

A teaching experience to develop Environmental Education through English with students majoring in Chemistry and Geography

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**"If you don't know there's a problem,
you don't have anything to think
about."**

A. Einstein

INTRODUCTION

Attempts have been made all over the world to make people aware of the environmental problems affecting our planet, regions and local territories. Nowadays, when man is the only responsible for the damages affecting the environment, the Cuban government is working tirelessly trying to find out ways to teach people not to destroy, but to preserve our flora, fauna and social institutions and to demand the use of our national resources in a sustainable manner.

Since in our society, schools are very important institutions in charge of educating the new generations to behave properly in the future, environmental education was introduced in our educational system and in the curriculum of those who are studying in Pedagogical Universities.

As part of the national policy, our Pedagogical University "Félix Varela" is carrying out a strategy aimed at the introduction of the environmental dimension in the curriculum of its different specialties. As a result, most of them have designed a strategy or plan to be carried out by different subjects for the environmental formation of their students. These strategies comprise the three essential components: the scientific item, the academic item, and the one that refers to the teaching practice period.

This work aims at the introduction of the environmental education dimension in two specialties of our institution: Chemistry and Geography through English.

DEVELOPMENT

As our work deals with environmental education, we think it is necessary to define this term before describing our experience.

What is Environmental Education?

Different specialists have defined this concept in different ways, but we think that the one given by Margarita McPherson is more complete and it best fixes our work, since she is the person who leads Environmental Education in our Ministry of Education. According to her:

Environmental Education is a permanent educational process aimed at awakening the human ethics and inducing individuals to adopt consequent attitudes and behaviors that ensure the safety and protection of the environment.

Accomplish the environmental formation of an individual it is necessary to start when he is born and it ends when that person dies, because there is a long way to go through, in order to fulfill the main objectives of environmental education stated by Belgrade's letter:

1. **Awareness:** to help people and social groups become aware of environmental issues, as well as the consequences that the increased destruction of the environment could bring about.
2. **Knowledge:** to help people acquire a basic comprehension of the environment in its totality, as well as the main problems affecting it. It is also important the understanding of the presence and function of mankind in these problems.
3. **Attitudes:** to help people acquire social values, and interest towards the environment and the will that pushes them to participate actively in its protection.
4. **Aptitudes:** to help people acquire the necessary aptitude to solve the environmental problems.
5. **Participation:** to help people and social groups develop their responsibility and awareness about the urgent necessity of paying attention to the environmental issues in order to secure the right measures to solve the main problems.

Therefore, it is considered a long process because all these objectives cannot be accomplished in a couple of classes, a subject, an educational level, etc. it must be the result of all the efforts made by all those who are involved in the formation of the individual: the family, the school, the community.

It must be emphasized that the teachers of all subjects, in all levels of education should become instructors and research workers convinced of this urgent need and using the environmental theme as a means of linking the classroom to the world.

It is our aim in this work, to present a teaching experience carried out in two of the specialties of our university in the subject: English for Specific Purposes.

This experience was based:

1. On the Environmental Education strategies for students majoring in Chemistry and in geography
2. On the environmental education aims for 2nd year students majoring in these two specialties. They are:

- Chemistry:
 - Geography: to analyze environmental situations putting into practice the students' knowledge related to the basic principles leading Environmental Education.
 - To evaluate the influence of cultural, economic, industrial and professional activities on the natural and social environment.
3. On the general aim for English as a subject for 2nd year in these fields, which is, developing reading skills

THE EXPERIENCE IN CHEMISTRY

This experience has been worked out for three academic courses now time it has been put into practice, it has been enriched/ improved. It is developed in Unit II (second semester) entitled Chemistry: its influence on the environment. Its aim is: to contribute to the students' environmental formation by means of the comprehension of reading texts dealing with environmental issues in which the students have to infer, identify the main and supporting ideas and summarize the context in Spanish.

Fourteen texts are included in the unit.

1. Environmental idioms.
2. Other environmental concepts.
3. The ozone layer.
4. Acid rain.
5. Greenhouse effect.
6. Concepts of environmental education
7. Free selection of a text related to the environment.
8. Texts are used

Thirty hours are devoted to this unit

The total number of environmental concept dealt with in the unit is 31, but there are four which are fundamental: The ozone layer, acid rain, green-house effect, environmental education.

What is outstanding from this experience is, not only the methodology and the strategy used to develop reading skills and the knowledge acquired, but also the students' reflections on the problems, their positive attitudes and participation in the solution of some of the problems affecting their living conditions in this institution.

HOW TO ACCHIEVE THIS?

1. After having spent a number of classes working on environmental topics, two class-periods are devoted to work with concepts given by different authors and institutions about the term Environmental Education.
2. The last activity is a mini-research the students have to do in Spanish, which is assigned as an independent work. The aim of this activity is:

To have the students be aware of the environmental problems in their institution, look for information about their causes and take part in their solution.

The students are given two weeks to do this work.

PROCEDURE:

1. Divide the class into small groups of two or three students.
2. Have each group choose an environmental problem affecting the Pedagogical University. (The problems chosen were: water pollution, air pollution and soil pollution)
3. Have them search for information about the problems they chose to do it the students have to:
 - Make a bibliographical revision about the topics.
 - Interview specialists and people in charge of the areas where the problems exist.
 - Define the causes of the problems.
 - Make possible suggestions to contribute to the solution of the environmental problems
4. Have them look up the English equivalents of environmental terms related to the topics.
5. Have them present the mini-research before a board of two professors: the English teacher and the Chemistry teacher and the whole class.
6. Give an evaluation of the research tasks (all the students are involved in giving a work for each of them)
7. Have the students reflect on (oral and written) the benefits of these English tasks for them as teachers to be in Chemistry.
8. Have them write a letter. (The whole class addresses a letter to the Rector of this University making him know about their findings and the suggestions of possible solutions for the environmental problems they studied.
9. Check papers and mark mistakes

10. Give paper book and have them correct mistakes. (Mistakes such as: bibliographical quotations, organization of the bibliography, and other scientific skills they need to improve their research) (the students have to write a better final draft of their paper)

In Geography a similar experience has been carried out but the environmental issues the students have to search on, are somehow different since they are analyzed from a geographical perspective. Instead of a unit they devote a whole semester to work on environmental issues, i.e., _____ class periods, _____ texts, and _____ concepts.

CONCLUSIONS

- The experience proves, that the English class is a way/via to contribute to the environmental education of our students.
- It also shows the possibility to arise awareness, provide knowledge, contribute to get a positive attitude towards environmental problems, and at the same time take part in the solution of local environmental problems.
- By means of this experience the students were able to deepen on some contents related to their specialty, it also contributed to the development of their scientific skills.
- This work also helped to the interdisciplinary approach since the students had to integrate different subjects of their curriculum to achieve this task: English, Spanish, computing, Chemistry.
- We can conclude with the same phrase we started our work, quoting Albert Einstein: "If you don't know there's a problem, you don't have anything to think about, then you don't feel the need to solve those problems that will give an end to our own existence."

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