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STUDENT CENTER “ENERGY” IN BULGARIA

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Abstract

My resume is result of the project the Student Center "Energy". Its aim is to overcome the current low awareness of the students through the use of interactive teaching methods on issues related to renewable energy resources (RE), energy efficiency, energy crisis, global warming and to bound them with business ideas and scientific achievements in this field. By creating this new structure within our school my colleagues and I attempt to overcome the restrictions of the school syllabi and to be able to teach outside of the set framework. Except our school this project is developed jointly by the Union of Bulgarian Black Sea Local Authorities and Black Sea Regional Agency for Energy Management.

keywords: renewable energy resources (RE), energy efficiency, energy crisis, global warming, project Student Center “Energy”

1. Introduction

Problems associated with depletion of known energy resources are with worldwide importance, the upcoming energy crisis, global warming, the large number of natural disasters within a short period of time, environmental pollution, air and water are becoming increasingly painful and discussed. Humanity is actually on the verge of environmental and energy crisis. Issues of renewable energy resources and energy efficiency are more and more discussed. The duty of our society and school is to acquaint children with these more recent and painful problems. Unfortunately, mandatory training of students at school [1] [2] does not allow a thorough awareness and understanding of these issues. Leaving school bench young people, to whom our society rely on, don't have the necessary knowledge and skills to deal with them.

The project is funded by European Social Fund 2007-2013 to the Ministry of Education and Science to Republic of Bulgaria under the operational program “Human Resource Development” in the Direction 4 “Let's make school attractive to young people”.

2. Objective:

The created project aims to:

- ✓ Investigate and to take into consideration the individual and team interests and students' suggestions;
- ✓ Increase students' knowledge and to stimulate their initiative in RE (renewable energy resources);
- ✓ Improve the psychological climate, interpersonal students' relationships and the aesthetics of the internal and external school environment according to RE;

- ✓ Establish structurally the Student Center "Energy" that consists of clubs working on topics related to renewable energy resources, energy efficiency, energy crisis, global warming and other activities.

3. Method:

The following methods are used:

- ✓ Gathering poll with the aim of establishing individual and team interests in the field of RE;
- ✓ Interactive learning methods including: discussions, contests, events, entertainment activities and the RE outputs;
- ✓ Exchange of the information among founded clubs;
- ✓ Communication with institutions, companies related to the RE;
- ✓ Publicity and visibility of RE with the help of the activities of the project.

4. Activities¹:

- ✓ Acquainting students with existing forms of activities of extracurricular work at school and drawing attention of the students to the problem related to the energy crisis, renewable energy resources, energy efficiency, global warming and other forms of energy.
- ✓ Exploring the individual and team interests of the students for their participation in clubs that are dealing with problems of energy crisis, renewable energy resources, energy efficiency and global warming and other forms of energy / by questionnaire /
- ✓ Establishment of clubs working on issues and trends related to the energy crisis, renewable energy resources, energy efficiency and global warming, according to the interests of students.
- ✓ Organizing seminars, discussions, debates, conferences related to the work of clubs by using interactive teaching methods, exhibitions and photo exhibitions, various events, festivals, concerts, tours, excursions, hiking and other forms of recreation and entertainment

5. Realization²

Before the inauguration of the project Student Center "ENERGY" there were four forms of extracurricular activities at Vocational Secondary School of Economics Dr. Ivan Bogorov – club *Debate*, theatre club *Europe*, club *Literature and journalism*, folklore group *Bukavitsa* and free optional courses of educational training companies, organization of the commercial bank's activities and three sports sections. About 100 students spent their free time in the four extracurricular activities, and 15 students in the free optional courses of educational training companies. Our aim was by using the existing forms of extracurricular activities to induce the students to spend their free time in useful activities in which they can activate their thinking towards problems associated with the energy crisis, renewable energy resources, energy efficiency, global warming or other forms of energy.

To involve students in the project, there was a special event on which each extracurricular club presented its activity and the purpose of the instructors was to draw students' attention. On this event the students were informed about the upcoming project.

¹ Final report of the project "Student Center" ENERGY "

² Final report of the project "Student Center" ENERGY "

Two traditional events are held each year at school – a competition for papers and an exhibition of educational training companies. Both events were also used to draw students' attention towards renewable energy resources. Two competitions were held under the topics "Alternative energy resources and their application in business" and "Mobility in the city". Representatives of company *Renewable energy resources* took part in the fair of educational training companies and they were awarded a second prize.

Parallel to these events inquiry of the individual and team students' interests was made to evaluate students' knowledge and awareness towards the activities of clubs. Questions from the inquiry were related to energy crisis, renewable energy resources, energy efficiency and global warming. 398 students were inquired from 8, 9 and 10 grades. The first question from the inquiry: what are **renewable energy resources, energy crisis and global warming?** – We have received the following result that gave us the feedback how many students are familiar with the concepts and to which extent:

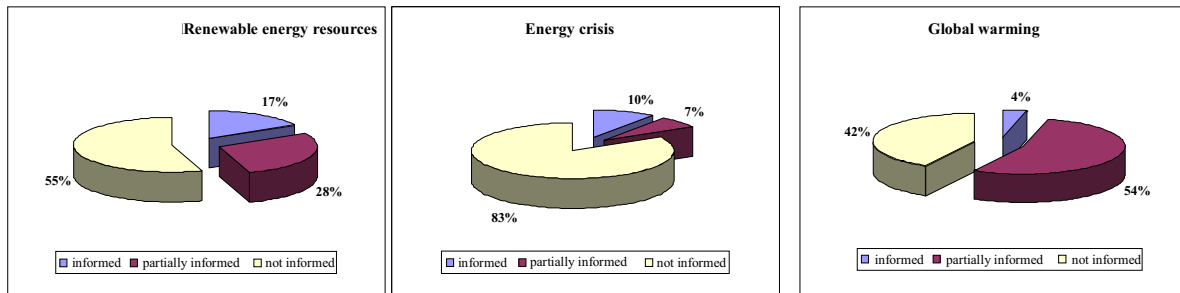


Fig. 1. Results of the inquiry related to students' awareness of renewable energy resources

