Lecture Capture: first year student nurses' experiences of a web-based lecture technology

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KEY WORDS

Higher Education; Lecture Capture; On-line learning; Student evaluation; Undergraduate nurse education; Web-based technologies.

ABSTRACT

Objectives
This exploratory evaluation sought to examine students' experiences of receiving lectures via a web-based digital lecture technology, Lecture Capture.

Design
A descriptive, online survey undertaken during weeks 8-10 of semester one in May, 2010.

Setting
An Australian University in Brisbane, South-East Queensland.

Subjects
128 first-year students enrolled in a Bachelor of Nursing Program.

Main outcome measure
Student experiences of Lecture Capture measured by a 14-item survey developed for the evaluation.

Results
Students largely perceived Lecture Capture to be useful in aiding understanding and learning, both during the course and in preparation for assessment. It particularly helped the two older groups of students (22-30 & >30 years) understand lectures and revise content at their own pace. Lecture Capture assisted first-year students in adjusting to university life, and this was most noticeable for the youngest group of respondents (<19 years). On-line lectures helped students become familiar with the program's websites and web resources and provided an opportunity to practice note-taking. With the exception of those aged 22-30, Lecture Capture was not regarded as a more effective use of time than face-to-face lectures. Predominantly, students would have preferred face-to-face lectures with optional Lecture Capture, and this was strongest amongst the two older groups. Students overwhelming noted satisfaction when live lectures became available from week four.

Conclusions
Findings support the use of web-based digital lecture technology during the initial weeks of university for first-year Bachelor of Nursing students, but indicate this should be to supplement, rather than replace, traditional face-to-face lectures.

INTRODUCTION

Students' transition to university study can be challenging and, whilst there have been improvements, with Australian school-leavers reporting an easier academic transition in 2009 than previous years (James et al 2010), the changing profile of those entering Higher Education (HE) has meant many still experience difficulties. For instance, between 61- 71% of Australian students undertake an average of 13-15 hours of paid employment per week whilst studying (James et al 2010; Australian Vice-Chancellors' Committee 2007 respectively). In addition, there are growing numbers of mature aged students (Australian Vice-Chancellors' Committee 2005) who have to combine studying with family commitments and paid employment. As such, considerable efforts have been placed on developing teaching and learning strategies within universities to support diversity amongst students and to enhance flexibility in their learning processes. The use of web technologies, in particular e-lectures, is one area that has seen focused efforts to enable better support for students' learning in the HE sector.

A review of the literature indicates a general paucity of studies that have explored the benefits of web-based lecture technologies (WBLT) on university students' learning and general HE experience. However, when studies have undertaken evaluations, the benefits are consistently documented. For example, when online instructional videos were used for teaching clinical nursing skills in undergraduate nurses, students were most enthusiastic about the flexibility and learning autonomy afforded by the online videos; this was most evident for females and students over 23 years of age (Kelly et al 2009). Similarly, when online lectures and quizzes were used for first-year pharmacy students in a drug information course, students reported that it helped them learn course material and was useful when studying for assessment (Freeman et al 2006). Exploration of first-year Bachelor of Nursing (BN) students' perceptions of another web-based intervention revealed that these students felt online activities had enhanced their learning, given them the tools to practice learning and allowed them to study at their own pace (Koch et al 2010). However, in all these studies and others besides (McKinney and Page 2009; Salamonson and Lantz 2005), students still appear to largely prefer face-to-face lectures, with it considered optimal if online lectures supplement, rather than replace, contact teaching. For some students the lack of a community in WBLT poses a challenge to learning (Song et al 2004) and some nursing students have reported regret at losing touch with their lecturers and fellow students (Farrell et al 2007). But how do WBLT compare with face-to-face lectures in terms of student experience and educational outcome? To date, results are somewhat inconclusive as to any overall differences, and this is seen internationally. In a study of U.K postgraduate nursing and healthcare students, Campbell et al (2008) found no significant differences in results for a research methods course whether delivered via an online discussion or face-to-face seminar. That said, however, greater use of online resources was associated with better attainment. A study of *n*=815 students from four Australian universities also found: 68% of students indicated they learnt just as well using web-based lecture recordings as they did through face-to-face lectures; 79.9% felt it was easier to learn; 66.7% thought it helped them achieve better results; and 76.3% reported positive experiences of the learning option (Gosper et al 2008; Woo et al 2008). Finally, in a study of Taiwanese nursing students, it was found that those who received a supplementary web-based course achieved significantly higher scores on intramuscular injection knowledge and skill than their counterparts, who received just classroom lectures and skill demonstration (Lu et al 2009).

