

INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN ENVIRONMENT & GEOGRAPHY



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To Link this Article: <http://dx.doi.org/10.46886/IJAREG/v8-i1/7269>

DOI: 10.46886/IJAREG/v8-i1/7269

Received: 27 January 2021, **Revised:** 28 February 2021, **Accepted:** 18 March 2021

Published Online: 30 March 2021

In-Text Citation: (Benciu et al., 2021)

To Cite this Article: Benciu, F., Vilcu, D.-M., Bogan, E., Bujor, L., & Constantin, D. M. (Oprea). (2021). The Importance of Early Ecological Education for An Assumed and Nature - Friendly Behavior. *International Journal of Academic Research in Environment & Geography*, 8(1), 1–10.

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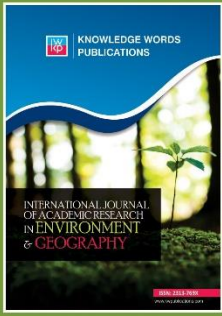
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Vol. 8, No. 1 (2021) Pg. 1 - 10

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The Importance of Early Ecological Education for An Assumed and Nature - Friendly Behavior

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Abstract

The ecological education of the young generation must be understood as the ability of a group to think and act friendly with the environment, in the sense of protecting it, the students behaving as vectors of information dissemination in family and society. The ecological education, from communication to the realization of the projects, means going through three stages: Communication - Awareness - Project, highlighted in two Case Studies: Awareness campaign of the local communities from the Natura 2000 sites Lunca Buzăului and Platoul Meledic in Buzău County and Educating the young generation regarding the quality of the urban environment; the area related to the lake group on the Colentina River in Bucharest. The seminars targeted the students from the 3rd and 4th grades of the "Captain Aviator Mircea T. Bădulescu" High School from Buzău, the students of the "Miguel de Cervantes" Bilingual Theoretical High School from Bucharest and the 1st year students of the Faculty of Ecology and Protection Environment from the Ecological University of Bucharest. Putting into practice the concept of ecological education has been approached on three levels: Ecological education in schools, Environmental education through optional subjects, Ecological education in schools through projects and four projects carried out as a team at the secondary school in Buzău: "Wetlands and People", "Together over Time", "Less waste, cleaner water", "ECO-Summer School", "From maculature, flowers". All these aim to involve the students along with teachers, students and coordinating teachers of the project in concrete actions to protect the environment, along with the aim of disseminating the information obtained among the adult population.

Keywords: Ecological Education, Awareness, Ecological Behavior, Vectors of Influence, Students.

Introduction

The ecological education of the young generation, of the students from pre-university education, must be understood as the ability of a group (or a person) to think and act friendly with the environment, at a subconscious level, in the sense of protecting the environment. Thus, school campaigns aimed at greening an area are only limited actions in time and space. Ecological education must have as a primary/initial characteristic the sustainable development of the ecological competences and abilities of the young generation (Benciu & Pop, 2013).

The ecological education for the young generation is based on the fact that the students behave as vectors of information dissemination accessed in the family environment, community and, why not, per generation. Therefore, both the information received, and especially the ways they acknowledge are extremely important and especially the way they will disseminate this information (Steward & Jiones, 2007). By assuming this data, students will be able to develop correct behaviors and actions in terms of protecting the environment/nature. By unconditionally supporting adults, teachers and parents, activities/actions developed in the form of local/regional/national projects, both the awareness and awareness of adults, as well as local/national authorities will be obtained so that they can make decisions- fair resolutions prior to a legislation in the sense of sustainable development of the environment (Le Bon, 1991).

The education process is based on the ability to communicate some information, so that the recipients of this information - the students - succeed in completing the stages from receiving to the processing and taking over the information obtained. Thus, one can go on and involve the respective students in a multitude of ecological projects focused on various ecological themes:

- biodiversity conservation,
- protection of endangered species,
- sustainable development of the local/regional community,
- socio-media activities of community education and awareness,
- correct waste management, etc.

