Improving General Chemistry Lab Performance Through Online Demonstrations

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INQUIRY

The general chemistry laboratories introduce students to a great deal of equipment they may not have used before. Students often have difficulty understanding the use of this equipment from reading about it or seeing brief pre-lab demonstrations. To enhance student understanding and provide a more visual and accessible demonstration, we filmed instructors correctly using the equipment and made them available to students through their D2L pages.

This project will be extended by producing instructional videos for our general chemistry laboratory prep students as refreshers for the techniques they employ from semester to semester.

ASSESSMENT

Considering the student response to these videos and demonstrations, we are looking to expand our library of resources by filming more complex techniques for our organic chemistry and analytical chemistry students.

This work will never be used to replace in-lab demonstrations and calculation explanations, they are only meant as supplemental materials for students in an ever growing world of electronic devices that allow students to access this kind of information when they might need it.

After our first run, students indicated issues with sound quality. This was remedied and future surveys of students indicated no problems with this issue.

Student feedback:

"[The videos] were helpful and instructive but not too long."
"I felt that the videos were made with good quality and cannot think of any improvements that need to be made."
"I felt like they helped show me what I was to be looking for and getting out of lab.

METHODS

Videos were filmed using a hand held video camera and edited in iMovie (see screenshot below), on a laptop provided by the Chemistry Department.

A useful tool for describing example calculations is BrainShark, an online presentation tool that combines Powerpoint presentations with speech. This is helpful because students can listen to and watch these on D2L and then be prepared to see these same calculations in class or on homework.

By setting these presentations up in D2L, the students could access them whenever they wanted. Even after they had completed the experiment, they still had a worked through example of the calculation or technique to review for their quizzes and lecture work.

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