

MY CLASSROOM – ENERGY EFFECTIVE: INQUIRY BASED SCIENCE EDUCATION IN THE CLASSROOM

[S. Stamenov](#), [T. Dimitrova](#)

First Private Mathematical School (BULGARIA)

Using project-based learning technologies is not a new way of teaching in the Bulgarian school. Working on the pilot experiment “Energy effectiveness” – in the frame of the weSpot 7FP European project and in participation with Sofia University gives us an opportunity to use these technologies with our students in First Private Mathematical School in Sofia. The particular topic is “My classroom – energy effective”. The students who took part in the experiment are in 6-th grade (13 years old). In the experiment teachers in Human and Nature, Informational Technology, etc. have taken part. We have been working on an International project – weSPOT, whose purpose is to create new technologies for Inquiry Based Science Education. The work is based on The Mulholland et al (2012) inquiry cycle, consisting of 8 phases, including decisions on the questions, collecting and analysing data, sharing the experience, etc.

Our main goal is to encourage students to work in a team, not only in the class, but also to collaborate with other students from the other 6-th grades. Another of our goals is to put the students in the active position. Some of our objectives are to develop their sense of civil position and to make a connection between the sciences and IT.

The project passed series of stages. Firstly the children were involved in brainstorming. In the process they came up with the ideas for observations. They decided which of the weather factors to be observed, how many times a day to measure the temperature in their classroom and outside the school and what are the main factors influenced on the climate in the school. Secondly, they formed 5 teams in each class. Afterwards, in the class in IT, they created an electronic table for collecting data. They composed the table, made validation rules, inserted a formula to calculate the dates automatically and pictures for the weather conditions. After the class passed, the students placed measuring instruments in every classroom, outside the school building and started collecting data. The children had been collecting data for 3 months. During this time, they prepared presentations on the main factors, which influenced on the climate conditions in the classroom. After presenting their work, they chose a team from every one of the classes to represent the class in the future competition. For this completion, they will have to make diagrams and analyses during the classes in IT in order to generalize the collected information.

At the end they will have to present their own work in front of their teachers and classmates. The closing ceremony of the project will take place on the Earth Day. Firstly, every one of the classes will present the class’s opinion and suggestions how to make their classroom energy effectiveness. After the presentations, a competition will be held in Human and Nature and IT disciplines, solving PISA and at the end of the quiz, the principal of the school will reward the best class.

While working on the project we see the increased motivation in the students. They like working on real cases, rather than working on imaginary situations. They took the work personally and formed a personal opinion. They use the knowledge not only in school, but in their everyday life. The learnt facts are more stable and durable. After forming the teams, they divided the work among them and started collaborating with one another in order to make the best performance.