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Lecture recordings: extending access for students with disabilities

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Abstract

The introduction of a lecture recording system at many universities has received considerable endorsement from advocates of accessibility, with students with disabilities and/or medical conditions being identified as major beneficiaries of this resource. To gain a better understanding of the perceived benefits and shortcomings of recording lectures for this group of students, and potential directions and applications for the future, a research project was recently conducted at one university into this topic. This research acts as the basis for this paper; the presentation will briefly overview the project and share key research findings.

Introduction

The lecture method remains a common university teaching practice despite mounting criticism regarding its educational legitimacy. In order to make this teacher-centred teaching method more flexible and accessible to a increasingly diverse student population, many universities are considering the implementation of a lecture recording system.

Recording audio and video material from university lectures for students to access outside the lecture theatre has been repeatedly acknowledged over the years as beneficial for many students (Bligh, 1972; Laurillard, 1993; Biggs, 2003). Inaccessible for some, recordings of lectures allow all students the ability to review lecture material at their own pace in environments in which they are comfortable, as many times as required and in the format that suits their needs. Students who have a different native language to their lecturer, those with work commitments and timetable clashes, and students who have learning styles not suited to the face-to-face lecture method have been found to particularly benefit from the ability to access lecture recordings (Williams and Fardon, 2005).

Another group of students who are thought to derive learning support from the availability of lecture recordings are those with disabilities and medical conditions.

In 2002, the Australian Senate published a report observing that advances in technology have resulted in assisting students with disabilities to gain greater access to higher education, noting that "Advancing technology is easing the burden for students with disabilities in accessing higher education. The past decade has seen unprecedented technological change affecting disability assistance. The advantages of technology for students with disabilities include improved mobility and communication and access to information. New technologies can greatly enhance a student's level of independence, and allow a student to achieve academic success with little or no disadvantage" (Employment, Workplace Relations and Education References Committee, 2002). A lecture recording system that translates the often inaccessible face-to-face lecture method into a more flexible digital format is a powerful example of this type of 'enabling' technology.

Throughout the literature that addresses issues relating to students with disabilities and medical conditions in higher education, the practice of recording lectures is frequently attributed with providing flexibility and advancing learning (Exley & Dennick, 2004; Leung et al., 1999; Skill: National Bureau for Students with Disabilities, 2004, 2005). In a report to the Australian Commonwealth Department of Education, Science and Training, it was noted that "Students with disabilities prefer courses that are presented in flexible ways, particularly

where this means that the content is presented via several different means. For example, students prefer courses that are presented through a combination of face-to-face lectures, lecture notes, and on-line recordings" (University of Western Australia, Disability Services, 2002). Many universities around the globe endorse this approach, and place recommendations on their websites that lecturers consider recording lectures for the students with disabilities who may attend their lectures (for example: Australian National University, 2005; Monash University, 2003; University of Adelaide, 2005; University of Cardiff, 2005; University of Edinburgh, 2006).

The majority of these websites feature relatively simple, straightforward statements along the lines of: "People with mobility, visual or hearing impairment, and people with dyslexia, can benefit from being allowed to record lectures and discussions" (University of Cambridge, 2004). Others, such as the University of Newcastle's Disability Support Services website, enter into more detail. Newcastle's website provides information sheets for staff on 21 different disabilities from Attention-Deficit Hyperactivity Disorder (ADHD) to Vision Impairment, and every one of these information sheets contain the recommendation that lectures should be recorded (University of Newcastle, 2005). Common amongst all of these university websites, however, is the perspective that recording lectures alleviates the pressure on students with disabilities to take notes during a lecture, provides an avenue for the efficient review and revision of core course material, and is an important resource should regular attendance at the live lecture not be possible due to their medical condition.

Project Overview

Objective
At the University of Western Australia (UWA), as with many other universities, the practice of recording lectures to provide flexible access to lecture materials for students with disabilities and medical conditions is firmly established. The lecture recording service, utilising a home-grown system called Lectopia, has been identified by UWA as critical for this group of students, alongside other services and facilities such as the provision of specific equipment and furniture, extended library services and advocacy support (University of Western Australia, 2006). As with the majority of students studying at UWA, students with disabilities remain expected to attend live lectures and use the recordings as a supplementary learning resource rather than a replacement, where possible.