The question: how were the energy of the sun, wind and water used in the past? **we obtain the following results:**

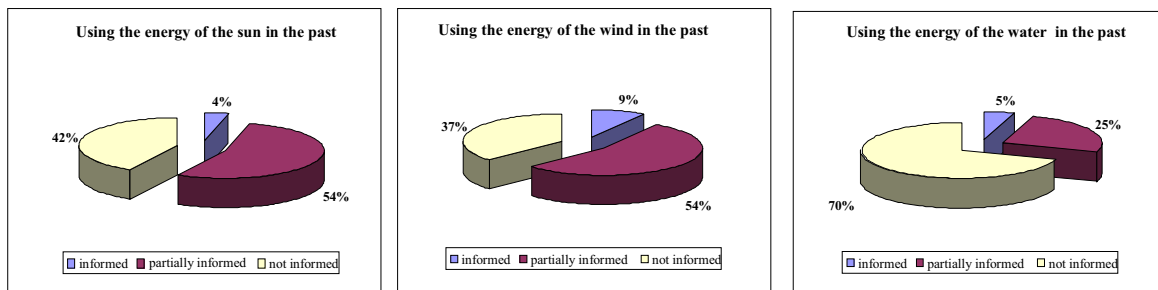


Fig. 2 Results of the inquiry related to the using of the energy of the sun, the wind and the water in the past

The question: what are **business opportunities through renewable energy sources in the field of energy efficiency and provided by the energy crisis?** We have received the following reply:

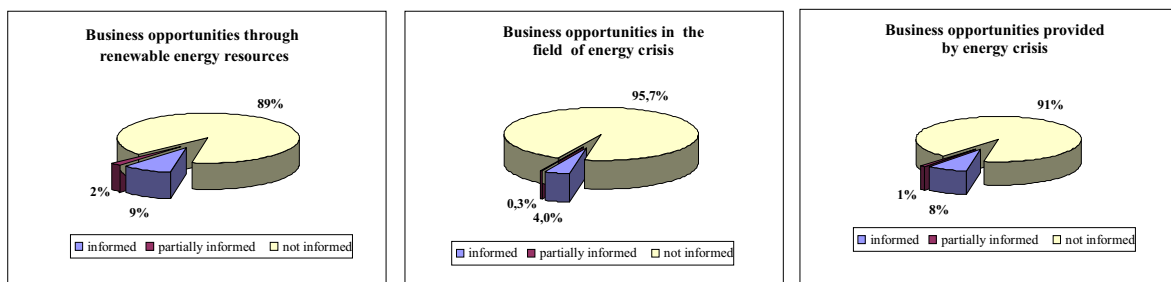


Fig. 3. Results of the inquiry related to business opportunities

The question: do you wish to participate in extracurricular activities under the Student Center "ENERGY"? - 205 students answered "yes", which is 51.5 percent of inquired students.

The question: do you wish to learn more about these issues? - 66 percent of inquired students answered "yes".

Conclusion: Project Student Center Energy is a wanted extracurricular activity at school. It enables students to improve their knowledge for renewable energy resources, energy efficiency and energy crisis.

6. Student Center structure "ENERGY"

Based on these results 21 clubs were established:

- ✓ Club *Renewable energy sources* - 2 clubs
- ✓ Club *Exhaustible fossil fuels* - 2 clubs
- ✓ Club Bioenergy – 1 club
- ✓ Club "From Archimedes to Leonardo" – 3 clubs
- ✓ Club "Literature and Art" - 4 club
- ✓ Technical and business translation in English / German - 2 clubs
- ✓ Business club - 4 clubs
- ✓ Photography club - 1 club
- ✓ Club Updating the web-site of Student Center "ENERGY" – 1 club
- ✓ Club Choreography - 1 club
- ✓ Folk group "Bukavitsa"

Students, who were taught and supported by their instructors, worked from late January to December 2009. Several events were organized that were not only held at school but also out of school borders: two competitions for papers, two folk festivals "Sun in the soul with Sonya Kuncheva's songs and temperament of the mountain "Stara planina", the school concert, educational training companies' fair, youth energy week with the assistance of Technical University of Varna, regional competition for essays "Renewable energy resources and energy efficiency over the centuries and today, two surveys.

The work of clubs was held in two stages. The first stage started in January and continued till the end of June. The second one started in September and finished at the end of the project.



In the wind park “St. Nicholas”

7. Conclusion

Project Student Center "ENERGY" is an extracurricular activity that was used as interactive teaching methods in order to overcome the current low awareness of young people on issues related to renewable energy resources, energy efficiency, energy crisis, global warming, and business ideas and scientific achievements in this direction. By creating this new structure within the framework of the school the instructors have the desire to overcome the restrictions of teaching that are caused by the school curriculum.

Our main idea is to improve and form an extracurricular activity to exist as a real student working center in which all the extra-curricular activities are organized at school.

References:

- [1] State educational requirements of the Ministry of Education, Youth and Science in Bulgaria;
<http://www.mon.bg/result.jsp>
- [2] Final report of the project "Student Center" ENERGY "