

INTEGRATING STEM IN COMPULSORY SECONDARY EDUCATION: A LOOK AT HIGH SCHOOLS IN THE VALENCIAN REGION (SPAIN)

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Abstract

Today's knowledge and information society faces complex and globalized challenges that demand digital and scientific-technological skills. The STEM (Science, Technology, Engineering and Mathematics) approach was created to integrate science into school curricula through interdisciplinary work and a gender perspective. The STEM methodology promotes scientific-technological competencies in students and fights against the gender gap in the vocation and access to STEM studies and professions. The present study is framed within the research project "I+D+I EDUSTEM (GV/2021/126)" with the main objective of analyzing and assessing the results of the implementation of the STEM educational approach in the development of competences in students of compulsory secondary education. Research questions gravitated around how teachers integrate the STEM approach into the classroom and what resources and training in STEM projects teachers have received. To achieve the objectives of the study, a qualitative research methodology based on a systematic review of the literature, a comparative analysis of STEM policies at European, national, and regional levels, and interviews with teachers and management staff of public high schools in the Valencian Region was used. The final sample consisted of a total of 5 principals (80% female, 20% male) and 36 teachers (61.1% female, 38.9% male) belonging to the departments of Mathematics, Computer Science, Biology and Geology. The data obtained from the semi-structured interviews were processed through the qualitative analysis software *Atlas.ti*. The results indicate that 87.81% of the teachers and management teams interviewed are familiar with the STEM concept, and all the schools carry out, in one way or another, some STEM or against gender gap activity. However, 75% of the principals interviewed stated that they had not received training, instructions, or guidance on how to integrate STEM from the administration. The most common way of integrating STEM in the classroom is through tutoring sessions and the school's educational program. Only 30.56% of the teachers interviewed explicitly carried out a STEM workshop in the classroom. In conclusion, the integration of STEM in the classrooms of the Valencian Region is still an ongoing process that is supported by educational policies at the European, national, and regional levels. Principals and teachers are aware of the importance of STEM and need more training, resources, and funding to integrate STEM into science and technology subjects.

Keywords: *STEM, gender gap, teacher training, curricular studies, educational policies.*
