

DEVELOPMENT AND APPLICATION OF SPECIFIC ONLINE VIDEOS TO ENGAGE AND IMPROVE UNDERSTANDING OF LABORATORY CLASSES

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BACKGROUND

The increased use of digital media in higher education provides opportunities for students to further their engagement with complex tasks. Students often have difficulty understanding or learning the complex and detailed procedures associated with laboratory sessions. Science laboratory classes offer students hand-on sessions to develop technical skills and abilities and relate the theory to practice. It is also important that correct procedures are followed to ensure both safety and successful completion of the task. Laboratory sessions generally begin with step-by-step instructions that provide the background to the experiment and images associated with the upcoming procedures. However, feedback from students has shown that these instructions are not always utilised effectively, particularly by external students who were only seeing static images of the laboratory session in print or in conjunction with online material.

AIM

Engaging non-traditional first year students and external students with science by laboratory practical videos directly relating to the laboratories the students will use and the sessions they will complete.

DESCRIPTION OF INTERVENTION

An initial suite of seven short (between 5-16 minutes) high quality videos related to laboratory safety and chemistry experiments were designed, edited and produced. These videos were used by students before the practical sessions commenced and then as often as required after when students were writing up their experiment or for further reflection on the success of their session. Students viewed the videos via the course website either by directly streaming the videos or downloading to watch at a later time.

Videos produced:

- General laboratory safety
- Pipetting
- Micropipettes
- Titration (2 parts)
- Thin Layer Chromatography (TLC)
- Column chromatography

DATA COLLECTION AND ANALYSIS

Evaluation data of the initial trials of the completed videos with the 2015 student cohort were undertaken to assess how students utilised these resources and if they felt that it had helped their learning.

RESULTS

The initial trials of the video content with the 2015 students cohort has received very positive feedback with students highlighting that these video resources helped to improve their understanding of the laboratory procedures as well as improving their confidence in performing the tasks. The

external students emphasized that it helped improve their engagement with the material as it provided a more 'real-life' learning experience.

It is anticipated that further videos will be developed for other practical classes in physics and biology to provide increased engagement and understanding. Now that the process of preparing the video concept, script writing, shooting and editing has been developed it will be utilised by other academics to develop further course materials. The videos provide a valuable resource for current and future students that can be utilised multiple times both prior to and after laboratory sessions to reinforce students learning of complex tasks.

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