the goals of environmental education are:

- That students, in line with the achievements of modern science and practice, acquire basic knowledge of the human environment and the processes that threaten it;
- For students to develop awareness of the importance of the protection, preservation and improvement of environment;
- To actively engage students in solving practical problems in protecting and improving the living environment.

Ecological education should enable students to express their personal views and ideas regarding their responsibility to learn the procedures that others perform to improve the environment, and to apply these ideas and actions in their own lives. Students must be encouraged to develop values that will be beneficial both to them as individuals and to society as a whole. They must understand that it is not possible for people to manage nature, because nature is stronger than man and man's survival depends on nature. Students must also be aware that we cannot solve all environmental problems by technical means. Environmental problems will have to be solved with sincere understanding and appreciating of the relationship between man and nature. Aesthetically, value and emotional contents can be helpful in conveying these ideas to students. It is necessary to present a healthy and positive way of life (Shapiro and Pilsitz, 1995). It is important that environmental education is basically positive, that it gives hope and offers solutions. If we focus too much on environmental disasters, it can be frustrating for students.

Ecological education is a complex and lengthy process. Concrete results can be visible only after several years, but the process should last throughout all levels of education, from kindergarten to university. It is known that children of younger ages (3 to 6 years) have a strong sense of ecological and environmental awareness developed, but they later lose it under the influence of modern technology, consumer-oriented way of life and urban environments. It is therefore necessary to start with environmental education from pre-school and implements it throughout the educational process. In addition to the direct impact of environmental education on children and youth, the direct impact of children's parents is also very important. This makes the benefit of ecological education multiple (Shapiro and Pilsitz, 1995).

2. Research Methodology

In the literature, the view that environmental education should be concentrated on the development of appropriate attitudes prevails. In this study we try to relate all the three segments of environmental awareness: attitudes, knowledge and action. In this context, the study has three objectives:

1. To test students' attitudes about the kind of environmental activities they would prefer to engage in;
2. To determine whether students' readiness for engagement depends on the set of independent variables (gender, urban / rural area, polluted /unpolluted environment);

3. To examine the relation of the knowledge the students possess and their willingness to engage in environmental activities.

The study sample consisted of 225 seventh grade students of primary school (urban area – primary school “Kiril and Methodus”, Kocani - 148 students and rural area - 77 students – primary school “Straso Pindzur” in village Sokolarci. The sample of students was adjusted according to two criteria. The first criterion was the place where students live, so we took into account the urban and rural areas, and the second criterion was the level of pollution, i.e. non-pollution of the environment in which students live.

In this study, we used the descriptive method of research. For data collection, we used two research techniques: testing and interviewing. Both techniques were accompanied by relevant instruments: anonymous Test for students and questionnaire for students.

3. Research results

Student questionnaire contained four questions pertaining to the involvement of students in environmental activities at school. When asked whether they participated in environmental activities, the highest percentage of students (24.87%) responded: sometimes. Almost the same percentage of students said they often took part (23.6%) and that they did not participate (24.3%) in environmental activities. However, the most alarming statistic is that 30.8% of students responded that there were no environmental activities in their school.

Table 1: Participation of students in environmental activities at school

Do you take part in environmental activities organized in your school?	%
I often take part	23.6
I sometimes take part	24.8
I do not take part	30.8
There were no such activities in our school	20.8
Total	100.00

The percentage of students taking part would probably have been higher if they had had the opportunity to engage in such activities. We asked students which of these activities were most interesting for them. Most students (72.9%) said that organization and maintenance of green areas around the school, forestation and planting of plants were the most interesting activities. We can see that students think that the most interesting activities are those that primarily take place in nature and where they are direct participants. Likewise, these activities give students a sense of doing something useful for nature, for its protection and for the improvement of the quality of life.

Table 2. Pupils' attitudes about the most interesting environmental activities

Which of the listed activities seems most interesting to you?	%
Organization and maintenance of green areas around the school	51.1
Actions of a forestation and planting of plants in the wider environment	21.8
Exhibition of photographs, drawings and literary works on the subject of endangering and protection of the environment	5.2
Monitoring and recording of events that endanger the environment	4.9
Collecting paper, glass and other recyclable materials	7.1
No answer	9.9

Total	100
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Table 2 presents the responses of students to this question. Students mentioned actions to collect paper, glass and other recyclable materials as the least interesting activities. Contrary to the expressed interests of students, activities related to collecting secondary materials for recycling are the most frequently organized in schools. However, the results we obtained point to the conclusion that students’ interests are not taken into account when planning these activities. Unfortunately, teachers are often not prepared to respond to the needs and interests of students. The first step to a successful environmental education is to familiarize students with environmental contents and arouse their interest in the issues of environmental protection.

Interesting results on the willingness of students to engage in the work of the environmental movement in school and in the activities of cleaning river banks or cleaning forests (Tables 3 and 4). In both cases, about 55% of students answered that they would take part in any of these actions should they schoolmates be included also.

Table 3. Willingness of students to engage in the activities of the Environmental Movement

If an environmental movement was formed in your school that advocated for environmental protection, would you be willing to get involved in the activities of that movement?	%
No, I would not be interested in it	24.3
Yes, provided that my friends engage too	54.6
Yes, very willingly	21.1
Total	100.00

These results suggest that students see their peers as an important factor of their own involvement in environmental activities. Peers can be considered as an important resource for including more students in environmental activities. We believe it is necessary to educate students about environmental issues so that they continue spreading their knowledge and including their friends in these activities.

