Lecture Capture at The University of Manchester

1. Background

The recording of group-based teaching and learning activities (*e.g.*, lectures, tutorials) can provide a useful resource for students and can be used to, amongst other things:

- provide a study-aid for review and revision[1];
- help accommodate different learning styles[2];
- assist students who do not have English as their first language[3]; and
- assist students who have particular educational needs

The University has produced several guidance documents aimed at staff, students and, specifically, disabled students[4] to outline its position on the provision and distribution of recordings of group teaching and learning activities. Initially, this guidance was aimed at providing support for students with disabilities. The Equality Act (2010)[5] provides that the University must not treat disabled students less favourably than non-disabled students, and to make reasonable adjustments to ensure that this does not happen. With respect to the recording of teaching and learning activities, it is a commonly accepted reasonable adjustment across the sector to allow disabled students to record lectures for their own use. Moreover, if a student disability means that they are unable to attend a lecture, then it is considered reasonable that the lecture be recorded on their behalf.

2. Lecture capture in Manchester

During the 2011/12 academic year, a project to investigate the use of highly automated lecture recording systems was launched. The goal of the project was to investigate if academics would engage with such a system, if students would then make use of the recordings (widely referred to as podcasts) and if there would be any preference for the wider rollout of lecture capture technologies.

As a pilot, several limitations were placed on the service. For example, only 5,000 students would have access to the system and the equipment to enable lecture capture would only be installed in 10 centrally managed lecture theatres (see Appendix A). The system operated in an opt-in format. That is, academic staff teaching on a unit needed to indicate that they would be willing to have their teaching sessions recorded.

Based in a variety of factors, including user preference feedback, ease of legislative compliance and a desire to reduce processing complexity, each podcast was produced as a simple recording of the output from the theatre projector and an accompanying audio track, **there was no actual video of the teaching environment**. The recordings themselves were timetable-driven. Recordings began on the hour and finished at five minutes to the hour.

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[1] M'Hammed, A., Facer B. R. and Yen, C. (2012). Academic effectiveness of podcasting: A comparative study of integrated versus supplemental use of podcasting in second language classes. *Comput. Educ.,* 58:43-52.
Evans, C. (2008). The effectiveness of m-learning in the form of podcast revision lectures in higher education. *Comput. Educ.*, 50:491-498.
Mostyn, A., Jenkinson, C. M., McComick, D., Meade, O. and Lymn, J. S. (2013). An exploration of student experiences of using biology podcasts in nursing training. *BMC Med. Educ.*, 13:12

[2] Balfour, J.A.D. (2006). Audio recordings of lectures as an e-learning resource, *Built Environment Education Annual Conference (BEECON 2006)*, 12-16 September 2006, London, UK. http://cebe.cardiff.ac.uk/news/events/beecon2006/pdf/P24_Jim_Balfour.pdf [accessed 19 March 2013]

[3] Shaw, G.P. and Molnar, D. (2011). Non-native english language speakers benefit most from the use of lecture capture in medical school. *Biochem. Mol. Biol. Educ.*, 39:416-420.

[4] http://documents.manchester.ac.uk/display.aspx?DocID=8273

[5] http://www.legislation.gov.uk/ukpga/2010/15/contents

Recordings were normally made available to students within an hour, who accessed them through a special password-protected link that allowed the student to download a lecture and then watch it on mobile phones (Fig. 1), tablets and standard desktops or laptops.

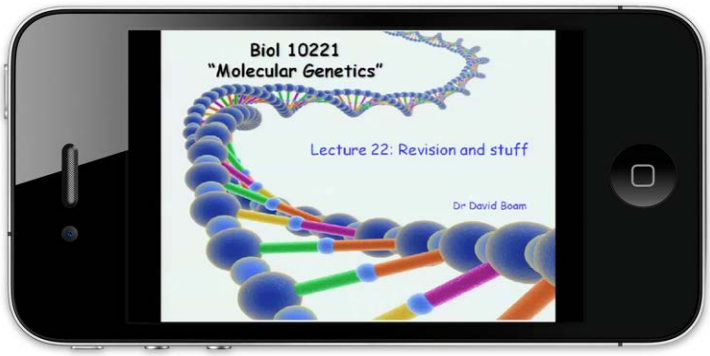


Figure 1. A mobile phone playing a podcast generated from lecture capture.