The number of students with disabilities or medical conditions enrolling in courses at UWA is not insignificant. For example, at UWA in 2005, 902 undergraduate students acknowledged on their (re-)enrolment form that they had a disability which represents approximately 7-8% of the total undergraduate enrolment at the University. The UWA enrolment form has six disability condition types for students to select: 'learning', 'hearing', 'vision', 'mobility', 'medical' and 'other'. Note that 'learning' includes dyslexia and ADHD. In 2005, the highest proportion of students indicated their disability was 'medical' on their enrolment form (31%), whilst 10% stated a 'learning' disability and 7% 'mobility'. It is important to note that indicating a disability condition type on the enrolment form is not a requirement: 31% of students who acknowledged a disability did not select a disability type.

Given the high numbers of students with disabilities and medical conditions studying at UWA, it is vital that the University ensures that their learning needs are being appropriately supported. As noted above, the recording of audio and video from university lectures for students to access online is an accepted practice at UWA, and is held to be an important learning resource for students with disabilities. However, to date our only evidence that these students benefit from the provision of lecture recordings has been taken from informal or

anecdotal feedback, and student surveys which have occasionally elicited general information about the use of Lectopia from students with disabilities. Although national and international studies have previously been conducted into the use of audio-cassette lecture recordings by students with disabilities, little recent research has been undertaken to understand the ways in which online lecture recordings with audio and video material are being used, and what impact they are having.

To address this absence of formal research in this area, a project was devised and conducted at UWA in 2006 to capture more substantial information and gain a wider understanding of the pedagogical and practical implications of the use of lecture recordings by students with disabilities. It was anticipated that the project's findings will be useful across the international higher education industry, whilst at a local level they will inform UWA's policies for supporting the learning needs of students with disabilities.

Summary

The research for this project was conducted at UWA throughout the duration of second semester 2006, and involved a range of research methodologies as described below.

Over a three week period in July 2006 (10 to 28 July), a survey was distributed to all UWA undergraduate and Masters by Coursework students who had acknowledged a disability or medical condition on their enrolment form. It was estimated that a possible 15-20% of the survey recipients would have had no experience of the Lectopia lecture recording system, either because their lecturers chose not to use the system or because the lecture method was not used in the course teaching.

The anonymous survey was sent in printed form to 578 undergraduate students and 57 Masters by Coursework students. In addition, 7 undergraduate students received access to the survey online, due to their severe vision impairment disabilities. In total, 642 UWA students were sent a copy of the survey.

23 students returned the survey uncompleted because they were undertaking courses that did not use the lecture method; 3 surveys were returned unopened. A total of 130 completed surveys were received, resulting in a 21.1% response rate.

The survey, co-authored by the UWA Disability Office, addressed a series of issues relating to the use of lecture recordings by students with disabilities or medical conditions and included questions on topics such as accessibility and attendance:

- Type of disability or medical condition.
- Tools used to access lecture recordings.
- Preferred delivery format for lecture recordings.
- Frequency of attendance at live lectures.
- Frequency of use of lecture recordings.
- Reasons for using lecture recordings.
- Comments on the practice and pedagogical value of recording lectures.

Following on from this survey, a focus group was held in October 2006 to discuss the issues raised by the survey in more detail, and seek feedback about the topic of lecture recordings in a more informal setting.

This targeted research, focusing on lecture recordings and their use by students with disabilities and medical conditions, was undertaken alongside a series of campus-wide research activities. Over a three-week period (28 August to 15 September 2006), a campus-wide online student survey was conducted into the use of lecture recordings at UWA, seeking

extensive information about how and why the resource was used across campus by students of all ages, demographic groups and course types. Many of the questions asked in this survey were identical to those asked in the survey of students with disabilities, and therefore provided a useful point of cross-referencing. This campus-wide research project also involved a set of focus groups which work to provide further context for understanding the use and application of the lecture recording resource at UWA for all students, including those with disabilities and medical conditions.

