

# STUDENT EXPERIENCES IN LABORATORY PROGRAMS ACROSS THREE UNIVERSITIES: A SNAPSHOT DURING COVID-19 SEMESTER

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## ABSTRACT

This project focuses on the novel idea of integration of technologies with inquiry skills and modelling (Crook & Sharma, 2013; Gilbert, 2004; Gordon et al., 2019) and associates these with students' cognitive engagement, behavioural engagement and emotional engagement (Muller, Sharma & Reimann, 2008; Kota, Cornish & Sharma, 2019; Cornish et al., 2019). We use a survey (Barrie et al., 2015) that measures student experiences in laboratories: how technology was integrated, how much inquiry skills are developed, and how well the students understand the modelling. While the survey is designed for hands-on labs, the emergence of COVID-19 pandemic at the start of the 2020 semester has necessitated for undergraduate lab programs to shift to online delivery mode. This has created an interesting opportunity to use this survey for measuring the impact of online labs on student engagement, and we have obtained modified ethics approval for that. The data is being collected in the final weeks of semester 1 from the first-year undergraduate students enrolled in physics units at the University of Melbourne, the University of Sydney and Monash University. Two types of responses to the engagement in labs will be explored: (1) from students who experienced some face to face labs at the start, then moved to online labs; and (2) from students who only had online labs. It would be interesting to see which aspects of the laboratory practice have retained their original learning intention, and which aspects have been affected by the online delivery, and to what extent.

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