



Energy saving activities in school *IES Xelmírez I Secondary School, Spain*

Summary

Our dependence on energy for all our daily tasks makes it a very interesting topic for developing environmental education projects to promote energy saving strategies at school and at homes. This activity was addressed to secondary school students and their families at the IES Xelmírez I. Santiago de Compostela (Galicia). Spain. The more important financial source comes from a Comenius I project of the European Union, shared with three other European schools: Holbein Gymnasium (Germany), Karttula Gymnasium (Finland) and B.G. Ingeborg Bachmann (Austria).

The aims were to make students, teachers and some other members of the school community aware of the importance of its energy consumption patterns; to propose measures for energy saving in the school and homes; and to organise an international conference on renewable energies and sustainable development, including teachers and students from different subjects: biology, environment, geology, physics, chemistry, geography, technology, etc.

The approach followed is based upon a scientific methodology to collect energy consumption data and exchanging this information with the partner schools in order to elaborate the final conclusions and recommendations:

- Gradually substitution of incandescent lamps
- Elimination of electric heaters
- Planning of a future project of solar roof
- Designing campaigns to promote energy saving attitudes
- Writing education resources to work on energy issues at different matters and levels

One of the principal results is an initial saving value of 10% that the participants are trying to elevate to a 25% final objective.

End-user area

New buildings
 Refurbishment of buildings
 Transport and mobility
 Financial instruments
 Industry
 Legal initiatives (regulations, directives, etc)
 Planning issues
 Sustainable communities
 User behaviour
 Education
 Other

Target Audience

Citizens
 Households
 Property owners
 Schools and universities
 Decision makers
 Local and regional authorities
 Transport companies
 Utilities
 ESCOs
 Architects and engineers
 Financial institutions
 Other

Technical

Energy efficiency
 Heating
 Cooling
 Appliances
 Lighting
 CHP
 District Heating
 Solar energy
 Biomass
 Wind
 Geothermal
 Hydro power
 Other

Context

Energy matters have a great educational potential, due to the interdisciplinary nature of the subject and the capacity to change attitudes and values in these issues.



Objectives

The objective was to evaluate energy consumption and its implications - by means of CO₂ emissions - in climate change crisis; and proposing realistic measures for energy saving at school and homes.

The recommended strategies are linked to dynamics of team work and the application of the scientific method for collecting data, analysis and proposal of alternatives.

Process

The main phases of the project are:

- Studying previous ideas of students and teachers
- General assessment of the installed power
- Technical survey of the electrical installation
- Statistical analysis of the electrical consumption data.
- Discussion about a possible set of recommendations
- Campaign to support the implementation.

One of the main problems encountered is the prejudice of some students and teachers about the necessity to get high temperatures and their opinions against the saving campaign. Nowadays, an important part of environmental education strategies must be focused in order to shift these thoughts and feelings.

Financial resources and partners

Financial aid was received from the European Union of about 6000 Euros over three years. The project also received the technical assistance of the local Energy Council: INEGA (Galician Energy Institute).

Results

From the beginning savings of 10% of the energy usually consumed were made, but the aim is to increase this to maximum values of 20%-25%.

Other types of results are more difficult to quantify. The augmentation of environmental awareness among the students and parents seems to be a clear fact, but there is a lack of empirical data about this point.

Lessons learned and repeatability

One of the main factors to success with this kind of environmental projects is to set up a wide team work with a great representation of teachers, students and parents, to inform clearly to the other parts about all the phases and decisions taken, and trying to introduce these topics into the curricula of the different disciplines (sciences and humanities). A lot of projects of this kind fail because their authors link them only to natural sciences. Geography, economy, philosophy and arts also have a very important role to play here.

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Printed reports or other literature available:

No perdamos la Energía. Cuadernos pedagógicos europeos. P.A.U. educación. Barcelona, 1999

De Escolas a ecoescolas. ICE Materiais didácticos, nº 19. Universidade de Santiago de Compostela.

Ciencias Medioambientais e da Saúde. E.S.O. Segundo ciclo. Editorial Galaxia. Vigo, 1999

Imaxes e realidades ambientais. Eurosurvey-Galicia. ICE Investigación Educativa nº 6. Universidade de Santiago de Compostela

Doing it and Telling it. Energy Audit in the school. Connect Newsletter. Unesco. Paris.

Educación y Energía. Jornadas internacionales de Educación Energética. La Habana, 2004.

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