



Reducing the Ecological Footprint through Eco-Awareness: The REFE Project

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Abstract

The article is a study of the Reducing the Ecological Footprint through Eco-Awareness (REFE) project, funded by the European Climate Initiative (EUKI). The main goal of the REFE project is to raise students' awareness of the consequences of climate change, consumerism and mass production. These are deeply rooted in Romanian society. The article gives some insights into the objectives, methodology and main outputs of the project. It focuses on The student's workbook on ecological education, one of its outputs created within the EuroEd Foundation, one of the project partners. The workbook encourages students to explore and understand various ecological issues, such as recycling, food waste, sustainable development, energy saving, ecological footprint, etc., to become aware of the need to protect nature, to use the natural resources as rationally and efficiently as possible. The article explores the 14 units of the workbook developed around important ecological themes. Each unit presents useful information related to the topic as well as practical and interactive activities that help students to consolidate and systematise their knowledge and especially develop their ecological behaviour. The material addresses both students and teachers. It provides teachers with hands-on materials aiming to make students aware of environmental issues, facilitate their understanding, stimulate them to ask questions and develop proactive behaviour. The material provides opportunities for students to research to find answers and solutions that aim at sustainable development. In addition, the testimonials collected from teachers and students from Romania give insights into their experience with the workbook.

Keywords: ecological education, reduction, recycling, awareness

1. European context

Despite the fact that environmental awareness is growing in Europe, consumerism and mass manufacturing are still deeply embedded in many parts of our society. The importance of more sustainable lifestyles is highlighted in two recent Romanian publications: the 5th National Report on the Convention on Biological Diversity and the National Sustainable Development Strategy. Both publications consider education and raising awareness among children and teenagers as critical tactics in this regard.

2. The REFE project: its objectives, partnership and products

1.1 The REFE project's objectives

The REFE project equips Romanian students with state-of-the-art educational tools to help them live more sustainable lives. This project aims to raise children's and teens' awareness and increase their knowledge of how their actions affect the health of our world. The project also enhances their understanding of how individuals may contribute to the long-term conservation of the Earth by making more sustainable decisions for the future [1].



1.1 The REFE project's partnership

The project has been developed within a partnership including schools and organizations in the field of education: Teatrul Vienez de Copii in Bucharest, Romania, the "Schule für das Leben" education initiative, Austria, the EcoLogic Association, Baia Mare, Romania, the University of Bucharest and EuroED Foundation, Iasi, Romania. The project is part of the European Climate Initiative (EUKI). The overall objective of EUKI is to promote cooperation within the European Union (EU) in order to reduce greenhouse gas emissions. The project is also supported by the German Federal Ministry for Economic Affairs and Climate Change [1].

1.2 The project's products

The REFE project has developed eight products that can be integrated into Romania's educational system for the sixth grade. They support the adjustment of the school system to the priorities of the 5th National Report on the Convention of Biological Diversity and the National Sustainable Development Strategy. The products are as follows: a tool to measure the ecological footprint; a guide to organise an educational summer camp on ecological footprints: "How do you plan a sustainability camp? – With the REFE Guide, it's easy"; a documentary: "4 to 1 Earths!, An Adventure in Ecology"; a sixth-grade student workbook on ecological education; a play called "Shakespeare and the Golden Tortoise"" and e-learning modules on the topic. The products educate Romanian children and teens in the spirit of the principles of environmental thinking as well as suggesting practical ways to make their lifestyles more sustainable [1].

3. The project's student workbook on ecological issues

3.1 The project's student workbook: an outline of its content and activities

The student workbook encourages students to investigate and comprehend various ecological issues, such as recycling, food waste, sustainable development, energy conservation, ecological footprint, and so on, in order to become aware of the need to protect nature and use natural resources as efficiently as possible [2; 3]. The content is divided into 14 chapters based on significant ecological issues. Each chapter contains relevant material as well as practical and interactive exercises that assist students in consolidating and systematizing their knowledge and, in particular, in developing their ecological behaviour. Both students and teachers benefit from the material. Thus, the workbook provides teachers with hands-on materials aiming to raise students' awareness of environmental issues, facilitate their understanding, stimulate them to ask questions and develop proactive behaviour. It provides students with opportunities to research and find answers and solutions that aim at sustainable development.

Each chapter opens with a "Did you know section" to stir pupils' interest in the topic, the main strands of which are summarized in the Useful information section (Fig.1).

