



Online technology for enhancing first year experience: a case study at the University of South Australia

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Abstract: This paper examines the impacts of online technology on student engagement and learning in a first year engineering course. In the context of increasing student disengagement with on campus learning activities, online technology was used to stimulate and maintain student interest in the course. Online quizzes were developed to provide students with flexible access to self paced interactive study materials and opportunities for self-assessment, and to support alternative learning styles (more choice). This paper analyses student responses to judge the effectiveness of the quizzes for learning.

Introduction

Student disengagement in on campus teaching and learning activities has a profound impact on students' learning outcomes and progression (McInnis 2001). Declining interest among Australia's brightest high school leavers to study science and engineering make these disciplines more vulnerable than others. Stimulating and retaining students' interest during their first year at university is therefore very important. While teaching a first year engineering class at the University of South Australia I experienced the problem of increasing student absence/disengagement. This represented a critical opportunity to engage first year students with online technologies as the tools of the present and to engage them in a stimulating learning environment. Students could reinforce their understanding through self-paced interactive online learning activities and self-assess their progress in the course. Developing interactive online learning resources is also in tune with the University of South Australia's future teaching and learning framework, which promotes student-centred approaches, a focus on Graduate Qualities, and flexible delivery (UniSA 2003). I therefore decided to develop online quizzes for a course titled *Principles of Computer Systems*. This paper analyses the student responses obtained and attempts to find answers to some key questions: whether students engage with the online quizzes, whether the flexibility of access make them attractive, whether students find the quizzes an interesting way to learn, whether they really benefit from engaging with the quizzes, and whether the quizzes are useful for deeper learning in a technical engineering course.

Development of the online quizzes

I used University of South Australia's online environment *UniSAnet* (UniSAnet 2003). It has a *quiz wizard* that facilitates the creation of multiple choice, true/false and fill in the blanks questionnaire among other types. The course *Principles of Computer Systems* being a foundation course requires students to develop in-depth (technical) knowledge on the topics covered. A *deep learning* approach (Biggs 1999) is therefore essential. This meant that I had to develop questions that would require students to think and apply the relevant concepts before they could answer the questions. I found the 'multiple choice' and 'fill in the blanks' type of questions most appropriate. I considered the facilities for providing feedback to students to be very useful. The quizzes were published progressively throughout the semester and students were alerted by email on a regular basis.

Student feedback and evaluation

I sought *feedback* from the students on a regular basis especially during my face-to-face interactions with them. Majority of them expressed strong interest in the online quizzes and said that they were helpful for learning. After the first quiz was released one student sent an email saying

I do not know how much positive feedback you get from students, but I thought I would send you a quick email after doing the quiz to say they are really helpful in learning and applying the material that is being learnt.

I was deeply encouraged by the spontaneous feedback and indeed by all the feedback I had received. In order to judge the effectiveness of the online quizzes an appropriate set of questionnaire (Aziz 2003) was used for student evaluation. It was done anonymously so that students could freely express their experience and opinions. Out of 140 students in the course, 70 participated in the evaluation. 23% of them said that they did not attempt any online quiz. While half of them did not give any reason, the other half said that they were busy with other things including work commitments, assignments from other courses etc., and did not have time to do the quizzes.

70% of those who attempted the quizzes said that online quizzes were useful for testing their learning and for focussing on important topics. 58% of these respondents said that the online quizzes were an interesting way of learning than only attending lectures, tutorials and reading the text. 71% of the respondents thought that the feedback provided were useful, 72% said that the quiz questions required them to think and apply the associated concepts to find an answer. This indicates that students had to grasp the underlying concepts in order to be able to answer the questions. About 65% of the respondents attempted the quizzes multiple times in order to clarify their understanding. 72% of the students said that the quizzes helped them to judge their strengths and weaknesses. This is a good outcome as long as the students act to enhance their knowledge by building on their strengths and by addressing the weaknesses. Majority of the students who attempted the quizzes (at least 80%) said that they enjoyed the flexibility (time and place) offered by online medium. 93% of the respondents said that they would like to see online quizzes in future courses. These are surely indications that the students found the quizzes useful and an interesting way to learn, and benefited from the activity. There is much debate however about the effectiveness of 'online instruction' when compared with traditional classroom (Ramage 2002). In my opinion, good 'instructional methods' are fundamental to the effectiveness of any teaching and learning strategy/activity. Online technology can assist in enhancing that effectiveness through appropriately designed learning activities.

Conclusions

Majority of the students who attempted the online quizzes judged them to be an effective way of learning. Online technology can be used to supplement good instructional methods with a view to stimulate and maintain student interest. It can be a very useful tool for engaging students in the context of increasing disengagements in campus activities. Flexibility of online medium is certainly attractive to many students especially those who have difficulty attending regular campus activities.

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