The better the process of ecological education is assimilated by the students, the more responsive the authorities will be and the faster and more beneficial in terms of environmental protection their reactions will be (Rubin & Silva, 2003).

Methodology

A model of the ecological file for the ecological education of the young generation, targeting students in middle and high school classes, but also undergraduates, can be approached in order to achieve two perspectives: the perspective of the student through which the actions also participate, school caravans and the perspective of the performer, by involving students in projects such as: Campaign to raise awareness of local communities from the sites: Natura 2000: Lunca Buzăului and Platoul Meledic from Buzău county, Educating the young generation regarding the equality of the urban environment; the area related to the lake group of Colentina, Bucharest. The seminars targeted the students from the 3rd and 4th grades of the "Captain Aviator Mircea T. Bădulescu" High School from Buzău, the students of the "Miguel de Cervantes" Bilingual Theoretical High School from Bucharest and the 1st year students of the Faculty of Ecology and Protection Environment from the Ecological University of Bucharest.

The activities were initiated by professors from the pre-university environment in the program of continuous professional development, who, together with university teachers,

undertook and carried out for several years these actions that support the understanding of the importance of protecting the environment in everyday life day, from the youngest students to the oldest.

Ecological Education: From Communication and Awareness of Information, To Carrying Out Projects

What is awareness and what is its importance? As mentioned above, the awareness process has several stages, which we will mention in the following, highlighting at each stage its importance in the respective process. Communication is an ongoing process that contains the following steps (Rientjes *et al.*, 2000): Speech → Hearing → Listening → Understanding → Approval → Action → Continuing the action.

Thus, to the Communication stage we can allocate the speech - hearing - listening, and to the Awareness = Assumption stage we will include the understanding - the approval, thus reaching the Project stage, through the action of the students and, finally, the feedback from the authorities, in response to raising awareness of the local community. A first step in this process is the establishment of the target group, this representing the students in the pre-university education mainly, secondary will be adults - teachers and parents, and tertiary will be the local / regional authorities (Rientjes *et al.*, 2000).

Communication is a process of transmitting an accessible message so that the recipients of the message can fully integrate the information received. Communication is real and effective when the receiver can decode the message, by default.

From a psycho-pedagogical point of view, an information is intelligible when understood by a preschool child (de Graaf, 2010). Thus, it is hoped that the information transmitted will be accessible to the understanding of as many non-specialized people in the field of ecology. The transposition of the information must be interactive and attractive, so that the decoding of the message is easy. Also, the communication of the message must have a non-discriminatory character from a social, racial, intellectual, gender or other type of point of view.

Communication and therefore dialogue are not processes through which we act on a person, but processes through which something is shared with others (Kohlreiser, 2007). Therefore, the dialogue requires an adaptation at the mental level, regarding the relationship with the others, the purpose of the dialogue being understanding the interlocutor and not just the attempt to make him understand us (Hesselink *et al.*, 2010).

It should be kept in mind that during a dialogue we have open messages at the verbal - social level, but also hidden messages at the non-verbal - psychological level. The gesture, the mimic of the face, the bodily movements, the tone of voice also agree with the transmission of the non-verbal messages, these being decoded at a psychological level. Real communication is achieved when, within the dialogue, the two types of messages transmit the same information, the non-verbal, psychological message reinforcing the open, verbal message.

When the stages (previously presented) are performed positively, the last stage of the awareness process - assuming information by the receiver = the student - is also accomplished. This stage of acceptance requires a period of information processing, so that it can be integrated as a general interest of the local community and not contradict it (Curtu *et al.*, 2010).

The Project phase is also very important, because all the students will be the main target group, but in this phase the students will also be those involved in real ecological

actions/activities. Thus, they will be the vectors of disseminating the assumed information, developing correct thinking and skills for environmental protection. The students will also be the ones who will think about the efficient communication tools and channels of the young generation, but this will be in complementing the traditional means of communication, such as round tables/debates/letters focused on ecological topics (Rientjes, 2000).

The case studies presented below will highlight the target group of primary, secondary and high school students, the methods used for the communication - awareness phase and the feedback / result obtained.

