ADAPTIVE SELF-ASSESSMENT MODULES USED AS A DIAGNOSTIC TOOL FOR THRESHOLD CONCEPTS

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ABSTRACT

This abstract will be showcasing an action research case study of the use of adaptive self-assessment modules for a second year microbiology unit at the University of New England. The MicroChallenge activity was developed as part of a teaching development project. The successful unit coordinators sought to engage students in the subject matter through multimodal material and contacted an academic developer from the Learning Innovations Hub for assistance. A suggestion was made to use adaptive self-assessment modules as a way of providing an opportunity for students to assess their level of understanding of threshold concepts for each topic area within the unit.

ADAPTIVE LEARNING

Adaptive learning initiatives attempt to provide individual instruction to students based on the level of understanding. A personalised learning approach that offers immediate feedback in an asynchronous environment allows students to gauge their level of understanding without the need for instructor mediation. E-assessments that provide opportunities for students to self-diagnose and that present material when required are one way to enhance learning and performance (Shute & Towle, 2003). The self-assessment activities that have been developed for microbiology allow students to monitor their progress and adjust their efforts based on their performance and feedback.

The modules consist of multimodal questions that adapt to student responses and provide feedback in the form of open curated video resources. Each student has a personalised experience based on their responses and can view anywhere from three to six questions (Figure 1). This approach allows more capable students to quickly confirm their understanding while others are provided with additional material to reinforce concepts.
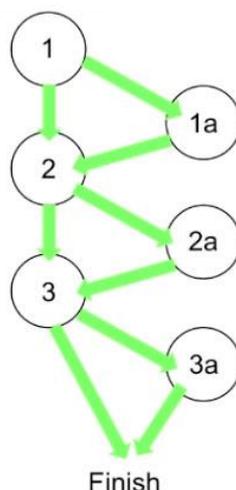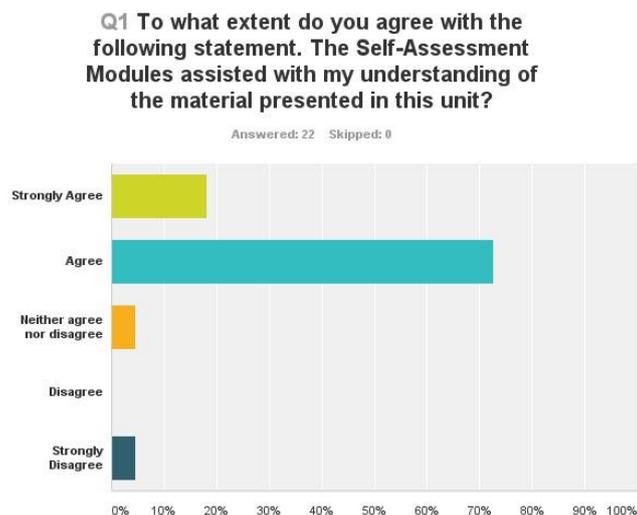

Figure 1

Each response elicits immediate video feedback that reinforces concepts and provides real-world examples. Six modules make up the MicroChallenge and a student is required to achieve a score of at least fifty percent before another module becomes available. This feature reinforces the personalized experience and allows students to progress when they have reached a certain level of understanding.

SELF-ASSESSMENT

Self-assessment involves making judgments about one's learning and is mostly used as formative assessment to cultivate reflection on one's achievements or areas of improvement (Boud & Falchikov, 1989). The concept of providing online self-assessment exercises to students is not new and has been found to increase student grades (Peat & Franklin, 2002; Zakrzewski & Bull, 1999). This study will not attempt to claim an improvement in student attainment as a result of using the MicroChallenge exercises but will show that students who used the modules were the higher achieving students and through a quantitative survey they have indicated that their self-efficacy and level of understanding improved. A conclusion can then be drawn that less able students would benefit greatly from using the self-assessment modules.

FUTURE DEVELOPMENTS

The MicroChallenge does not form part of the assessment and as such the usage is not widespread. In the last iteration of the unit, twenty percent of students completed all six modules while forty eight percent of students did not use them at all. One strategy that will be implemented this year will be to use the qualitative data from previous surveys to inform current students that the preceding higher achieving students believed the MicroChallenge to benefit their studies.

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