In addition to the surveys and focus groups outlined above, research for this project encompassed other sources of information about the use of lecture recordings at UWA, including system statistics and student usage reports extracted from the recording system.

Project Results

The results from the 2006 survey of students with disabilities and medical conditions revealed overwhelming support of Lectopia at UWA with almost all students rating it as an 'Essential' or 'Useful' learning resource (65.7% and 32.4% respectively). In the comments section of the survey, remarks illustrating this support were commonly articulated, for example: "It has made attending university possible. (Thank you)".

As shown in Figure 1, the survey showed that, depending on their disability, students rated the lecture recording service differently. The most commonly acknowledged disabilities, 'Learning' (34.5%) and 'Medical' (30.1%), particularly valued lecture recordings as essential to their learning; those with 'Hearing' and 'Mobility' disabilities rated the resource less highly.

	Total	Hearing	Learning	Medical	Mobility	Vision
% of survey respondents	100%	6.2%	34.5%	30.1%	14.2%	15%
Essential	65.7%	50%	71.4%	66.7%	50%	62.5%
Useful	32.4%	50%	28.6%	30%	50%	31.2%

Figure 1: Learning value of lecture recordings against type of disability or medical condition.

Prior to the survey taking place, the team managing the lecture recording service at UWA had been led to understand that a high percentage of students with disabilities required specific software products to gain access to the recordings. The system development team had worked closely with students who regularly used software such as Jaws, Dragon and Zoom Text to ensure that Lectopia met the accessibility needs for as many students as possible. Interestingly, the survey results showed that only a few students required specific software to access recordings (less than 5%). Those who did, however, were appreciative that their access to lecture recordings was not impeded by their specific IT requirements.

At UWA, lecture recordings are made available to students in an average of fifteen different formats (including QuickTime and Windows Media formats, at a range of file sizes) to ensure that students are able to easily access the recordings, regardless of their network connection or playback preferences. The most popular recording delivery format in the survey of students with disabilities was 'Download', with over half the number of respondents indicating that this was their preferred format (52.9%), with 26.5% choosing 'Streaming' and 20.6% noting that they had 'No preference'. These results were echoed in the campus-wide survey that was conducted later in 2006, where 53% of students recorded a preference for 'Download'. The results from both of these surveys indicate that, although a reasonable proportion of students were satisfied with streaming or had no preference, the majority

welcomed the flexibility that the download formats provided – specifically the ability to access recordings offline, to have more control over recording playback and review, and to put them onto mobile devices.

Although a question regarding preferences for audio-only recordings against audio-video recordings was not specifically included on the disability survey, numerous comments revealed a strong preference for recordings to capture the presenter's computer screen or material from a document camera as well as the audio. For example, "Visually recording all lectures that have visual aids" and "Visual essential of lecture slides not just audio recordings". In the focus groups that were held in October 2006, one student stated that the audio becomes invaluable when it is synchronised with the visual material presented in the lecture. Whilst Lectopia does have the capability to automatically capture video material from lectures, not all lecturers choose to use this feature – despite almost 75% of students in the 2006 UWA campus-wide survey reporting that they prefer recordings with video material of either the presenter's screen, the document camera or the lecturer him/herself.

The results from the two student surveys demonstrated that students with disabilities and medical conditions used the lecture recordings more frequently and accessed individual recordings more times than the student population as a whole, as shown in Figures 2 and 3. Students with disabilities were more likely to access recordings 'Always' or 'Regularly' during semester; they were also more inclined to access the recording more than once, and over 5% of survey respondents stated that they would often access an individual recording on five or more separate occasions. Although the differences in these figures are not dramatic, they do point to the greater reliance that students with disabilities have on this technology in their learning activities that the student population as a whole.

	Always	Regularly	Occasionally
Campus-wide survey	22.9%	47.6%	29.5%
Survey of students with disabilities	29.7%	56.8%	13.5%

Figure 2: Frequency of use of lecture recordings during semester across both student surveys.

	Once only	2-4 times	More than 5 times
Campus-wide survey	67.6%	28.9%	1.5%
Survey of students with disabilities	59.5%	35.1%	5.4%

Figure 3: Frequency of use of an individual lecture recording across both student surveys.