The Project

The first year teaching team at an Australian university designed a quality improvement project aimed at better supporting BN students during their initial weeks at university. The project was designed to ease the transition into university study by offering the first three weeks of lecture content for all courses via the WBLT, Lecture Capture. Small group face-to-face learning still occurred in both tutorials and laboratories, and large group face-to-face 'common time' around study skills also continued. Following the initial three weeks, face-to-face lectures, which were also digitally captured, were instituted.

METHOD

Aim

The exploratory evaluation sought to address the following questions:

1. To what extent do students feel that Lecture Capture:
    a. assists learning and understanding, during the course and in preparation for assessment?
    b. assists with adjusting and settling into university life?
    c. increases familiarity with the BN program's websites and web resources?
    d. is a more effective use of their time in comparison to face-to-face lectures?
2. To what extent do these students prefer face-to-face lectures with Lecture Capture as a supplementary option?

Design

A descriptive, online survey was undertaken during weeks 8-10 of semester one in May 2010. As this evaluation was an internal Quality Assurance Activity, being designed around the University's Plan, Implement, Review, Improve (PIRI) Quality Improvement Framework, ethical approval from the University Human Research Ethics Committee was not required.

Sample and Setting

The study was conducted in the Nursing and Midwifery department of one university campus located in Queensland, Australia. All first-year students enrolled in the BN program were eligible to complete the survey (n=222). Students were initially made aware of the survey through emails from the First Year Advisor and then reminded by Course Convenors during laboratories/tutorials and through a notice on the students' on-line learning website. Participation was voluntary and students were informed responses were anonymous and non-identifiable.

Data collection

The survey was developed by the research team and comprised 14 questions pertaining to student perceptions of Lecture Capture during the first eight weeks of study (see Table 2). The first 13 items were pre-determined closed response questions, using a four-point Likert scale that ranged from 'strongly agree' to 'strongly disagree'. The final item allowed participants to provide comment. The survey was available to complete on-line through SurveyMonkey, which students accessed via a web link.

Data analysis

Survey data was captured online via SurveyMonkey and exported into the Statistical Package for the Social Sciences Version 18.0 (SPSS Inc., Chicago, IL, USA) for analysis. Basic frequencies were established for all interval data and crosstabulations were undertaken to examine the association between categorical items exploring the experience of Lecture Capture and age. As it is recommended that crosstabulations undertaken using the chi-square test have no more than 20% of expected counts with <n=5 (Field 2001), responses on the four-point Likert scale were collapsed into two groupings; agree and disagree. A Research Assistant thematically coded the final open response item.

FINDINGS

128 students completed the online survey, resulting in a 57.7% response rate. As shown in Table 1, students were predominantly female (87.5%) and enrolled in the BN Program full-time (89.8%). Student age varied, although there were noticeably fewer students aged 19-21 years (14.2%) who completed the survey.

Table 1: Sample Characteristics

Characteristic	Sub-category	(n)	(%)
Gender (*n*=128)	Female	112	87.5
	Male	16	12.5
Age (*n*=127)	<19	37	29.1
	19-21	18	14.2
	22-30	36	28.3
	>30	36	28.3
Enrolment status (*n*=128)	Full-time	115	89.8
	Part-time	13	10.2

Student experiences of Lecture Capture

Table 2 shows that the vast majority of students considered Lecture Capture a good way to learn and study for course assessment items (97.4%). Approximately seven out of ten agreed that Lecture Capture assisted them in understanding the content of lectures at their own pace (72.6%). Furthermore, approximately eight out of ten agreed that on-line lectures helped them revise lecture content at their own pace (83.5%). Although the value of on-line lectures in helping students to practice note-taking during lectures was less strongly endorsed, there was still a positive skew in responses (65.8% agreeing versus 34.2% disagreeing).

Table 2: Frequencies (n and %) of student nurses' responses to the on-line survey

Survey item:	Strongly agree		Agree		Disagree		Strongly disagree	
Online lectures...	**(n)**	**(%)**	**(n)**	**(%)**	**(n)**	**(%)**	**(n)**	**(%)**
assisted coping with work & life commitments while settling into University study (*n*=117)	36	30.8	40	34.2	22	18.8	19	16.2
assisted understanding content of lectures at own pace (*n*=117)	36	30.8	49	41.9	23	19.7	9	7.7
assisted practising note-taking of lecture content (*n*=117)	26	22.2	51	43.6	32	27.4	8	6.8
assisted revising content at own pace (*n*=115)	44	38.3	52	45.2	12	10.4	7	6.1
was a more effective use of time than face-to-face lectures (*n*=115)	24	20.9	28	24.3	40	34.8	23	20.0
enabled quick familiarity with courses' web-sites & web resources (*n*=117)	25	21.4	58	49.6	25	21.4	9	7.7
a good way to learn & study for assessment (*n*=116)	65	56.0	48	41.4	2	1.7	1	0.9
Enjoyed learning options provided by both face-to-face lectures and posted lectures on-line after the lecture (*n*=117)	75	64.1	40	34.2	2	1.7	0	0.0
Preferred face-to-face lectures with Lecture Capture as an option for learning (*n*=117)	63	53.8	26	22.2	23	19.7	5	4.3

