

 Content archived on 2024-06-18



European Science and Technology in Action Building Links with Industry, Schools and Home

Results in Brief

Improving science teaching and learning


A major European undertaking has advanced necessary changes in classroom practice that improve the teaching and learning of science and technology (S&T). Project work has contributed to increased research into the area and use of inquiry-based science education (IBSE) in classrooms across Europe.



DIGITAL ECONOMY



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Efforts to more effectively engage students in science and mathematics can be successfully achieved with the participation of all partners in education. The 'European science and technology in action building links with industry, schools and home' ([ESTABLISH](#))  project thus engaged key stakeholders to develop an enhanced approach to IBSE.

The primary goal was to disseminate and facilitate the use of improved IBSE approaches with secondary school students (aged 12-18 years) across 11 European countries. ESTABLISH achieved this by addressing three key issues associated with the practical implementation of IBSE in the classroom. These covered the provision of relevant teaching materials to engage learners, training support for teachers to implement an inquiry-based methodology, and connecting with policymakers as well as scientific and industrial communities.

Project activities have resulted in positive changes in teachers' attitudes, improved ability to use IBSE in their teaching, and increased implementation of this methodology in classrooms. At the same time, student motivation and communication during science lessons has increased, and students have more informed attitudes towards science and careers in S&T. Finally, ESTABLISH succeeded in increasing interaction between individuals teaching and learning about science and individuals using science.

Through the project's work and its successful outcomes, increased engagement and participation of young people in S&T offer important industrial and societal benefits. The overall approach has engendered a clearer understanding of the role of IBSE in secondary schools' curricula.

Appropriate systems are now needed for assessing and rewarding students for skills developed through IBSE. Alternative teacher development models have proven effective in helping teachers develop their approaches to IBSE implementation. However, going forward, programmes for teachers' professional development must continue so as to maintain and embed these changes in classroom practice.

ESTABLISH has laid the groundwork for meeting these needs and successfully advancing the potential of IBSE methodology. The science education research community, science teachers, students, parents, industry and policymakers across Europe are thus all set to reap the large-scale benefits of this project's work.

Keywords

[Science teaching](#)

[science and technology](#)

[inquiry-based science education](#)

[teacher development](#)

Project Information

ESTABLISH

Grant agreement ID: 244749

[Project website](#) 

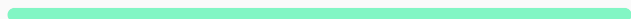
Project closed

Start date

1 January 2010

End date

31 March 2014



Funded under

Specific Programme "Capacities": Science in society

Total cost

€ 3 773 920,00

EU contribution

€ 3 389 648,00

Coordinated by

DUBLIN CITY UNIVERSITY

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