In both the campus-wide survey and the survey of students with disabilities, students were asked to list their reasons for using lecture recordings. An analysis of these reasons enables a better understanding of why students with disabilities may rely more on lecture recordings in their learning than many others.

Reasons for using lecture recordings: campus-wide survey

Using lecture recordings for revision purposes and reviewing concepts was revealed to be the most common use of this resource in both student surveys, as shown in Figure 4. Note that students were permitted in both surveys to nominate one or more reasons for why they used lecture recordings.

Whilst students with disabilities demonstrated a higher dependency on Lectopia for revision and concept review than those responding to the campus-wide survey (80.5% compared with 70.1%), accessing recordings to manage timetable clashes and work commitments was

significantly more popular in the campus-wide survey (47.3% and 38.8% compared with 10.2% and 5.1%).

	Revision & concept review	Timetable clash	Work commitments	Regional location
Campus-wide survey	70.1%	47.3%	38.8%	2.3%
Survey of students with disabilities	80.5%	10.2%	5.1%	0.9%

Figure 4: Common reasons for using lecture recordings across both student surveys.

Perhaps because of their acknowledged lesser dependency on lecture recordings to support timetable clashes and work commitments, the survey of students with disabilities recorded higher figures in terms of attendance at live lectures than the campus-wide survey, as shown in Figure 5. In the campus-wide survey, 24.4% students said that they 'Always' attended lectures compared with 42.6% of students from the disability and medical condition survey. In total, 88.3% students with disabilities noted that they attended lectures either 'Always' or 'Regularly', almost 10% more than the figures extracted from the campus-wide survey.

	Always	Regularly	Occasionally	Never
Campus-wide survey	24.4%	55.2%	15.7%	4.7%
Survey of students with disabilities	42.6%	45.4%	11.5%	0.8%

Figure 5: Attendance at live lectures across both student surveys.

Reasons for using lecture recordings: survey of students with disabilities

As observed above, the majority of students with disabilities who responded to the 2006 UWA survey used lecture recordings predominantly as a revision tool, to prepare for essays and examinations and to review difficult or complex concepts that have been presented in the lecture. However, this targeted survey did reveal some uses that seem to be specific to students with disabilities, uses that were not present in the campus-wide survey. These reasons fell predominantly into two categories:

- Unable to take notes during the live lecture. 39.8% of students who responded to the disability survey stated that they used lecture recordings because they were physically unable to take notes during the lecture itself. Comments such as this appeared regularly in the survey results: "I have stress fractures in my wrists, so writing quickly and solidly for 45 minutes is quite painful. Having recorded lectures allows me to review the lecture later at a slower pace to relieve the stress on my wrists".

  Of the 39.8% of students who acknowledged difficulties with note-taking, over half of them had learning-related disabilities (56.4%). Dealing with the pressure of keeping up with the content in live lectures was often critical for students with dyslexia and ADHD, and their need for the recording resource was often acute. Put simply by one student: "I find it very difficult to take notes in lectures, so recorded lectures are very valuable to me".

  Interestingly this form of use by students with disabilities, using lecture recordings to manage note-taking pressures, tied in with comments made by students in the campus-wide survey relating to their own flexible learning practices. For example, some students expressed a preference for simply listening at the live lecture and taking notes later: "I do not need to take notes in the lecture – rather I jut [sic] listen and revise by taking summary notes from the lecture recordings" and in one of the

focus group sessions, a student stated that "With Lectopia, you can go to a lecture and not have to write anything, just listen and take notes later from the recording. It means that you take more in ... it is invaluable from that perspective".

- Unable to attend live lectures due to disability. 24.6% of students who responded to the disability survey stated that their disability would sometimes affect their ability to attend live lectures. In these cases, the availability of lecture recordings was invaluable: "Having a fatigue disorder it is important that my day to day life be flexible to what energy I have. Listening to Lectopia, I can study when I'm able to".

  Of the students who found that their disability sometimes prevented them from attending lectures, many requested that more courses utilise the lecture recording service: for example, "We need more lectures recorded", "Many units do not take advantage of this please make more people record" and "Please make more units available for online lectures".