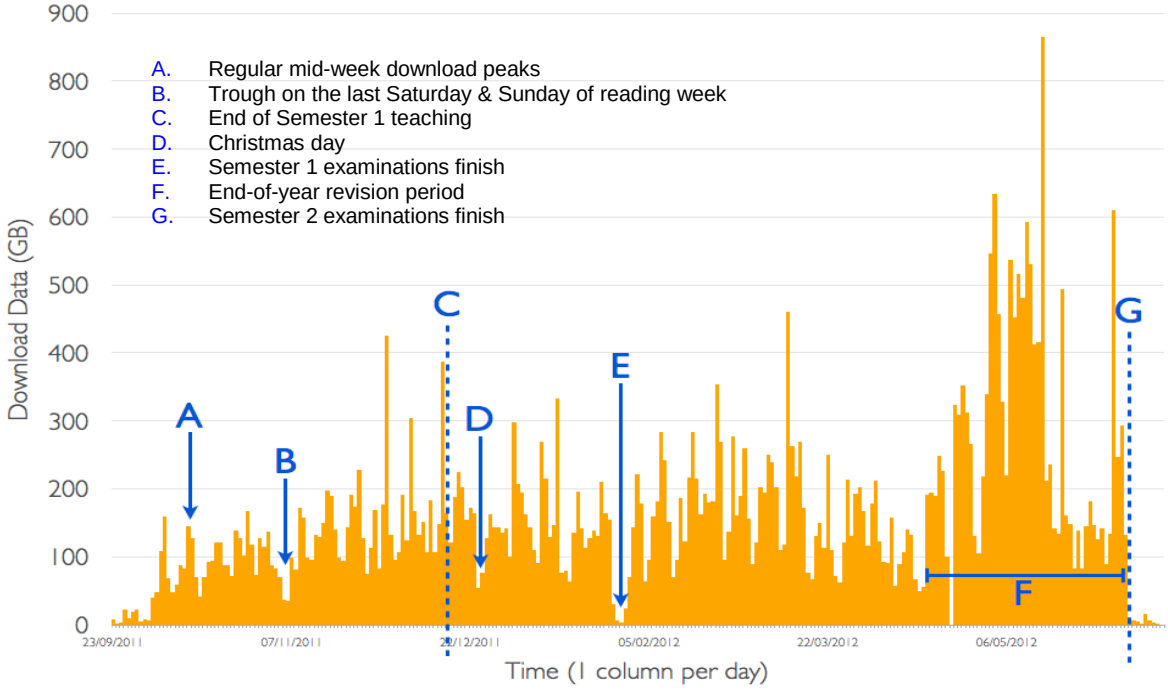
2. Outcomes of the pilot

A key success of the system was creating a new service that allowed any member of academic staff to generate podcasts without technical know-how. The system required no training to operate, and there are no buttons to press. Staff simply taught as they did before and an unseen network of servers handled the technically complex tasks.

2.1 Use

The simplicity of the lecture capture system resulted in approximately 750 hours of lecture recordings being produced in its first year of operation, with teaching staff describing the system positively saying, "*it just works*". The level of use from the 5,000 student users was surprising. During the two semesters that the pilot ran, over 163,000 individual podcasts were downloaded, with substantial activity around revision periods (see Fig. 2).

Figure 2. Podcast Data Downloads per Day



2.2 User feedback

A survey of students who benefited from the lecture capture pilot (588 responses) showed that 91% believed they would achieve better examination results after having used the podcasts, 94% would like the service to be more widely available and 88% indicated that lecture capture availability increased their course unit satisfaction.

Figure 3 represents the feedback from an end-of-unit survey exercise indicating students felt the podcasts where 'the best thing on Blackboard'.

