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Lecture capture: rich and strange, or a dark art?

Conference Item [paper]

Lecture Capture: a literature review

This paper provides an overview of previous research to examine the attitudes of academic staff towards lecture capture. The literature review was carried out as part of a research project at LSE to explore staff attitudes towards the use of this technology, following the roll-out of an automated lecture capture system.

Scope

Video and audio recording of lectures is not a new phenomena, and television has been used to deliver lectures or other educational content almost since it was invented. The Open University was an early pioneer of work in this area, however significant recent advances in technology have led to a growing interest in the use of lecture recordings in education. It is also worth noting that many previous studies of the use of lecture recording software originate from Australia where much of these technology was first pioneered for distance learning students.

A number of advances in technology have meant lecture capture has become of interest to the wider education community, including:
- The development of digital recording facilities
- The development of large scale automated lecture recording systems (such as Echo360)
- Improved capabilities of internet connections allowing recording to be delivered as digital files via networks using techniques such as streaming
- Reduction in costs of storage allowing greater numbers of recording video files to be stored and made available.

A literature review was conducted in June / July 2010 by searching the British and Australian Education Index to find identify peer reviewed materials, in addition to a wider search of the internet. The search of the indices revealed approximately 150 articles on the topic of 'lecture recording' and 'attitudes'. Searching the internet meanwhile revealed a far greater number of work, of which much was not peer reviewed. For the purposes of this study it was considered most helpful to concentrate on material written in the last 10 years.

Overview

The search identified the existence of an earlier literature review carried out in 2008 which proved to be a useful good starting place (Currcicular Computing, 2008).This review, while limited, did include a number of useful highlights including:

- A recognition that few rigorous studies that show how lecture capture improves student performance, retention or satisfaction
- There is a high demand for lecture capture from students
- There seems to be growing enthusiasm from staff and students
- That lecture capture is best implemented in the context of working with faculty members to design classroom environments that can potential of this tool to enhance learning.
- Lecture capture systems must be embedded in a larger methodology to support active learning in the classroom.

Academics perceptions of lecture capture

The literature review primarily sought to identify previous research to document and analyse the attitudes of academic staff in higher education towards having their lectures recorded. The search revealed that while the topic of recorded lectures has been widely written about from a technical perspective, there are relatively few attitudinal studies and many of those that exist have focused on student attitudes rather than staff. However, those that do exist tend to focus on what lecturers

do not like about lecture capture, with a smaller number of papers examining more positive experiences. Meanwhile student studies are overwhelmingly positive about the use of this technology.

Benefits of lecture capture to staff

Perhaps unsurprisingly less has been written from the perspective of the teacher about the benefits of using lecture capture, with research focusing on how the recordings might benefit student learning. Chang (2007) suggests the benefits to lecturers are 'minimal' and cites MacKenzie's (2004) report which found only 16% of lecturers found the use of lecture capture gave them better use of contact time with students.

While primarily a paper about student attitudes towards lecture capture, Davies (2009) highlights several advantages of lecture capture for the teacher including:

- professional development opportunities arising from lecturers being able to critically review their own performance
- increasing student engagement and retention
- giving students a new way of resolving problems, meaning that face-to-face interactions can be 'spent on more complex issues' than those already covered.

The literature suggests the benefits to staff are unclear which leads to a reluctance to use the technology, as Chang (2007, p.143) states:

> …whereas academics could identify benefits for their students, they found it difficult to identify benefits for themselves. Therefore, unless valued benefits are articulated, adoption rates may continue to remain low, if adoption continues to be voluntary.

Criticisms of lecture capture by staff

The most relevant previous study on this topic was a recent conference paper by Chang (2007) which reports on research at the University of Melbourne to examine the perceptions of academic staff towards the introduction of an automated lecture recording system. This qualitative study examined 11 academics' perceptions of the automated system: Lectopia. This paper identifies two key concerns that staff have about this technology:

1. Resistance to lecture capture is often related to the perception it will reduce attendance in lectures
2. Some staff believe that their lecturing 'style' cannot be suitably recorded using the technology.

The paper builds on earlier work by Fardon (2003) who argued that the Lectopia system was not necessarily conducive to some styles of lecturing. However, Chang argues that lecturing styles alone do not determine a willingness or resistance to adoption of the technology. Chang identifies a number of other reasons why staff may be unwilling or resistant to using lecture capture including:

- Perceptions about the reliability of the technology,
- Concerns about the technology as a pedagogical tool,
- Concerns about the engagement levels with students
- Concerns about the suitability of the medium for their curriculum.

