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#Learning: The use of back channel technology in multi-campus nursing education

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SUMMARY

This paper reports on the results of a study into the use of microblogging technology (TodaysMeet) in large, multi-site lectures in a nursing program. The aim of this study was to investigate students' use of the technology and their perceptions of its value in stimulating engagement in a complex learning environment. The study demonstrated that students like the anonymity that the technology provided, allowing them to ask questions without fear of appearing less competent than their peers. Many of the respondents commented positively on the opportunity to engage with students and the lecturer at other campuses. While some students appreciated the opportunity to interact and have feedback from peers, others saw this as a negative aspect of the technology. This study suggests that, used appropriately, microblogging can be incorporated into large lectures to promote student participation and engagement and ultimately enhance the learning process.

Introduction

There are well-recognised barriers to student participation in large lectures. The passive nature of student learning and fear of asking questions in an open forum can inhibit the effectiveness of large group teaching. Enhancing student engagement is a key to overcoming limitations associated with the traditional lecture. With the increasing use of technology in education, an opportunity exists to capitalise on the growing popularity of social media to promote active engagement in learning. This paper reports on the findings of a project that piloted a private microblogging program during lectures in a first-year nursing subject.

Background

'Ubiquitous' is a word commonly used to describe social media (Bogdanov et al., 2012; Cheston et al., 2013; Gikas and Grant, 2013; Martin et al., 2011). A recent report into the six technology trends that will have the greatest impact on higher education in the coming five years lists the saturation of social media as number one (Johnson et al., 2014). Many of today's university students have grown up with mobile phones, the internet, gaming, Twitter and Facebook—technologies that can bridge great distances, and connect people with each other and with information like never before. Potential exists to harness the possibilities presented by social media to improve learning, engagement and collaboration in universities (Junco et al., 2011; Lee and Dapremont, 2012; Pohl et al., 2011).

Social media can give students a voice. In particular, microblogging (short messages of no more than 140 characters—a medium in which Twitter is the most well-known form) can be used via a private or public back channel to allow students to raise questions, connect with peers and make statements in a non-threatening environment. The use of microblogging via a back channel has reportedly sparked lively debate during academic and professional conferences and conventions (McCarthy, 2005; Ross et al., 2011). In the conference setting, however, most participants are engaged, interested and informed about topics and presentations. The same cannot necessarily be said of students in a university setting where class sizes can be large, enrolments high and students might not be motivated by a burning desire to learn (Biggs and Tang, 2011).

A crowded university lecture room with a sole teacher talking out front is not an ideal setting for individual participation, questioning and engagement. And despite advances in educational theory and technology, lectures are still delivered largely in a didactic fashion (Gehlen-Baum and Weinberger, 2014). Given that many tertiary educators now strive to promote some form of student-centred, constructivist, active, collaborative or asynchronous learning for at least 20 years (Jonassen and Land, 2012), the lecture theatre presents very particular and real problems for student engagement. Engaging students and promoting student-centred learning becomes even more difficult in a modern

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university that uses videoconferencing to transmit lectures to multiple sites. Many students are reluctant to ask questions or offer comments in a large, crowded lecture room because they risk being perceived as incompetent (Pohl et al., 2011). Students can be even more reluctant to speak up via video conferencing because of the added concern that the technology might prevent them from being heard easily or at all.

The use of microblogging has been proposed and tested by a number of researchers, with varying degrees of success, as a way to solve these problems. Studies have been conducted in a number of universities and subject areas—particularly in the humanities (Elavsky et al., 2011; Morris and Parker, 2014) and the sciences (Cheston et al., 2013; Cole et al., 2013)—into the potential of using microblogging via a private or public back channel in lectures to increase student engagement (Welch and Bonnan-White, 2012), enhance collaboration (Tombe and Kimani, 2014) and improve academic achievement (Junco et al., 2011). A back channel opens a secondary line of communication to the 'front channel' of the lecture itself, potentially giving students a voice in the lecture hall. The conversation stream can be projected onto a screen to give everyone access to the comments and to allow teachers and students alike to address issues and questions as they arise.

In the study presented in this paper, a private back channel program, TodaysMeet (TM), was piloted in *Lifespan Development*, a first-year subject of a nursing degree program in which approximately 445 students were enrolled during the study period. The weekly two-hour lecture in this subject is video-conferenced to multiple sites of a university in Australia. The microblogging trial was initiated in response to student feedback about difficulties with larger multi-campus lectures. Students had commented that it was 'difficult to concentrate' in lectures, 'hard to engage' and 'when questions are asked, not everyone can hear'. The research team, which was driven by constructivist pedagogy (Adams, 2004), was interested in exploring whether microblogging had potential to address students' concerns that they did not have a voice in the large lecture. The aim of this study was to investigate students' use of this technology and their perceptions of its value in stimulating engagement in this complex learning environment.