1. *Campaign to raise awareness of local communities from the sites: Natura 2000: Lunca Buzăului and Platoul Meledic from Buzău County.* Campaign to raise awareness of the population in the sites: Natura 2000: Lunca Buzăului and Platoul Meledic regarding the importance of biodiversity is considered type E activity (according to ICPA - National Institute of Research - Development for Pedology, Agrochemistry and Environmental Protection – IRPA Bucharest) and includes a number of awareness actions that will be described below. According to the target group, the awareness campaign in the two Natura 2000 sites was divided into two activities:

a. School caravans, where the target group was made up of the young population (students) and the school staff/principals of the schools.

b. Participation in local events, folklore festivals and traditional fairs, where the target group was made up of locals, local media and politicians, traders, tourists.

Thus, mini competitions with awards and diplomas for students were prepared (*Geodiversitate, Scorpionul de Meledic, Fluturașul purpuriu, Bombina bombina, Tritonul dobrogean and Popândăul*), short films were watched, a question session was held to understand the concepts of environmental conservation and biodiversity protection. The students received with interest information about Natura 2000 sites and asked questions related to biodiversity, environmental conservation, protection of endangered species (figure 1).

2. *Educating the young generation regarding the equality of the urban environment; the area related to the lake group of Colentina, Bucharest* – the main action was to conduct seminars for high school students and first year students of the Faculty of Ecology of the Ecological University of Bucharest. During these meetings, the socialization / networking of the members of the working group was considered, but also the detailed information regarding the stages to be carried out within the project and of which they will be part. During these meetings the information and working materials were divided:

a. *"Colentina river lakes - components of the Bucharest urban ecosystem", Environmental quality education.*

b. *"Diary of practice", Education for environmental quality.*

Following the participation in this project, all the members of the target group received diplomas of graduation of said training. The interesting part through which we received a real positive feedback was the availability of a larger number of students from the participating high schools, for projects that will be carried out in the future.



Figure 1. Actions to raise awareness of biodiversity values in general schools and high schools
Source: The Authors

Ecological Education in Schools

As it will be observed in the following, it can be realized in several directions, namely: through optional materials specific to environmental protection and through projects in which students are direct co-participants, being the partners of the coordinating teachers of the developed projects. Further, we will present the various directions of development and promotion of ecological thinking for students in the primary-secondary school, both from Bucharest - The Bilingual Theoretical High School "Miguel de Cervantes", the 3rd and 4th grades, as well as from the area of Buzău - Gymnasium School "Captain Aviator Mircea T. Bădulescu".

• **Environmental education through optional subjects - S.O.S. – We and the Adults Need to Respond Urgently through Action!** was an optional discipline, with a duration of two years, for grades I-II, proposed by the Gymnasium School "Captain Aviator Mircea T. Bădulescu", Buzău, coordinator - primary education teacher Vilcu Daniela-Mihaela.

Studies conducted in previous years on environmental protection have shown how the curriculum for this optional school subject on environmental protection has correlated the formation of the investigation, understanding and protection of the ecologically protected areas from a geological and geographic point of view (including biodiversity), through the direct recognition of these objectives in the area of Buzău county, while also exploiting on the practical experience of the students (Benciu *et al.*, 2019).

The following topics were chosen as themes: Earth - truth and legend, A journey into the depths of the Earth, Volcanoes - Mud volcanoes, Nature's wonders, Water in nature, Weather, Nature's health is also our health, Animals, Fruits in the area we live in, etc. The finalization and evaluation of these subjects were materialized by creating a portfolio with on-field observations, the development of models/paintings and collages on the proposed themes, exposed within the ECO Calendar (figure 2).

Ecological education in schools through projects, in which the students are co-partners of the coordinating teachers, it was possible through the development by the ecological associations together with the Ministry of Education, through the School Inspectorates, of various thematic contests, destined for the pre-university schools. Thus, an example is the national project-contest "LET'S MAKE THE GREEN MORE...GREEN!!!" Under the slogan "Green is more than just a color, it is a way of life", the educational project organized by the Association "Schools for a green future" aimed to directly involve students as co-partners, to become involved in simple, but effective actions of understanding the concept of ecology and environmental protection, under the direct coordination of the activities by the teacher with the role of project manager (Naumescu, 2008).



