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Author: Mr. Jorge Nicolas-Alvarez
Universitat Politecnica de Catalunya (UPC), Spain

SCIENTIFIC STAND-UP COMEDY PERFORMANCE FOR STEM EDUCATION: FOSTERING SPACE KNOWLEDGE AND DEBUNKING STEREOTYPES IN SECONDARY SCHOOL STUDENTS IN SPAIN

Abstract

This study presents results from testing an innovative student-centred drama-based teaching methodology for science, technology, engineering and mathematics (STEM) disciplines for secondary school students. The method, based on stand-up comedy performances, is tested on a sample of 1300 students from six different secondary schools in Barcelona, Spain. Scientific stand-up comedy involves individual performances that use jokes and humour in order to explain science and technology concepts as well as to deconstruct clichés and stereotypes. Hence, stand-up comedy mediates with its audience through humour and emotional engagement. The main goal of the performance is to show students how space missions work (why are rockets needed, how do astronauts live in microgravity...) in order to foster their passion for space. Moreover, it helps them understand that every space-related project requires knowledge from all STEM fields. These performances are an effective way of generating a two-way dialogue between students and researchers. They prompt student reflections about researchers as role models, gender inequalities in science and ethical issues in STEM careers and scientific research. Furthermore, they have enhanced young people's positive attitudes and interest in science, scientists and scientific careers and have debunked science-related stereotypes. This indicates that the performances evaluated in this study are supporting the aspirations of young people, but not limiting their inclination to critically assess the relative benefits and risks of scientific development for themselves.