Improving STEM Education Across European Schools

Erasmus+ KA2

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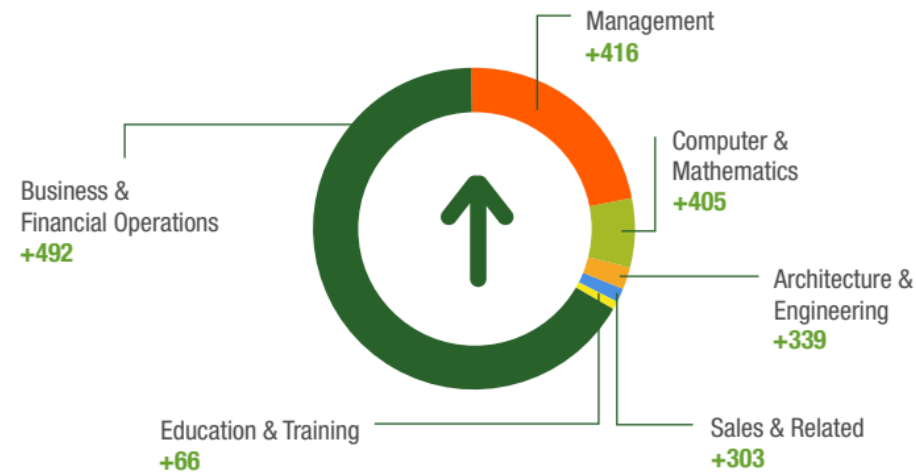
Project Objective

- **To provide STEM teachers and educators with the resources and methodologies they need to teach more effectively and to make STEM subjects more interesting in the eyes of their students.**

OUTPUTS

- STEM ACTION PLAN
- LESSON PLANS
- TEACHER CPDs
- VIRTUAL STEM MENTORING SCHEME FOR STUDENTS

2021 ACTION PLAN – KEY DRIVERS

STUDENT ENGAGEMENT AND MOTIVATION

Based on the findings of the SoAR, student engagement and motivation was the biggest challenge respondents faced, especially during the COVID-19 pandemic. Hence, this area is the main key driver.

Research shows that student engagement constitutes a crucial precondition for optimal and deep-level learning and provides better long-term vocational opportunities. Additionally, student engagement is associated with students' motivation to learn.

In conclusion of the SoAR, the following associated key drivers were identified: Teacher Training, Better Teaching Methods, Educational Technology and STEM Careers.

TEACHER TRAINING

It has been demonstrated that professional development opportunities vary according to the cultural and institutional context in the 6 European partner countries. Only 13% of the 198 respondents stated that participating in CPD (professional development) activities on a yearly bases is compulsory. However, 51% of the respondents stated that they would like to participate in various professional development activities.

BETTER TEACHING METHODS

The majority of the teachers from the partner countries stated that they use 'Traditional Direct Instructions' for 25% and 50% of the class. Although direct instruction is an accepted form of teaching, however, if it is carried out with no other variation within the lesson on a long-term basis, this can lead to students losing interest and becoming disenfranchised from the learning process. The following teaching methods, Teaching with experiments, Flipped Classroom and Inquiry based learning, are used mainly for 25% of the class, which depending on the length of the class, is an average of 12 minutes. To get the best results from these methodologies, it is recommended to employ them for more than 25% of the class and have a consistent approach when using them as a learning tool.

STEM CAREERS

75% of the respondents stated that they do not teach careers lessons, where they inform students about STEM careers, help them with CV writing and mock interviews. Additionally, only 13% of the respondents stated that they or their schools have links with the industry, providing an opportunity for students to gain insight to the wide range of STEM careers, teaching/demonstrating items that cannot be accessed at school, providing problem solving challenges and industry based learning.

EDUCATIONAL TECHNOLOGY

Educational technology was one of the main areas respondents (57% of respondents) would like to get training on, including robotics and coding.

Robots and/or boards (e.g. aurdino, micro:bit) were the least used methods of learning resources with 113 of the teachers spending 0% of the lessons with this resource. The most popular methods of learning have shown to be Audio and Video and Web/Computer based simulation with an average of 40% of the teachers spending 25% of the lesson using these resources.

LESSON PLANS

- Game development
- Python
- Applied science etc.

TEACHER CPD

- 9 FIELDS
- 25 e-Courses

VIRTUAL STEM MENTORING SCHEME

- 30 MENTORS
- RECORDINGS ARE AVAILABLE ON THE WEBSITE
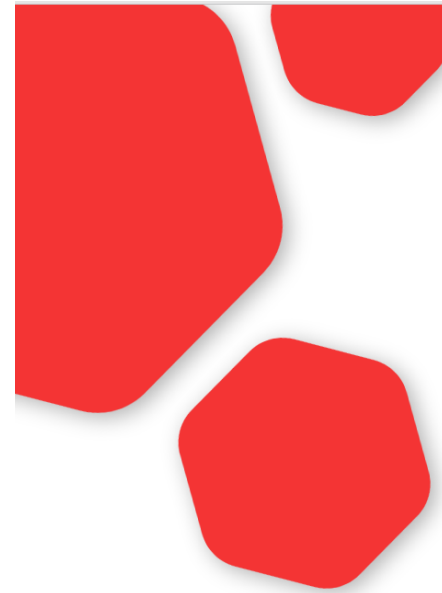
Mentoring Scheme

The virtual STEM mentoring scheme will:

> Raise students' awareness of STEM jobs
> Help students develop a sense of belonging in the new social world of STEM

Students will get the opportunity to learn about the STEM mentors' profession, day to day activities, responsibilities, qualifications and/or experience required to secure that particular job. Therefore, students will gain a deeper understanding of the type of work involved, what skills are required and an insider's view of what real success means within the industry. Mentors are also likely to have useful tips on how to break into and succeed into a specific career.

We proudly introduce our Mentors

CONTACT AND WEBSITE

- https://improving-stem-education.eu/mentoring-scheme/

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