Nearly two-thirds of students' felt on-line lectures helped them cope with work and life commitments whilst settling into university (65%). A slightly higher proportion agreed that on-line lectures assisted them to quickly become familiar with the course websites and web resources (70.1%). Despite these benefits students were divided in their views of Lecture Capture being a more effective use of time than face-to-face lectures (54.8% in agreement versus 45.2% in disagreement)

From week three to the time of survey, face-to-face lectures were made available, were recorded digitally and were posted on-line. The majority of students (98.3%) indicated they enjoyed face-to-face lectures with optional Lecture Capture revision. When asked if they would have preferred both of these two methods of material presentation during weeks one-three instead of only on-line lectures, three-quarters agreed (76.1%), with most again being emphatic in their response (53.8%). It is worth noting that a quarter of respondents indicated they would not have preferred the use of the two methods during the first three weeks (23.9%). Although these respondents were spread across all age ranges, the largest number was of school age (39.3%).

Sixty students provided additional comment and these largely mirrored results from the closed response items. Comments predominantly favoured the use of digital Lecture Capture, particularly in terms of its ability to enable students to replay and revise lecture content at their own pace to enhance their understanding (33.3%) and for those times when it was not possible to attend campus-based lectures (23.3%). Some students noted the welcomed flexibility, which enabled them to juggle study with paid work and carer/family commitments (11.7%). However, many students still indicated a preference for face-to-face lectures with supplementary Lecture Capture (28.3%). There were also some students who were critical of the WBLT primarily because of: technological issues, such as some lectures being streamed online without the option of download (13.3%); the inability to ask questions (5%); enhanced difficulty in forming study groups and making friends (5%); and general hindrance to settling into university life (5%).

Association between student experiences of Lecture Capture and age

Crosstabulations of interval survey items by student age are shown in Table 4. Whilst the chi-square tests found no statistically significant associations, a number of noteworthy differences are observed. Specifically, school age respondents (<19 years) were most likely to agree that Lecture Capture assisted them in coping with work and life commitments whilst transitioning into university study (73.5%). The two oldest groups of students (22-30 & >30 years) were most likely to agree that Lecture Capture helped them understand lectures (86.7% & 73.5% respectively) and revise content (93.1% & 90.9 respectively) at their own pace. Those aged 22-30 were the only age group who had a greater proportion of students agreeing that Lecture Capture was a more effective use of time than face-to-face lectures, contrary to the overall trend (57.1% agree vs 42.9% disagree). Finally, there was strongest preference for face-to-face lectures with Lecture Capture as a supplementary option amongst the two oldest groups of students (22-30 years = 80.0% & >30 years = 82.4%).

A number of issues need to be considered that may have limited the study. Firstly, the evaluation was conducted in one Australian university thus restricting generalisability of results. Secondly, the sample was relatively small and the response rate modest. Thirdly, whilst it is recognised that gender and enrolment status may influence student experiences of on-line learning, it was not appropriate to undertaken crosstabulations given the unequal split of male/ female and full-time/ part-time enrolled participants. Fourthly, student employment status was not collected and so the relationship between employment status and perceptions of Lecture Capture could not be explored. Finally, the survey was undertaken before assessment items in some courses but not in others and, thus, the students may not always have been in a position to best judge how effective the two presentation systems were for their overall academic performance.

Table 4: Crosstabulations (n and %), with chi-square test statistics (*p*=), of student nurses' experiences of Lecture Capture by age

