

THE PROJECT

Recent research have demonstrated that early techno-scientific literacy in children as young as 4 years old could improve their long-term achievement in STEM fields and raise the scientific and technological vocations, especially for girls.

Competencies acquired during childhood, including design thinking, inquiry, coding and robotics, are transferable to other areas. These skills are applicable to all areas during their whole academic and labour life.

BOTSTEM aims to develop a new methodology for integrating STEM programmes into the formal education curricula for childhood and primary schools (4-8 y.o.), using inquiry teaching and educative robotics and code-learning

Its main objectives are:

- To improve the potential students' achievement applied to STEM subjects, particularly in Natural Sciences and Mathematics
- To implement innovative methodologies, using inquiry teaching and computational thinking.
- To develop tools, resources and methods specifically developed for teachers, more motivating and appealing from the point of view of students from 4 to 8 years old.

BOTSTEM will implement inquiry teaching units with a robot-based approach, including code-learning, for enhancing the education in STEM fields.

New Report: Recommendations for Stakeholders

In this last stage of the project, we have carried out a review of all the intellectual outputs that we have developed during these two years. Two years that have allowed botSTEM to create collaboration networks that will surely go beyond this project and learn more about the reality of education in science, technology and robotics in Europe.

One of the main objectives of the project initially defined was to contribute to the development of scientific-technological vocations for two fundamental reasons:

1. The limited choice of professional careers related to science and technology.
2. The lack of interest and basic knowledge of citizens about science and technology.

To overcome this complex situation, one of the most effective lines of action seems to be related to the way these disciplines are taught in school.

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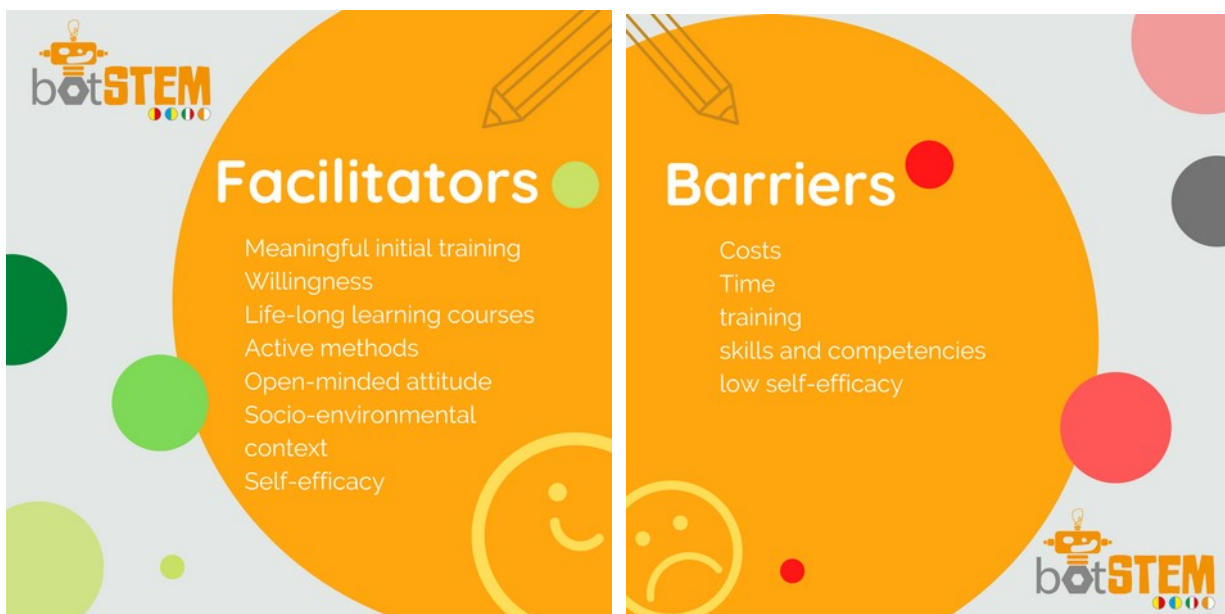


BotSTEM Social Impact Analysis

The Baseline Report for the Social Impact Analysis within the BOTSTEM project was jointly and collaboratively analysed by the whole consortium in March 2020. Our report summarised the baseline results and the most important findings using an agile and easy-to-apply method, the +ACUMEN, giving its straightforward character and the ability to transfer findings to practical recommendations and societal insights.

