CAN TECHNOLOGY-ASSISTED PEER LEARNING IMPROVE PERFORMANCE AND SOCIAL CONNECTIONS IN AN UNDERGRADUATE BIOLOGY COHORT?

Raoul Mulder[a], Lynette O'Neill[a], Kristine Elliott[b], Dawn Gleeson[a]

Presenting Author: Raoul Mulder (r.mulder@unimelb.edu.au)
[a]School of BioSciences, University of Melbourne, Melbourne VIC 3010, Australia
[b]Centre for the Study of Higher Education, University of Melbourne, Melbourne VIC 3010, Australia

Background

The transition from school to University can be a challenging time for students, with changes to the expected mode of learning, pace, level of difficulty and degree of independence (Terenzini et al 1994; Urquhart & Pooley 2007; Denovan & Macaskill 2012). Large and growing cohort sizes in foundational (first-year) subjects at many universities may exacerbate these challenges, potentially increasing student anonymity and cohort disconnection, with potentially negative consequences for learning outcomes and the student experience (Cook & Leckey 1999). However, the potential impact of enrolment numbers on learning outcomes and social connectedness remain poorly understood, and there are few evidence-based studies of potential interventions to address these problems.

Aims

We conducted an experimental evaluation of the effectiveness of a novel implementation of computer-assisted peer instruction (CAPI) in tutorial classes in a large (n=2,000 enrolments) first year biology subject at a research-intensive Australian university, to determine whether this intervention a) improved student performance and b) promoted social connections between students.

Description of intervention

Our intervention was the trial of a novel form of tutorial in which students used mobile devices to participate in firstly individual, and subsequently team-based assessments, using the team-based mode of the *Learning Catalytics* platform (Pearson Education; Schell et al 2013).

Design and methods

We used a longitudinal crossover study to test the effectiveness of our intervention. During two 2-week blocks of the teaching semester (the first early in semester, and the second late in semester), one half of all weekly scheduled tutorials (n=35 tutorials of approximately 30 students each) used *Learning Catalytics*, while the other half were run using a traditional tutorial format on the same topic. The following week based on a new topic, the arrangement was reversed, with students who had previously attended a *Learning Catalytics* tutorial now attending a traditional tutorial, and vice versa. Student participation in tutorials, engagement with biology topics and social connectedness were measured (using online analytics and written questionnaires). We compared responses across the two tutorial types, and correlated participation with student performance on relevant questions in the mid-semester test and the end-of-semester exam.

Results and conclusions

Our study was conducted in Semester 1, 2016, and at the time of submission of this abstract, the study had only recently concluded, so results were not yet available. These will be presented at the conference. We will discuss the outcomes of the study and highlight technical challenges associated with the implementation of this initiative at scale.

References

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