Lecture capture and student attendance

Staff frequently express concerns that recording a lecture will have a detrimental impact on a students willingness to attend a lecture. In a distance learning institution attendance at a lecture may be impossible, but at campus based universities, who are using lecture recording to

supplement the face to face learning experience, this is clearly a concern. There have been numerous recent studies exploring this issue, as it seems to have been a common concern associated with the introduction of other technologies to support teaching. Similar concerns were expressed by many lecturers about posting lecture slides online when virtual learning environments were first introduced (add ref?). In general, the recent literature (von-Konsky et all 2009; Russell and Mattick, 2005) suggests that recording lectures has a minimal impact on students attendance. However, the concern seems to persist despite evidence to the contrary.

Lecture capture not suitable for certain 'lecturing styles'

Chang (2007) suggests that some lecturers did not believe recording a lecture was suitable for the style of lecturing they undertook. He cites earlier work by Fardon (2003) at the University of Western Australia. who argued that lecture capture is not necessarily conducive to some styles of lecturing. For example he found a number of lecturers expressed concerns about the suitability of lecture capture believing that 'their physical gestures, body language, hand motions, etc. are critical components of their 'lecturing style.' (Fardon, 2003, p. 2) He defines lecturing style as: 'as the way in which a teacher uses the lecture time-slot in the context of their teaching and the student's learning.' Fardon (2003) explores the literature on lecturing styles to ascertain if particular styles of lecture may be more or less conducive to using this technology. He cites the work on lecturing styles of Brown and Bakhtar (1988) Behr (1988) and Saroyan and Snell (1997). Brown and Bakhtar (1988) for example classify lecturers as either: oral, visual, exemplary, eclectic or amorphous. Meanwhile Behr (1988) classifies them as: dramatic presenter, information provider, structured presenter and visual presenter. Finally Saroyan and Snell (1997) argues lecturers are either content driven, context driven or pedagogy drive. Both the information provider and the oral lecturer focus on speech during the lecture and might be better suited to recording. Meanwhile the dramatic presenter or the amorphous lecturer might be less well suited. Fardon (2003, p. 704) also highlights how the lecturing style is often related to the subject discipline and that lecturers in the humanities and social sciences are more likely to be oral lecturers, whereas those in the sciences can be more visual or amorphous, making them less well suited to being recorded.

Reliability and or access to the technology

Chang (2007) also identified staff concerns about the reliability of the lecture capture technology, or whether students will be able to access the recordings via the internet. This is a common concern amongst staff who use other learning technologies.

Concerns about the technology as a pedagogical tool

Concerns about were echoed by O'Donoghue et al (2007) who reported on a study at the University of Canterbury in New Zealand. While O'Donoghue's paper is not based on extensive research, the University Centre for Teaching and Learning reported on discussions with academic and other colleagues on the subject of recorded lectures. Their study identified two conflicting viewpoints about the possible benefits of a lecture recording system to student learning. One group of staff felt the benefits to students were clear as it would provide them with a more flexible learning provision. However a second group felt that effort and money might be better spent on developing staff to deliver 'active learning'.

Concerns about the engagement levels with students

Another of the concerns that Chang (2007) highlights are that student engagement is reduced through using a technology such as lecture capture and that it encourages them to become 'passive' learners. O'Donoghue et al (2007) identified similar concerns and found rather than invest significantly in lecture recording technology some staff thought staff should be encouraged to change:

"…the nature of delivery for many courses from a passive lecture transmission to more engaging and collaborative forms of learning." (O'Donoghue, 2007).

Meanwhile, Bennet and Maniar (2007) questioned the value of lecture capture arguing that it could prevent some students becoming independent learners.

Concerns about the suitability of the medium for their curriculum.

Fardon (2003) recognized that lecturing style is often related to the discipline being taught, which in turn can influence the lecturers beliefs about the suitability of lecture capture technology.

Student perceptions of lecture capture

Student attitudes towards recorded lectures are widely reported in the literature and overwhelmingly positive (Karakostas et al, 2010). The Centre for Learning, Innovation and Professional Practice at Aston University (2009) advises caution about some of the literature in this field recognizing that much is written by vendors of lecture recording solutions. One such example is the website LectureCapture.com (2010), which is hosted by the lecture recording software company Echo360. As well as hosting forums and blogs, the website also provides a list of resources on the topic of lecture capture, including books, journal articles, conference proceedings and other studies.

Wang *et al* (2010) provide a recent, independent overview of student attitudes towards the use of lecture recording. The research was part of a UK Higher Education Academy-funded Pathfinder project, and explored medical students' perceptions of video-linked lectures and video-streaming, and their impact on learning. The research was conducted using interviews with students across different campuses and in each of the five year groups. The research concluded that students preference was to attend a live lectures at their home site and they perceived interaction between the sites as a major challenge. Additionally students reported that their attendance at live lectures was not affected by the availability of streamed lectures and their decision to attend a lecture was often influenced by the topic and speaker rather than any technical arrangements.

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