

Goerudio: a Network to Enhance Students' Motivation in Science Education

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Abstract

The project identifies two common challenges that the European educational and training systems are facing and that need a common effort in order to be answered to:

- The lack of motivation of secondary and vocational education students in studying scientific related topics, and the related insufficient results that they achieve during their school curricula
- The lack of capacity of teachers and trainers in updating their teaching methods in order to promote the interest of their students toward scientific issues

The project aims to create a learning community of European teachers and students in order to carry out a common reflection on how to make scientific issues more attractive, promote the capacity of learners to be managers of their own learning process, exploit and mainstream the more effective projects and experiences available at European level in the field

During the project teachers and students will provide their experiences, problems and success in teaching and learning scientific issues and will be guided in the identification and review of existing projects and related resources to teach scientific issues in a more innovative, attractive and interactive approach.

During the second part of the project teachers, supported by experts, will create their teaching resources to teach scientific subjects making use of the results of previous innovative initiatives.

Context

The project rationale relies on the shared identification by the project partners, of common challenges that the educational and training systems of their countries and of Europe in general, are facing and that need a common effort in order to be answered to:

- The lack of motivation of secondary and vocational education students in studying scientific related topics, and the related insufficient results that they achieve during their school curricula
- The lack of capacity of teachers and trainers in updating their teaching methods in order to promote the interest of their students toward scientific issues The motivation of these problems are obviously complex and invest many different factors, but the common believing is that the most important one is related to the fact that too often students approach to scientific issues is too passive, based on memorizing rather than understanding. Neither a mere learning by heart the theory or a subject matter, nor the abundance of information would guarantee comprehension. There is a strong demand

for developing comprehension skills, as learning by heart just gives the possibility to repeat the acquired material automatically, whereas hinders the ability of high quality development.

Teachers have to face a major challenge coming from the fact that the speed of the development of scientific knowledge is constantly increasing, therefore too often the gap between the lessons and the teaching materials used and the evolution of research is increasing and leads to demotivation both of the teachers and of the students.

Many initiatives are addressing the theme of promoting scientific knowledge have been financed by the European Commission. All these initiatives have in common not only the interest for the scientific issues, but also the effort on developing innovative and ICT based teaching approaches to make science learning more attractive and interactive. Goerudio project on its side is strongly promoting a model of learning and teaching based on fostering the active role of students in their learning process. Moreover the project intends to build on these experiences, explore the results of other projects addressing the promotion of scientific knowledge and of innovative practices and methods aiming at putting the learner at the centre of the educational and training process and to involve teachers and students in being the protagonists of an international peer to peer based learning community to share, disseminate and exploit the best practices available at European level in the field.

Objectives

The aim of the project is to create a learning community of European teachers and students in order to carry out a common analysis and reflection on the theme of how making scientific issues more attractive to students, how to promote and share teaching methods and tools enhancing the capacity of learners to be managers of their own learning process and how to exploit and mainstream the more effective projects and experiences available at European level in the field.

This general aim will be achieved through this specific objectives:

- Promoting the mutual comprehension between teachers and students that will share and match their everyday experiences in dealing with the teaching and learning of scientific issues, to understand what are the main obstacles that affect a correct and effective transfer and acquisition of knowledge in scientific matters.
- Enhancing the interest and stimulate the active learning process of pupils of all educational levels, concerning scientific issues, by sharing and exploiting the most effective experiences that promote an enquiry based, interactive and amusing approach to the understanding of science.

Target Groups

The Goerudio can ensure a consistent impact on its direct target groups: students and teachers of secondary and vocational education schools

Qualifying characteristic of the Goerudio project is that both target groups of the project will be involved directly and actively in the project activities.

At least 5 schools will be involved in each country that means a total of 35 schools participating into the project.

In each school at least 2 teachers of scientific issues will be involved, leading to a total participation of 70 teachers involved and benefiting directly from the project results.

Considering an average of 20 students for each teacher, a foreseen number of 1.400 students will be actively involved in the project activities and benefit from them.

Activities

The project foresees four main activities.

1.- Collection of teaching and learning experiences

The aim of this activity is to involve school teachers and students in a joint effort to share information about their experiences regarding the main obstacles that affect the performance of students studying scientific issues and the everyday solutions adopted and that demonstrated to be effective in answering to those barriers.

The project partners will involve teachers and their students in describing their experiences regarding the main obstacles and most effective solutions to overcome them that affect the interest of pupils for scientific issues:

- Teachers will describe their experiences and efforts to adopt teaching methods to promote the interest of students towards scientific issues and to make their pupils autonomous in their learning process.
- Students will describe their difficulties in learning sciences and their successes, by highlighting at least one topic that they feel they have learnt well, explaining the reasons for their achievement

2.- Assessment of projects and initiatives in the field of science education.

The aim of this activity is to involve students and teachers in reviewing existing projects and related results (e.g. teaching materials, methodological approaches etc.) dealing with the theme of teaching scientific issues in a more interactive and involving way and with the theme of experimenting teaching methods promoting an active role of the pupil in the own learning process

A total number of 210 initiatives will be identified by the project partners and then reviewed and commented together with science teachers and students

3.- Learning Community

The aim of this activity is to promote the creation of a learning community in which teachers and students will have the opportunity discuss and share knowledge and experiences on the theme of how to make scientific issues more attractive for students.

Science teachers and students will:

- Participate in virtual meetings to discuss synchronously with their colleagues from different countries
- Participate in the project forum
- invited in the Facebook group where students, teachers and experts will further discuss project results and share information and opinions

Teachers and students will also be involved in the development of teaching resources for scientific subjects.

4 Communication campaign

Students and science teachers will participate into seminars during which they will present the results of the Goerudio project. At least two national seminars will be organised in order to ensure maximum diffusion of the results achieved.

During the seminars the students, duly guided by their teachers will present their experiences in the project and will present the teaching resource they will have produced.

Results

The project expected results are:

- Network of schools, science teachers students
- Creation of a network of science teachers and students in the 7 project countries
- Collection of teachers' experiences
- Collection of students' experiences
- Database of reviews of existing initiatives in the field of science teaching and learning
- Teaching and learning resources for science education
- National seminars on science education

References

[1] <http://goerudio.pixel-online.org/>