Survey item	<19		19-21		22-30		>30		
	Ag	Dis	Ag	Dis	Ag	Dis	Ag	Dis	*Chi-sq p =*
Online lectures...	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	
assisted coping with work & life commitments while settling into university study (*n*=117)	73.5 (25)	26.5 (9)	55.6 (10)	44.4 (8)	58.8 (20)	41.2 (14)	66.7 (20)	33.3 (10)	.497
assisted understanding content of lectures at own pace (*n*=117)	64.7 (22)	35.3 (12)	61.1 (11)	38.9 (7)	86.7 (26)	13 (34)	73.5 (25)	26.5 (9)	.155
assisted practising note-taking of lecture content (*n*=117)	64.7 (22)	35.3 (12)	61.1 (11)	38.9 (7)	70.0 (21)	30.0 (9)	64.7 (22)	35.3 (12)	.932
assisted revising content at own pace (*n*=115)	73.5 (25)	26.5 (9)	72.2 (13)	27.8 (5)	93.1 (27)	6.9 (2)	90.9 (30)	9.1 (3)	.063*
was a more effective use of time than face-to-face lectures (*n*=115)	38.2 (13)	61.8 (21)	44.4 (8)	55.6 (10)	57.1 (16)	42.9 (12)	41.2 (14)	58.8 (20)	.475
enabled quick familiarity with courses' web-sites & web resources (*n*=117)	76.5 (26)	23.5 (8)	66.7 (12)	33.3 (6)	66.7 (20)	33.3 (10)	70.6 (24)	29.4 (10)	.820
a good way to learn & study for assessment (*n*=116)	100 (34)	0.0 (0)	94.4 (17)	5.6 (1)	96.7 (29)	3.3 (1)	97.0 (32)	3.0 (1)	.657*
Enjoyed learning options provided by both face-to-face lectures and posted lectures on-line after the lecture (*n*=117)	97.1 (33)	2.9 (1)	94.4 (17)	5.6 (1)	100 (30)	0.0 (0)	100 (34)	0.0 (0)	.395*
Preferred face-to-face lectures with lecture capture as an option for learning (*n*=117)	67.6 (23)	32.4 (11)	72.2 (13)	27.8 (5)	80.0 (24)	20.0 (6)	82.4 (28)	17.6 (6)	.485

Note. Ag = Agree; Dis = Disagree; %= within age; (n)= count; *>20% of expected values with less than n=5.

DISCUSSION

Overall, findings from this exploratory evaluation support the use of WBLT during the initial weeks of university for first-year BN students. The positive experiences of Lecture Capture in this evaluation resonates with previous studies that have shown the value of WBLT in terms of aiding student understanding and learning, both during the course and during revision for assessment (Freeman et al 2006). It shows students' perception of enhanced understanding of lectures and ability to revise content at their own pace (Koch et al 2010), and provision of flexibility in learning (Kelly et al 2009). This evaluation also found the use of a WBLTC appeared to assist student nurses in adjusting and settling into university life, seemingly helping them to quickly become familiar with the BN program's websites and web resources, and providing an opportunity to practice note-taking during lectures. However, again consistent with previous studies (Koch et al 2010; Kelly et al 2009; McKinney and Page 2009; Freeman et al 2006; Salamonson and Lantz 2005), this evaluation found that WBLT should be used to supplement, and not replace, traditional face-to-face lectures. This may be associated with students 'stereotypical' perception of university requiring face-to-face delivery of content. Furthermore, given the high level of social engagement and communication inherent within the nursing profession in general (Kiteley and Ormrod 2009), it could be argued that this preference for face-to-face contact with optional WBLT stems from the characteristics of the students entering the BN program (i.e. highly sociable). Alternatively, it may be that,

because learning is supported by an active process of engagement, interaction and reflection, (Brown et al 1983), it is the sense of community and interaction that students experience during face-to-face lectures, which makes this the student's learning method of choice (Song et al 2004).

Exploration of age group in students' response to Lecture Capture suggests that age may impact on their perception of digitally recorded lectures. Older students in particular noted Lecture Capture's ability to help them understand and revise content at their own pace, whereas younger students (recent school leavers) indicated more frequently the positive impact of Lecture Capture in assisting them in settling into university life. There was also a greater number of older than younger students indicating that they would have preferred face-to-face lectures with optional Lecture Capture during the first three weeks of their studies. Finally, those aged 22-30 were the only age group to indicate that digitally recorded lectures were a more effective use of time than face-to-face lectures, contrary to the overall trend. Collectively, these findings suggest that students of different ages have differing needs, particularly during their initial transitional weeks into university study. As consistent with previous literature, older students in this evaluation were more positive about the use of WBLT, primarily because of the flexibility of learning it afforded them and their other time commitments (i.e. work and family) (Kelly et al 2009).

CONCLUSIONS

This exploratory evaluation was designed to ease the transition to university study by offering the first three weeks of lecture content for all BN courses via the WBLT, Lecture Capture. Findings support the use of WBLT during the initial weeks of university for first-year BN students, but indicate that this should be as a supplement to, and not a replacement for, traditional face-to-face lectures. The findings also provide useful information for those planning and delivering teaching and learning activities to meet the diverse needs of commencing university nursing students.

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