Student Created Videos as an Instructional Tool in Chemistry Laboratory
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Introduction

- It has been observed that students often face difficulty during chemistry laboratory sessions due to heavy cognitive load.1
- Various methods of instruction exist in literature to address this learning gap.2,3

The current work explores whether students perceive peer generated videos as a useful pre-lab instructional tool for organic chemistry CHM 222 laboratory course (CHM222 is a course for IIrd year students enrolled for BS-MS programme and has emphasis on organic synthesis)

Videos were created by students who completed CHM 222 in spring semester as part of their science communication project in summer.

8 students worked with 3 faculty members who also acted as reviewers for the content, script writing and media techniques.

Features of Videos - engaging introduction, safety protocols, avoidable mistakes while performing experiments, part demonstration /clarification of experimental procedures, and some interesting applications of synthesized products.

Data- responses to feedback questionnaire (adapted from Chaytor et al2), were collected through Moodle. The participation was completely voluntary.

- Videos were available on the MOODLE (for 5 out of 10 experiments), a week before the scheduled lab session in addition to lab manuals. Each video had an accompanying short assignment, accounting towards the course grade.
- During pre-lab talks and discussions, instructors often referred to videos, and catalyzed reflections by asking questions.

Open ended comments from students:

- The videos were able to explain the concepts in a very understandable manner and I was able to appreciate the experiment and the theory behind it better after viewing them.
- Sometimes even after reading the procedure, there are some points that are unclear which do get cleared by the videos. Sometimes they also help in avoiding some mistakes that one is likely to commit (especially concerning harmful substances)
- I think for certain experiments its better you keep the suspense, so that one is really mesmerised by what occurs in the lab and put thought in it. Though the videos show the ideal procedure, once the suspense of the expt. is gone its not the same. But, the videos are really great. Just don’t make them kill-joy. You guys do a really great job at lab. It made me love O-chem.

Students found videos of 5 min duration to be most user-friendly.

99% students voted for viewing videos of all experiments and recommended continuation of this practice for CHM 222. Students also requested inclusion on interesting questions in the videos.

In general, students felt better prepared to conduct their laboratory experiment with watching of video. Some suggested to add questions at the end of videos

Data representing average values, year 2018 (n=52/ 198), and 2019 (n=39/ 239)

References


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A representative student generated video→