Online labs: What’s Next?

Virtual Reality Labs were developed for students who are unable to be present in lab due to disabilities, attendance challenges such as pregnancy, or safety concerns.

Learning outcomes assessment
Using the same outcomes as we use in the traditional version of the lab, students were asked to complete a lab report, answer questions, and take a lab quiz two weeks later.

- Results indicate that there are no significant differences in learning outcomes between the two groups, which indicates the possibility of using this tool to offer this organic chemistry lab experiment via distance education.

Underrepresented minority students
- During the evaluation process 23% of the student participants with minority status reported satisfaction with the direct attention received from the virtual teaching assistant (TA) - Equal access to instructor’s time and attention can be a barrier experienced by many underrepresented minorities.
- 30% of the student participants with minority status commented favorably on the diverse virtual TA pool.
- Comments provided by underrepresented minority students point to the perceived impartiality of the instructor, ability to engage with the material independently, and remote access as some of the desirable features of the experience.

After COVID-19
- Due to the recent pandemic, these labs have been used as a replacement for traditional labs at NC State and several other universities.
- We have found many advantages to this mode of lab delivery, but currently feel pressured to return to in-person instruction as soon as possible.
- In spite of this pressure, there might be a future for this and other online lab products after the pandemic, not just as a temporary lab replacement, but a more permanent one.

Benefits of online labs include a much smaller carbon footprint than a regular lab, and a more inclusive experience for all students.

How to access the VR experiences: go.ncsu.edu/vrlabs-orgchem

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