Students as Agents for Change in Learning and Teaching
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Case study 1 – The University of Exeter Business School: Student Engagement in Lectures

Introduction

The Business School Staff-Student Liaison Committee (SSLC) decided to engage in a Change Agents initiative related to an externally funded research project[1] aiming to develop integrative, technology-enhanced learning experiences across all four subject areas in the School. The SSLC initiative described here was designed to provide information about how students used, and felt about using, aspects of new technology to support and enhance lectures. This is of particular interest and importance to the School because of the need to support an increasingly large cohort of first year students (650 students in the academic year 2008-09), and also because of the large number of international students (about a third of the cohort).

The three forms of technology reviewed for this study are outlined below.

- *Echo 360* - This system automatically records (streams) lectures; it is currently available for four first year modules. Students can view the recordings via the University's virtual learning environment, alongside the associated PowerPoint slides. The lecture can be paused at any time, as well as fast-forward to selected parts. The recordings are usually made available two weeks after the lecture, although it is possible for this to be achieved almost instantly.
- *Mobile phones* - Mobile phones were used as a response tool to provide answers to lecturer questions. Responses were later reviewed by the lecturer and used for diagnostic purposes as well as for feeding back to students in the next lecture.
- *TurningPoint* - The TurningPoint voting system allows lecturers to question and gain feedback from students during the lecture. Students respond by selecting a relevant option button on their personal handset. The lecturer can immediately show the students their overall responses, for example in the form of a graph, and discussion around answers can ensue. Responses can be anonymous, or the unique code on the handset can be used to isolate individual responses so that individual student performance can be monitored.

Methods of data collection

With the support of SSLC representatives, a student-designed questionnaire was distributed to a module cohort of first year undergraduates to gain perceptions on recorded lectures (Echo 360) and on the use of mobile phones as a response tool in lectures. This was completed and returned by 207 students. Video and interview feedback was also gained on student views of use of the voting system in lectures, with additional feedback gained through student responses via TurningPoint within a lecture group of around 180 students.

Analysis of data

Questionnaire results: Streamed lectures and mobile phones

Streamed lectures

Most students from the sample of 207 reported viewing the video-recordings about once a month (40%), although 5% used them twice a week, 8% weekly and 16% fortnightly. They tended to watch the video recordings for different lengths of time. A quarter watched the lectures in full, two in five watched specific

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[1] The Integrate project, funded within the Business School by the Joint Information Systems Committee (JISC) over a 2 year period from 2008-10, in order to embed technology into ways of working, and supported through Education Enhancement

parts, and around a third used both methods of viewing. Roughly a third of students did not use the video-recordings at all.

- Student reasons for using streamed video

As highlighted by Table 1, the findings reflect that students use the streamed video for several different purposes, and the lengths of time students watched the videos were a reflection of the different uses they made of it. Of the 70% who viewed videos, three quarters used the recordings to look over specific material with which they had struggled, with about half saying they only used the video recordings if they had not understood something in the lecture. Over half used the recordings to write up notes and around half found they could use the recordings to aid them with specific assignments in mind. Students also used the video recordings to revise; over half indicated that it was an integral part of their revision process and that they used it as a memory jogging tool, with a fifth stating that they used the recordings only for revision. (The viewing figures for streamed video also show a marked surge in revision periods, confirming the students' statements).

	Percentage of Students Who Agree
I use the video recordings lectures to look over material that has troubled me.	75
I use the video-recorded lectures to write up notes.	61
I use the video-recorded lectures to aid me with assignments within the module in question.	47
I see the video recorded lectures as an integral part of my revision.	58
I use the video recorded lectures as a memory jogging tool whilst revising.	57
I am less likely to do extra reading if the lecture is video-recorded.	22
I only watch the video recording of lectures if I have not understood something in the lecture.	47
I use only the video-recordings to revise.	18

Table 1: Ways in which students use video-streamed lectures

- Attendance

Students were aware that lectures are considered mandatory by staff, although currently there is no enforcement or monitoring. Concern was voiced by staff that the provision of video-recorded material would have a negative impact on lecture attendance. However, two thirds of students claimed this did not affect their attendance in any way. Most students considered they would be missing out if they did not attend, and preferred to use streamed lectures as back-up. Large numbers (87%) suggested that the value of attending lectures was more dependent on the lecturer and on content than on whether it was streamed or not.

- Recordings

Three quarters of students were satisfied with the quality of the video recordings and two thirds with the quality of the image. Most students (87%) knew where to find the lecture recordings and felt they were able to access the lecture recordings easily (80%). Two fifths did not know exactly when the recordings were made available, but a majority (58%) stated that they would prefer it to be the same day and a third stated the same week. The majority (95%) watched the recordings off campus. Over half of students felt that video-recording are particularly useful in modules with a high Mathematics content or in lectures which include a number of case studies. Half thought that video-recordings were particularly useful in lectures with large numbers of students, where it is not easy to get individual feedback on questions, and two thirds thought the use of video recordings had enhanced their learning in the modules where it was available. Most of the students questioned (82%) wanted to see video recordings in all their lectures in the future.

