

# Kids Inspiring Kids for STEAM (KIKS)

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*This paper describes the emerging Erasmus+ project KIKS, Kids Inspiring Kids for STEAM (Science, Technology, Engineering, Art and Mathematics), which involves four institutions: STEM Team East (Cambridge, United Kingdom), University of Jyväskylä (Finland), Metropolitan University of Budapest (Hungary) and University of Cantabria (Spain). The aim of the project is to promote secondary students' motivation in STEAM, developing activities and presenting them to their homologous in other European countries.*

*Keywords: STEAM, STEM, collaborative work, motivation and cross-cultural work.*

## STEAM

STEAM integrates Art to the original STEM education approach, which is based on interdisciplinarity and applicability of Scientific and Mathematical knowledge to Technology and Engineering. In many European countries, the number of graduates in scientific and technical specialists, maths, technology and engineering areas is clearly insufficient for the needs of their companies and industries. To stimulate the interest of European students in the STEM, the European Union has dedicated many resources and efforts to integrate STEM into the pre-university classrooms, and developed a large number of projects. For a review, see Rocard, Csermely, Walberg-Henriksson and Hemmo (2007) and Kearney (2016).

## KIKS project

KIKS, Kids Inspiring Kids for STEAM is a European Erasmus+ Project, which involves so far four European countries: UK, Finland, Hungary and Spain. The main aim of the project is to promote secondary education students' interest on the STEAM areas, by developing activities and presenting them to other students locally and internationally. Many students and teachers do not enjoy or have confidence in maths and STEM: they have anxiety even maths/technophobia and drop it as soon as they can. So we ask those more and/or able students to develop STEAM popularisation projects and deliver them to the less confident student audiences in the participating countries. We seek students to promote their creativity and motivation for learning, working interdisciplinary, using technology, and fostering communication and the transfer of ideas/knowledge across cultures. From a research point of view, KIKS aims to compare cross-culturally the elaboration and resolution of STEAM activities at secondary education level.

## Development of activities

Students, in teams of fives and led by at least one teacher, are asked to elaborate STEAM activities or projects under the following approach: How would you get your schoolmate to love

Maths? The activities or projects can emerge from: (1) a teacher idea, (2) a pupil idea, or (3) a KIKS coordinator idea. Once the idea emerges, it has to be developed into an activity or project. It should involve different STEAM areas, but its duration and degree of difficulty can vary according to teams' availability. After the activity elaboration, all the five members of the team have to present it to their local homologous (in face to face events) and to their international homologous (through video conferences).

### **Products to be developed by the Students**

Each team of five students has to elaborate a written document, an explanatory video, and a presentation of its work. (1) The written document (Word Doc or Power Point) has to include a presentation of the team members, and a description of the activity with the main results and the material used. (2) The edition of the video has to include the practical or technical aspects of activity, which are difficult to explain on paper. For example, the manipulative construction of objects, the use of measurement tools, etc. The presentation of the activities has to be done face to face for the local events and Skype videoconferences for the international meetings. All the products have to be developed in the English language.

### **KIKS Support**

KIKS provides support to the teams through different platforms including Goggle Drive, YouTube, Facebook and a Website ([www.kiks.unican.es](http://www.kiks.unican.es)). The Google Drive and Facebook platforms function as storages of information— where teachers and coordinators can exchange ideas— as well as repositories of documents elaborated by the teams. The YouTube Canal works as repository of videos, and the Website provides different and meaningful information about the ongoing process of the project. Apart from the above, KIKS provides support to the teams proposing activities, helping in aspects related to the English language, and furnishing technical support for video edition, online connections, etc.

### **Evaluation**

Parallel to practical work of the project, we are undertaken a research study aiming to evaluate the strengths and weakness of KIKS. Firstly, this research aims to assess cross-culturally teachers' and students' perceptions about STEAM. Secondly, we aim to characterise the STEAM activities elaborated by the teams, according to the cognitive (competences, capacities, skills) and motivational (attitudes, emotions) dimensions they may develop in the learners. In short we seek to evaluate the impact of STEAM activities in the learning process. Tools for evaluating these two dimensions are currently under construction.

### **References**

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