The lecturer supplied the link to the microblogging site to students at the beginning of each lecture and included the link in the footer of all slides. Students were able to post questions as they arose and the lecturer crossed to the questions via a pre-prepared link in the presentation about every 15 min. Questions posed in that period were answered by the lecturer before progressing on with the lecture and any student responses corrected or confirmed as correct. In this way, a second faculty member was not required to monitor a continuous feed of questions. A transcript of the questions posed was reviewed after each lecture and anything missed or requiring clarification was addressed via an announcement on the subject site.

Methods

This research employed a survey design to investigate the aims of this study. A questionnaire originally developed by Wakefield et al. (2011) was modified for use in this study and placed on an online platform. Following approval from the university Human Research Ethics Committee, students were invited to participate by email and via an announcement on the website for the relevant subject. In addition to the data obtained from the survey, the microblogging questions posted were collected across the study period. Completion of the survey and question-posting were anonymous and participants implied consent by their submission. Students were reminded of this by the display of an information sheet at the commencement of each lecture for the subject.

Statistical data was analysed using SPSS version 22 (IBM SPSS Inc, Chicago, Illinois). Categorical characteristics are described using sample size and percentages. Continuous variables are reported using mean and standard deviation. Principal axis factor analysis was conducted to identify factors in the Social Learning Community Scale relating to the use of microblogging in the learning environment. Bivariate analysis was conducted using chi-square tests, Wilcoxon signed ranks test and Pearson's correlations. Textual data was subjected to simple thematic analysis.

Results

Demographics

The study was undertaken with first-year nursing students distributed over five teaching sites of a large regional university in Australia. The survey was completed by 90 participants enrolled in the subject, and had a response rate of 20%. Students were surveyed at the same time as end-of-semester subject surveys and this may have impacted the response rate. Seventy-nine of the participants were female (88%), and 11 were male (12%). The median age of participants was 21 years (IQR = 18, 31). Forty-three percent ($n = 39$) of students attended the larger campus, 52% ($n = 47$) attended a second smaller campus and 5% ($n = 4$) attended one of three small satellite centres. All lectures were delivered by a lecturer at the smaller campus and video-conferenced to the other sites in real time. For 61% ($n = 55$) of students, this was their first semester of study at university.

Use of media devices/technology

All students reported having at least one mobile device and many students had more than one. Eighty-nine percent ($n = 80$) of students had a laptop computer while other portable media devices included tablets (43%, $n = 38$), smart phones (78%, $n = 69$) and mp3 players (27%, $n = 24$) (see Fig. 1).

A majority of students who responded to the survey (85%, $n = 76$) indicated that they use the internet several times a day. Students most frequently use the internet to access Facebook (90%, $n = 80$), followed by contributing to an online discussion board (44%, $n = 39$). Twitter and LinkedIn are the least used forms of social media (See Fig. 2).

Use of TodaysMeet

Sixty-four students completed the remainder of the questionnaire. Of these, 68% of females (41/60) and 75% of males (3/4) indicated that they had no previous experience with microblogging.

Items on the Social Learning Community Scale (SLCS) (Table 1) were scored on a 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). Scoring for negatively worded items was reversed prior to conducting reliability analysis. The 15 items of the SLCS yielded a total Cronbach's alpha (α) coefficient of 0.87, indicating good internal consistency and reliability.

The 15 SLCS items were subjected to principal axis factor (PAF) analysis. The Kaiser–Meyer–Olkin value was 0.82, exceeding the recommended value of 0.6 (Kaiser, 1970, 1974) and the Bartlett's test of sphericity reached statistical significance, supporting the factorability

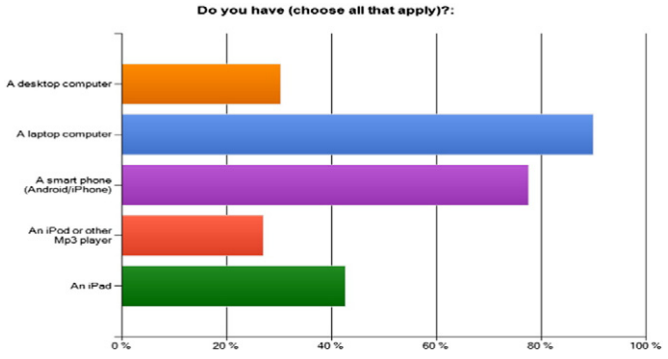

Fig. 1. Student use of technology.