The Social Impact Analysis was focused on the behaviour, attitudes and, generally speaking, opinions that would determine the adoption or reluctance to ICT-enhanced interventions in STEM for kindergarten and primary education in four European countries and, subsequently, how findings could be transferred to EU scale. In other words, we intended to analysis to which extent the BOTSTEM project is transferable.

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A description of STEM practices designed to encourage scientific vocations for early-years education in Europe

STEM programmes are receiving increasing attention since they are considered efficient for developing scientific literacy for citizens and for increasing the number of young people choosing to study scientific-technological disciplines at the end of their compulsory schooling and choose scientific vocations (EU 2015). Decision makers are becoming interested in incorporating STEM approaches in formal education, also for early years. The BotSTEM partners have produced a description of STEM practices designed to encourage scientific vocations for early-years education in Europe.

The practices have been found through thorough searches of scientific journals, and descriptions of ongoing and finalised projects supported by the EC. The European Commission has supported a large number of European projects in recent years and a thorough scan of projects addressing the issue of encouraging pathways to scientific vocations is reported.

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Resources for coding activities at school

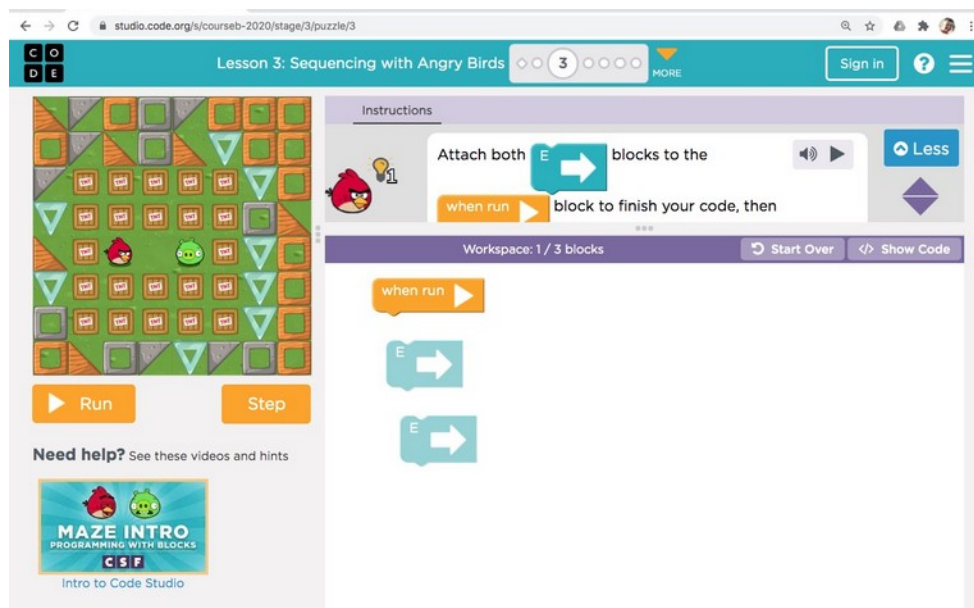
In computer language, "coding" means writing the sequence of instructions that must be executed by a computer. In the world of education this concept is linked to that of computational thinking, i.e. to the logical-creative process that allows to approach and solve problems in a new way.

Through coding activities at school, children (even young ones) not only learn to program, but above all they program to learn how to solve complex problems by breaking them down into simpler steps.

The playful and creative component is fundamental in all educational activities and especially in these ones. Coding activities can be used to create activities that involve several subjects in an interdisciplinary path.

There are many sites available to teachers that offer the possibility to create coding activities, Ideodromion thanks to its direct experience with teachers and pupils has collected useful resources to implement coding activities in classroom.

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Final Multiplier Event in Castilla y Leon

The final multiplier event of BotSTEM project will take place from 22 to 26 September in the Castilla y Leon region. We have planned a widespread event, which will touch several cities in the region: Leon, Salamanca, Burgos, Valladolid.

The proposals of the various days will involve kindergarten and primary school children in fun and engaging workshops where some of the activities developed during the project will be presented. Teachers will be able to follow specific lessons and participate in a round table on STEM teaching, inclusion and prosocial values.

A particular and interesting moment will be the concert "Solidary, not charity" that will take place in Valladolid on the evening of 25 September and will see the participation of musicians from all over Europe.

On the final day there will be a conference that will bring together professors and experts at international level to talk about the Good Nutrients for Schools.

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