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Realizing STEAM Activities in High School with Blueprints and Lesson Plans

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Abstract

STEAM programmes are usually difficult to implement in a school setting. In this paper, we present the STEAM education integration strategy employed by the Erasmus+ project STEAMBuilders. Initially, a blueprint is prepared for each learning process, which provides comprehensive instructions on how to recreate a historical object and explains its underlying concepts. Then, a pedagogical sequence is created in which instruction is divided into steps with distinct educational goals. Each level provides students with historical or scientific facts and hands-on activities that use the object created in the previous stage. Students are more engaged and acquire inter-disciplinary knowledge through this immersive technique. We explain our method using a teaching example in which one set of students follows the method and another group follows a lecture-based method. The results indicate an increase in engagement and satisfaction and performance in the first group's final test.

Keywords: STEAM, student engagement, ICT in education, STEAMBuilders, Erasmus+