Use of mobile phones

A fifth of students surveyed had responded to questions via texts from their mobile phone in lectures. Of this group, half enjoyed using texting, though only around third agreed that they would like to see mobile phones used as a learning tool in other lectures. There was a wide range of responses as to how many text messages they would be prepared to use if texting became embedded in lectures (see Table 2).

I would be happy to use the following number of texts per week as a learning tool in lectures	%
1- 5	32
5 -10	16
10-15	3
15 +	15
I am not happy to use texting as a learning tool	34

Table 2: Preparedness to use texts for responding in lectures

Personal response systems

For this study, TurningPoint was reviewed in the context of two revision lectures at the end of the summer term. The voting system was being used to ask multiple-choice questions (MCQs) based on aspects of the module that were about to be assessed in the end of year exams. Students were shown a question and given time to calculate and submit their answers using the voting technology. During this period, students usually calculated answers themselves and then discussed methods with their peers. Once the lecturer was satisfied that most of the students had responded, the correct answer was revealed (usually followed by a mixture of groans and smiling faces). The lecturer then demonstrated how to gain the correct answer, and student queries were responded to before moving on to the next question.

Feedback on the system was gained from the lecturer and from students attending the sessions. The lecturer reported using TurningPoint at the end of term for two purposes: to give students MCQs to support their revision; and to gain feedback from students about his lectures and types of classes. His main aims were to:
  (i) Make lectures more interactive and interesting
  (ii) Find out about the level of knowledge of the student group
  (iii) Get feedback from students on particular points
  (iv) Enable students to self evaluate their level of knowledge and give them confidence about how much they actually knew.

Although there had been a few technical problems during the lecture, the lecturer reported the system to be fairly easy to implement and was convinced that his lecture had been enhanced by its use *('Yes. Absolutely')*. He also strongly agreed that he would recommend the system to other colleagues and that he would use the system again in lectures, especially to gauge levels of understanding: *'Yes. I actually intend to use it in most of my lectures, in the last 5-10 minutes probably running a few MCQs to infer how well the students understood the topics we covered'.*

Students enjoyed using the system. From the lecture group of about 180 students, 95% considered that they would like to use this system more often, and 89% thought that revision classes planned in this way were really useful. They reported enjoying the interaction between the lecturer and themselves and suggested that it helped them to focus and to maintain concentration. They appreciated knowing how well their revision was going in relation to other people in the class and because it gave them a chance to get feedback on exam style questions. Students said that they discussed what each of them had answered once they had selected the answers themselves. When asked about the need for having individual handsets, they felt that sharing a handset would change the activity to become more of a group activity rather than testing their own knowledge. One student suggested that it would be good to split the class into two teams and have a competition between the two sides. They thought the Statistics lecture was a good place to use a voting system since there was usually a right or wrong answer, but they thought it could be used in other kinds of lecture as well and were keen to see it used more widely.

Summary of Findings

The data suggests that most students watch the streamed lectures. They mostly use them to look over material that has troubled them in the lecture, to revise, to help with writing up notes and to support the completion of assignments. The majority of students did not feel that the availability of video-recorded lectures affected their attendance in lectures although they reported that content and delivery of modules were factors that did impact on their attendance. Students found the recordings useful, the majority were satisfied with the quality of image and sound, and most wanted to see all lectures video-streamed in all subject areas.

A large part of this sample had not used mobile phones as response systems. Of the students who had, about half enjoyed using them and a third wanted them to be used more often. Most would be happy to use between 1-5 messages a week for responding during lectures. Both staff and students thought that the TurningPoint system was very useful. Students thought it kept them focused in lectures and they appreciated the interactivity it allowed. Most students wanted to use the system in further lectures.

Recommendations/Solutions

This small-scale study suggests that the Business School should continue to integrate the described technologies into learning and teaching. It also supports the further streaming of lectures, as far as feasible with the small number of capture systems that are currently available across the University. Additional feedback suggests that streaming can be of positive benefit to international students as it gives the opportunity for repeated listening - helpful for developing language skills as well as understanding. Although

the use of texting from mobile phones was not received with quite such enthusiasm, and was only trialled with small numbers of students, it did provide an interesting means of monitoring student understanding and allowed more flexibility in response that that possible through TurningPoint. As an outcome of the pilot with voting systems and the highly supportive feedback that has been received from both staff and students (including the data gathered for this study), the School has now bought TurningPoint handsets for the whole of the first year cohort and beyond (a total of 1000 sets). It is recommended that these should be widely used in lectures, and that ways of monitoring both student engagement and understanding in lectures, as well as its potential in relation to student attendance, should be explored more fully.

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