A TALE ON USING TECHNOLOGY IN A 3-PHASE APPROACH TO LEARNING IN THE UNDERGRADUATE LABORATORY

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Problem

At the University of Wollongong, Principles of Biochemistry (BIOL213) is a second year undergraduate (UG) subject taught to over 400 students from a variety of degree programs. Curriculum review of this subject recommended the redesign of the laboratory section of this subject to enhance the learning experience by supporting learning outcomes and to achieve deeper learning of challenging content. Additionally, due to increasing student numbers, efficiency's in grading student work whilst providing constructive and timely feedback were needed.

Action Plan

To address this problem a 3-phase approach was undertaken utilizing technology in all phases, see Figure 1. The phased approach is a blended learning environment in which phases 1 and 3 were completed online whilst phase 2 was conducted face-to-face in the laboratory. Phase 1 aimed: to provide an engaging online learning environment that would encourage students to learn independently and, to provide tools to help students feel better prepared and less overwhelmed for group activities encountered in class. The in-class activities were phase 2 and utilized an electronic laboratory notebook (ELN), whereby students conducted laboratory experiments generating data and forming conclusions whilst collaborating in groups. The in class reports were submitted and graded through the ELN in groups, fostering collaboration amongst students and creating efficiency's in marking for large UG subjects. Phase 3 included post-laboratory online quizzes that the students completed through the subject Moodle site within 3 days of the completion of the laboratory class. The aim was to test understanding and longer term retention of knowledge, whilst contextualising student understanding using a different, but related, scenario.

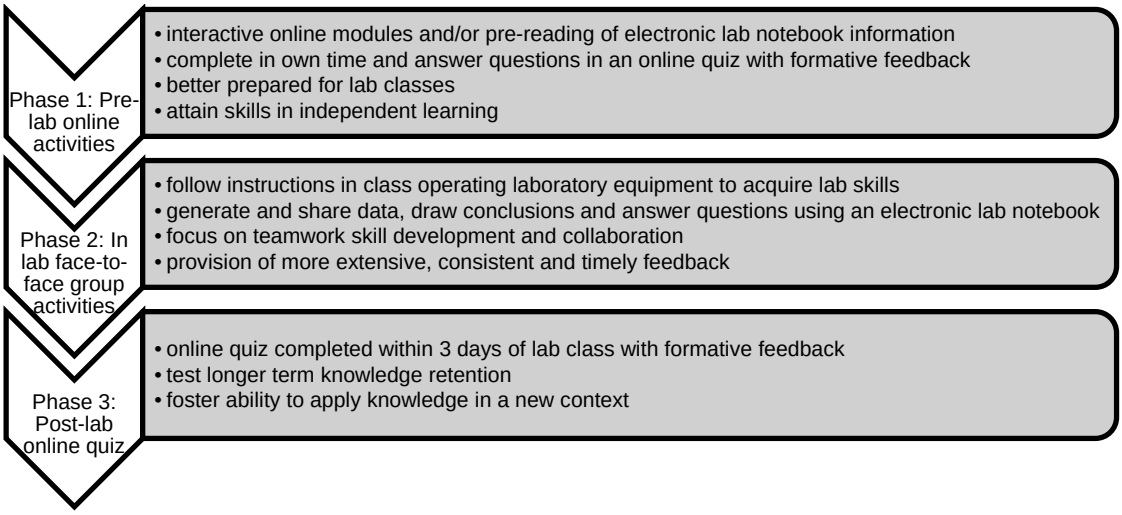

Figure 1. A 3-phase approach to practical classes in BIOL213 – Principles of Biochemistry.

Results

This session will present the triumphs and challenges of implementing this approach with some points to consider for those wanting to pursue similar initiatives. The effects on student learning and experience will be presented via the results from a student questionnaire and through comparison in assessment performance by student groups pre- and post-initiative.

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