

SP - (16129) - ADDING FICTION INTO PHYSICS' LABS TO ENGAGE UNDERGRAD STUDENTS

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Short Abstract

Learning experimental physics is often perceived as being poorly engaging by students, especially at the university level. We wanted to test whether an immersive format could increase student engagement in experimental physics. Twenty-eight ($M \pm SD = 20.4 \pm 1.0$ year-old; 19 males) third year university science students were immersed into a fictional scenario. The learning goals were centered on experimental methodology and transverse skills, such as teamwork. They were all given a role in a story that unfold during the class (i.e. not unlike a live-action role play). All of them had to perform physical measurements, not because their teacher asked for it but because the scenario they were going through required it. We measured the impact of the fictional scenario on the students' behavioral, emotional and cognitive engagement by comparing with teaching as usual. The results show that students' emotional engagement was higher in the context of immersion ($p < 0.001$). The fictional scenario did not show more behaviorally or cognitively engaging effects. Student transcripts confirm that students enjoyed the use of fiction, and that the learning goals were achieved. We were concerned that fictional scenarios could result in differentiated effects among gamers; we found no correlation between the students' game culture and any engagement scores. The use of fiction in teaching experimental physics therefore appears to be beneficial for the emotional engagement of students. It would be interesting to test the use of an immersive scenario in other contexts where engagement is known to be poor.