Table 4. Willingness of students to engage in a voluntary action

If your school would organize a voluntary action of cleaning a river bank or cleaning of a forest, would you engage in that action?	%
No, I would not be interested in it	22.6
Yes, provided that my friends engage too	51.5
Yes, very willingly	25.9
Total	100.00

In this study we wanted to determine whether there are differences by gender, place and environment in which students live and the success of the knowledge test and the willingness of students to engage in environmental activities. We measured readiness for engagement by the average score of student responses to three questions:

- Do you participate in environmental activities organized in your school?
- If your school organized a voluntary action to clean a river bank or a forest, would you join the action?
- If in your school an environmental movement was formed that advocated for the protection of the environment, would you be willing to get involved in the activities of the movement?

The results showed that there are differences between the sexes and that girls are more willing to engage in ecological activities (Table 5.)

Table 5. Willingness of students to engage depending on the sex

Sex	N	SD
Male	131	1.64
Female	94	1.43

Differences by place where students live and willingness to engage were tested by t-test for independent samples. The results showed that there are differences and that students who live in villages are more willing to engage (Table 5).

Table 6. Willingness of students to engage depending on location (rural-urban)

Location	N	SD
Rural	77	1.78
Urban	148	1.67

The difference between locations (rural - urban) and the willingness of students to engage in environmental activities was also examined in other studies. (Stavreva Veselinovska, S. 2007). Practical engagement in the protection and care of wildlife is most prominent in rural, then in suburban, and at least in urban areas. As an explanation for this fact, the author Stavreva Veselinovska S., states that for the respondents from rural areas primary socialization took place in conditions of ecologically cleaner environment and they are therefore more willing to engage in activities aimed at protecting and promoting of that environment. According to the survey, respondents from the country are more willing to participate in environmental protection activities.

We believe that life in the country does not exclusively mean living in an ecologically cleaner environment. We believe that rural areas can have a positive impact on students in terms of students' relationship with the natural environment. Students from villages are more in position to gain experience in nature, learn about nature and understand natural processes. We also believe that the closeness the students living in villages have with nature is an important reason for their greater willingness to participate in environmental protection activities. In addition, the explanation for the greater willingness of students from villages to engage in environmental activities can be found in the fact that children in rural areas show greater readiness for all types of group activities. In rural areas in Macedonia sensitivity for joint work is traditionally developed. On the other hand, the urban environment alienates people and students from urban areas do not have the desire and the habit of participating in joint activities.

Students from the city have achieved better results on the test, which means they have more knowledge and information but they were nevertheless less willing to engage. The question is why we got such results. One would think that, based on the knowledge they possess, students have the desire to both engage in environmental protection and to prevent further development of the ecological crisis. However, as results show, knowledge and experience that students gain through life in the country and in villages are a much stronger incentive to engage than the knowledge that students acquire in school and from various sources.

It was expected that students with greater knowledge of ecology would have a desire to become active in environmental protection, but this association has not been confirmed by any research. The difference between the environment in which students live and their readiness for engagement was tested by t-test for independent samples. The results showed that there was no statistically significant difference in willingness to engage between students who live in polluted and unpolluted environment (Table 7).

Table 7. Willingness of students to engage depending on the environment

Environment	N	SD
Polluted	136	1.73
Non polluted	88	1.63

However, we expected that students from polluted areas would be more willing to engage and to do something to reduce pollution of the environment in which they live. Unfortunately, no study in the literature that we analyzed, does not give pollution and non-pollution of the environment as an independent variable, so we are unable to confirm or deny such a fact with the findings of other research. As was the case with the previous independent variable, it would be interesting to compare the data obtained by linking the environment in which students live and students' achievements on the test with the willingness of students to engage in environmental activities.

Table 8. Average value at the test in relation to the environment

Environment	N	SD
Polluted	136	4.89
Non polluted	88	5.24

Although students from polluted areas showed a higher level of environmental knowledge and awareness, they did not appear to be more prepared for involvement in environmental activities than their peers in unpolluted environment. Despite the knowledge and information they have, as well as the fact that they live in a polluted environment, students from such areas are not more willing to engage in environmental activities. On the other hand, students from non polluted areas have a lower level of environmental knowledge and information. However, even though they live in an environment that is not polluted, these students show the same willingness to engage in ecological activities as students from polluted areas. Our expectations that students from polluted areas will show greater willingness to protect and improve the environment in which they live, have not been confirmed.

4. Conclusion

The school is the best place for the development of all components of environmental awareness. In this sense, it is important to cultivate environmental contents through both teaching and extracurricular activities. Students willingly participate in well-thought-out extra-curricular activities. The aim of our study was to find out which environmental activities are of interest to students, as well as which independent variables affect the willingness of students to engage in such activities. Some possible conclusions of our study are:

Students prefer activities that occur in nature, in which they are direct participants and where they feel that they are actually doing something for the preservation of the environment (organization and maintenance of green areas around the school, forestation and planting of crops).

Students find collecting recyclable materials the least interesting activity. Contrary to their interests, these activities are most often organized in schools.

Students from urban areas show a lower degree of willingness to engage in environmental activities. This suggests that knowledge acquired at school is not functional. Such knowledge does not lead students to appropriate conclusions with regard to their role and contribution to environmental protection.

Results showed that students' willingness to engage in ecological activities is not dependent on the environment in which students live. Thus, students who live in a polluted environment have not shown a greater degree of willingness to engage in activities that are related to the protection of the environment, regardless of the fact that they possess a higher level of knowledge of students from unpolluted areas.

Our research shows that change is necessary, above all, of forms of teaching and learning environmental contents. It is necessary to improve methods of work so as to develop equally the rational, emotional and value spheres of students' personalities.

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