Fig.1



Students participate in a variety of fun and engaging activities that are tailored to their age and interests, such as questionnaires, surveys, experiments, debates, conversations, games and projects, all of which are aimed at encouraging students to conserve and care for the environment. The



recommended activities help students to understand the role of the environment in our lives, appreciate and respect nature. They also prepare them to become responsible citizens who act promptly in the community and for the greater good. Students are given the opportunity to express themselves through a variety of mediums, such as writing, drawing or cinema, which are promoted at the school or community level. Each unit concludes with a self-assessment quiz and answer key. The goal of these materials is to create active communities of students who are concerned about environmental issues.

The units stimulate students' motivation and enhance their creativity through the use of arts (drama, drawing, poems, etc.). Thus, pupils are encouraged to write poems on ecological topics following a certain structure (a haiku). For example:

*Where are the flowers?
Where are the bumblebees and trees?
The sunset of the Earth.*

Students are also challenged by having to reply to the Earth itself which asks for their help. The threat of plastic garbage harming oceans and the existence of the Great Plastic Island in the Pacific Ocean is signalled by a dolphin: *Imagine you are a dolphin. What message would you write to people?*

The activities aim at developing students' well-rounded personality. The debates and auctions on ecological topics (Fast vs. Slow fashion?) enhance students' critical thinking skills. Students' actions are not limited to being aware of and identifying issues. They are encouraged to take the initiative and get involved in their communities' environmental actions. They have to investigate the efforts made in the community to maintain, for instance, water quality and reduce water consumption and promote them on the school's website. They may be asked to assess the water quality of the rivers in the area. If it is below the standards, their tasks grow difficult: they have to think about what measures could be taken, organize a campaign involving the school and the local community and submit a petition to the authorities.

The activities have a strong educational purpose aiming at developing positive and active behaviour. Students are encouraged to get involved in environmental conservation, get informed, discuss and, if possible, join the efforts of their community.

Students are familiarized with the measures that have been taken so far: such as the use of the ecological footprint test, a tool that shows the impact of human consumption and activities on the environment. The score students get is transformed into the number of planets required to support the entire population if everyone followed the applicant's current behaviour, and the test can be reanalyzed by making a few or larger modifications to determine how these changes improve the ecological footprint [4]. As a result, the test serves as a tool for environmental awareness and education. By using it, students discover ways to reduce their consumption and ecological footprint, which is not always easy.

3.2 Analysis of teachers' and students' interviews (results and discussion)

In the development of the workbook and selection of activities interviews were carried out on 7 teachers and 50 students from several high schools in Iasi, Romania, which explored participants' general attitudes towards the proposed programme. Thus, the pupils' testimonials highlighted the following main ideas:

Children and teenagers emphasized the role that such activities could play in raising their awareness about ecological issues, introducing them to today's important issues:

I think that such classes could help me open my mind to what is happening in the present day and how our actions have a profound effect on our planet. These classes can also help me to understand what sustainable behaviour is and what we can do to help hopefully create a better situation.

There were also voices which appreciated the authors' intentions to create materials which help and encourage students to contribute to common efforts and have a voice in their community.

I have always been interested in the world and how it is able to sustain us. I want to learn more about the specifics and understand the problems that humanity has caused. I want to be part of that great team focused on the three R's.

I really like classes which open doors for volunteer opportunities to join all forces that take action and reduce our ecological footprint. I love them. It makes such a difference when you are personally engaged in issues that are related to your town and you can also contribute to improving them.



On the other hand, the teachers appreciated such activities as being relevant to the students' context, creative, challenging and stimulating students' motivation to study, which may lead to future careers in the field.

The engaging and provocative activities on ecological issues can help awaken a passion for studying the natural world. The materials encourage pupils to take personal responsibility to combat the threat of climate change.

These materials aim to develop active communities of students involved in environmental protection. The activities, which raise awareness of what a cleaner, better and more sustainable world looks like, help teachers instil in students a love for nature; as they are also promoted to families, friends and community they can develop a general positive and responsible attitude towards nature.

4. Conclusions

The REFE project is in line with the challenges that our lifestyles pose on the environment and promotes state-of-the-art materials, which provide creative opportunities for students to make the necessary changes. The study is limited by stipulations in the project's application such as the small number of participants. However, its results reinforce the project's key goals of increasing awareness among teachers and students about the need to study environmental issues as a formative component of constructive civic behaviour. The workbook helps children and teens understand how their actions affect the health of our planet and encourages them to contribute to the long-term conservation of the Earth by making more sustainable decisions for the future. The workbook can contribute to creating awareness of what a cleaner and more sustainable world can be like and fostering engaged communities of students concerned about environmental issues. It can assist teachers in instilling a passion for nature in students, motivating family and friends, and establishing a positive, responsible attitude towards nature.

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