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Using spreadsheets to improve student engagement in the laboratory

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This paper explores whether the integration of digital technologies in the form of a spreadsheet can be used to improve students' engagement with experimental work. In addition, the experiment was presented as an open inquiry investigation. The experiment, investigation was about electricity and power consumption, Vampire Power. Using Design-Based Research methodology, in Trial 1 we ran an open inquiry investigation with 41 teachers and 58 students in 4 workshops. In Trial 2, digital technology, an Excel spreadsheet, was integrated into the investigation and deployed with 25 teachers and 38 students in 2 workshops. In Trial 3 the same investigation as in Trial 2 was deployed with 29 teachers and 85 students in 3 workshops. Measures of 'mental effort' and 'attitudes' indicated that, in Trial 1, teachers invested mental effort and showed positive attitudes, but students did not. In Trial 2, both teachers and students invested mental effort and had positive attitudes. Trial 3 results were similar to Trial 2. We conclude that harnessing digital technologies, spreadsheets specifically into an open inquiry investigation improved student engagement.

Apply to be considered for a student award (Yes / No)?

no

Level for award (Hons, MSc, PhD, N/A)?

n/a

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