Figure 2. Work done by students through the ECO Calendar
Source: The Authors

The projects from the "Captain Aviator Mircea T. Bădulescu" High School (former no. 1) from Buzău, coordinated by a primary education teacher, will be presented below:

- "*Wetlands and People, Together Over Time*" - the purpose of the project was to promote the site Natura 2000 Lunca Buzăului from the point of view of biodiversity and to develop an eco-civic behavior among the students participating in the project.
- "*Less waste, cleaner water*" – the purpose was the organization of selective collection campaigns, the hygiene of the Avifaunistic Protection Site SPA Balta Albă and, of course, the exposure and rewarding of the works carried out by the students. Both projects were initiated as forms of celebration of the *International Year of Water* (figure 3).



Figure 3. Involving students in projects with an ecological theme
Source: The Authors

• **ECO-Summer School** – the purpose of the project was knowing - recycling - exploiting electrical and electronic waste by the students. Thus, they were positively influenced when they came in contact with two economic agents dealing with the recycling/treatment/recovery of electrical and electronic waste. (DEEE). The maximum impact of the project was reached when the students saw concretely that everything was recycled, from small and large appliances, to toys and sports and leisure equipment, saws, electric cars, fluorescent bulbs etc., how all objects can be decomposed and used; thus children understanding the importance of selective collection.

• **From maculature, flowers** - the purpose of this project was the awareness and the direct involvement of the students in actions of selective collection at a community/local level of the paper and the importance that this activity has for the protection of the environment. In this sense, two main actions were carried out:

a. The activity of collecting and exploiting the maculature at the school level so that the amount collected after the sale was used for the purchase of seedlings of flowers and lawn. Thus, the maculature was "transformed" into flower and grass seedlings, which beautified the school garden (figure 4).



Figure 4. Involving students in the action of planting seedlings

Source: The Authors

b. The activity of raising awareness among the inhabitants of the city regarding the recycling of aluminum doses from food consumption. In this regard, the students distributed messages to the local population (figure 5) and discussed with the people, disseminating the information received and learned in environmental protection actions.

- Stop throwing aluminium doses from refreshments and beer! These can be continuously recycled!
 - Recycled aluminium =95% lower energy consumption than the aluminium obtained through ore processing.
- GREEN TEAM- School no.1 Buzău**



Figure 5. Involving students in the action of recycling aluminum doses

Source: The Authors

Conclusions

The conclusions regarding the environmental protection actions derived from the case studies related to raising the awareness of the students and the local population, were:

- Involving students and teachers in pre-university education in terms of understanding the terms of ecology and environmental protection.
- Understanding the concept of selective waste collection and its importance, by converting waste into reusable assets.
- Dissemination of information by students in the family environment, the young generation behaving as active vectors of awareness and crystallization of ecological behavior, in the process of sustainable development of the environment.
- Transmitting responsible ecological behavior to the authorities, through parents working within local and regional institutions.
- Permanent attraction of volunteers throughout the promotion campaigns, giving importance to choosing the type of communication and dissemination of information to the population.
- The school activities carried out together with the students of the Faculty of Ecology and Environmental Protection of the Ecological University of Bucharest have been successful in the dialogues carried out with the students and the teachers, so a greater number of students will be integrated in the communication-awareness team of the future environmental problems.
- The development of the collaborative relationship between the students and the project coordinating teacher is beneficial to the professional development of the student, materialized in personal benefits such as obtaining volunteering diplomas as proof of professional experience.

Finally, the conclusions showed that there is a need to change the way of the scientific approach of the ecological issues and the protection of the environment by permanently carrying out the actions of awareness of the students from primary schools until the completion of the university studies, also involving the segment of the adult population. However, it turned out that the realistic collaboration of the decision makers from the local administration with the educational system institutions is very important.

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