  It is worth noting that, of the 24.6% of students who are unable to attend lectures on occasion because of their disability, 68% recorded on their survey form that they had medical and/or mobility disabilities. Whilst the lecture recording service at UWA is not intended to be used as a replacement for attendance at face-to-face lectures, from the survey it was very much apparent that many students relied heavily on this resource at times when they were unable to attend – whether it be because they were receiving medical attention or were physically unable to come to campus, or because they had work commitments or timetable clashes. Offering a lecture recording service to students acted for many as a safety-net, a 'just in case' solution should attendance not be possible.

Considerations and conclusions

Compulsory recording

In the written comments section of the disability survey, over 60% of respondents requested that UWA make recording lectures compulsory for all courses that use the lecture method: for example, "All units should have recordings available" and "ALL lectures should be recorded if this is going to be a useful system".

Taking this a step further, some of the survey feedback revealed a high-level of frustration with a handful of lecturers who did not appreciate the learning benefits that many students with disabilities derived from lecture recordings and did not deal with recording requests sensitively: for example, "One lecturer said that don't bother asking to have lectures taped unless you have two broken legs and a broken neck. Another said technology was 'too hard' hence not taping. In the year 2006 these are both very poor and unacceptable attitudes". The experiences of this student were supported by an opinion voiced in one of the focus groups where a student said that "My main problem with Lectopia at UWA is that any lecturer can choose for any reason not to use it. UWA need to make recording lecture compulsory, particularly if there are students with disabilities in class – a ruling needs to be made".

This incredible demand from students with disabilities for all lectures to be recorded needs to be closely considered at a university-level.

Currently at UWA, as at most other universities around the whole that have installed an enterprise-level lecture recording system, the lecture recording service operates on an 'opt-in' approach where individual lecturers make the decision to record their lectures or not. However, in an attempt to support demand for lecture recordings (not only from students with disabilities but from a large proportion of the total student population), a small number of

universities are now considering an 'opt-out' approach where lecturers who do not want to record will be required to explain their reasons why, and all other lectures will be automatically recorded and published. For at least two of these universities, a central aim behind this potential shift in service provision is to better support the learning requirements of students with disabilities. It should be noted that the 'opt-out' approach is not currently being considered at UWA.

Many students clearly believe that changing university policy to extend the practice of recording lectures in this manner will be beneficial to their learning activities. According to the results from the 2006 UWA surveys, this belief is equally strong for students with disabilities as it is for the wider student population. However, any university planning to move towards an 'opt-out' approach will have to closely monitor and evaluate this shift to ensure that any negative impacts (such as a reduction in the morale of lecturers or significant reduction in attendance figures) are quickly addressed.

New directions

With any educational technology, there is a need to constantly evaluate and assess its use to ensure that it continues to support and enhance learning for students, and the practice of recording lectures is no different. In conducting this project into how and why students with disabilities are using Lectopia at UWA, useful feedback was obtained that will work to further inform the University's approach to enterprise-level lecture recording with regards to both current practices and future directions.

For current practices, something that was apparent from the survey results was that improvements could be made in terms of increasing staff understanding of the Lectopia resource and its capabilities at UWA. Comments such as these were common in the survey responses: "Teach lecturers about using the overheads that get recorded into the lecture not sure what this is called, but its excellent. Some lecturers don't use as they don't know how" and "Perhaps a brochure or small operations checklist to help teaching staff create the best quality recording". Whilst the UWA Lectopia team make every effort to disseminate information to advise lecturers about the service and available features, it is clear that more needs to be done. Particularly important is that lecturers are kept abreast of what is possible (for example, streaming/download/podcasting and audio-only/screen capture/document camera) so that they are able to make informed decisions about how they would like the recordings to be made available to their students.

In terms of potential future directions, a number of students in the surveys and focus groups requested that the use of Lectopia be extended to encompass seminar and workshop environments: for example, "make tutorial recordings available for students unable to attend same (medical reasons)" and "most of my classes are seminars, however it would be useful if some of these were televised as I cannot always attend live sessions". Whilst these requests are understandable, there are numerous issues that would need to be addressed before this activity could be made possible, such as the necessity to install appropriate audio-visual equipment and network access into seminar spaces. Further, if seminar discussions were recorded and made available, issues relating to student privacy and intellectual property would require consideration.

Summary

This project sought to gain a better understanding of the use of lecture recordings from both a practical and pedagogical perspective by students with disabilities and/or medical conditions at UWA. The results of the project have confirmed that lectures recordings are seen by most UWA students with disabilities as essential, contributing towards creating an inclusive, equitable learning environment at the university. With the majority of students still attending

lectures and using the recordings for revision and reviewing concepts, the technology is very much viewed as an 'enabling' resource that supports student learning and enhances accessibility.

Acknowledgements

References

Australian National University, Student and Academic Services (2005) *Reasonable Accommodations: Strategies for Teaching University Students with Disabilities.* http://www.anu.edu.au/disabilities/resources_for_staff/reasonable_accommodations.php (last accessed 14 May 2007).

Biggs, J. (2003) *Teaching for Quality Learning at University.* Open University Press, Berkshire.

Bligh, D.A. (1972) *What's the Use of Lectures?* Jossey-Bass: San Francisco.

Employment, Workplace Relations and Education References Committee, Australian Parliament Senate (2002) *Education of students with disabilities.* Canberra, The Committee.

Exley, K. and Dennick, R. (2004) *Giving a lecture: from presenting to teaching.* London, RoutledgeFalmer.

Laurillard, D. (1993) *Rethinking University Teaching: A Framework for the Effective Use of Educational Technology.* Routledge, London.

Leung, P. et al. (1999) *Assistive Technology: Meeting the technology needs of students with disabilities in post-secondary education.* Canberra, Department of Education, Training and Youth Affairs.

Monash University (2003) *Inclusive Practices Guidelines for Academic Staff Teaching a Student who has a Disability.* http://www.adm.monash.edu.au/sss/equity-diversity/disability-liaison/teaching-staff/teaching-staff-guidelines.html (last accessed 14 May 2007).

Skill: National Bureau for Students with Disabilities (2004) *The needs of disabled students in further and higher education.* http://www.skill.org.uk/info/infosheets.asp (last accessed 14 May 2007).

Skill: National Bureau for Students with Disabilities (2005) *Assistive technology: sources of help and information.* http://www.skill.org.uk/info/infosheets.asp (last accessed 14 May 2007).

University of Adelaide, Student Administrative Services (2005) *Reasonable Adjustments to teaching and assessment for students with a disability policy.* http://www.adelaide.edu.au/policies/64/ (last accessed 14 May 2007).

University of Cambridge (2004) *Supporting disabled students and colleagues.* http://www.cam.ac.uk/cambuniv/disability/support/teaching.html (last accessed 14 May 2007).

University of Cardiff, Disability and Dyslexia Service (2005) *Disability and Dyslexia: Implications for learning and teaching.* http://www.cardiff.ac.uk/schoolsanddivisions/divisions/stude/dyslx/p2695/ (last accessed 14 May 2007).

University of Edinburgh, Disability Office (2006) *Good Practice for Lecturers*. http://www.disability-office.ed.ac.uk/technology/teaching/lecturers.cfm (last accessed 14 May 2007).

University of Newcastle, Disability Support Services (2005) *Information Sheets for Staff*. http://www.newcastle.edu.au/service/disability/disabilities/info-sheets (last accessed 14 May 2007).

University of Western Australia, Disability Services (2002) *Disability Service Provision and the Delivery of Education and Training Programmes: A New Approach to Improving Education and Training Services for Tertiary Students with Disabilities*. http://www.dest.gov.au/sectors/higher_education/publications_resources/other_publications/disability_service_provision.htm (last accessed 14 May 2007).

University of Western Australia (2006) *Study at UWA: Undergraduate Courses 2007*. Perth, University of Western Australia.

Williams, J. & Fardon, M. (2005) On-demand internet-transmitted lecture recordings: attempting to enhance and support the lecture experience. *Association for Learning Technology Conference Proceedings: Exploring the frontiers of e-learning: borders, outposts and migration* (Manchester, September 2005), 153-161.