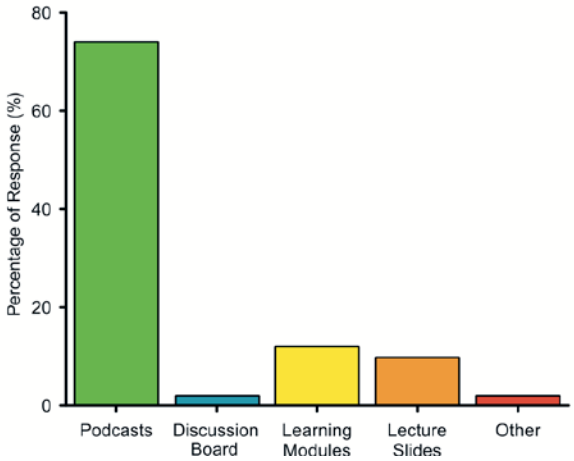


Figure 3. Responses from students in an end of unit survey addressing the question, "What is the best thing on Blackboard?"

2.3 Examination performance

Whilst numerous factors influence examination performance of student cohorts from year-to-year, efforts were made during the lecture capture pilot project to assess the impact of the availability of podcasts on the examination performance of students. A unit was chosen for this which introduced lecture capture during the 2009/10 academic session and which had previously suffered from relatively low examination results in comparison to similar units within the same School. The availability of podcasts was the only significant teaching change made to this unit in the year. The teaching staff, the examination procedures and the material available on Blackboard were largely unaltered. As shown in Figure 4, the availability of podcasts produced a significant increase in the end of year examination results after lecture capture had been used.

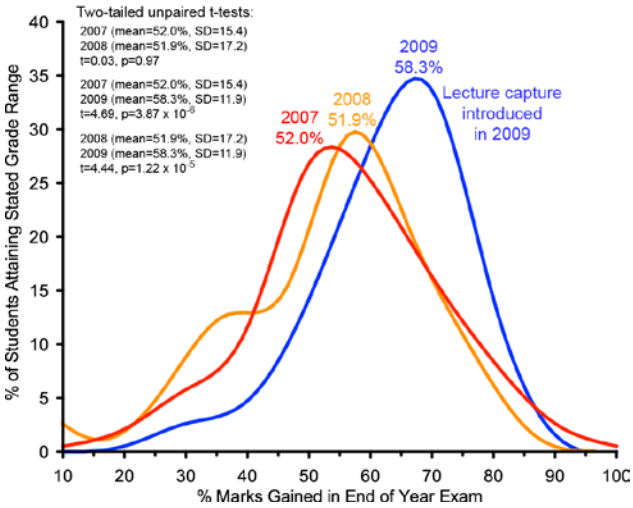


Figure 4. An increase in examination results following the introduction of lecture capture.

2.4 Effect on attendance

During the lecture capture pilot, student attendance at recorded activities was surveyed. Students, self-reporting, indicated as few as 6% of them missed at least one lecture knowing

that the podcast would be available. Teaching staff reported similar results in that attendance has not adversely affected by the introduction of lecture capture. Independently, an FEPS investigation into the use of different types of lecture-capture produced similar resutls[6]. Research from outside the University of Manchester indicates that the use of lecture recording has either no noticeable effect on lecture attendance[7] or that lecture attendance is not correlated with the use of lecture capture[8].

3. A new lecture capture service

From the pilot, it was clear that an expansion of the system used for the pilot itself (Podcast Producer) was not sufficiently scalable to the level that would be able to support large-scale lecture capture for an institution the size of the University of Manchester. In 2012, a business case to increase the provision of lecture capture services was submitted and approved by the Information Systems Sub-Committee (ISSC) and the Planning and Resources Committee (PRC). The new system (Matterhorn) provides a service very similar to the pilot in terms of functionality, but will be available in many more locations. Work has now commenced on the project and will enable approximately 100 centrally managed teaching spaces (see Appendix 1) to be equipped for automated lecture capture. When the full service launches, at the end of August 2013, it will be one of the largest such systems in Europe.

The pilot lecture capture system was defined at the outset as being based around opt-in - that is, teaching staff were required to indicate their willingness to be recorded before scheduled recordings took place. Perhaps as a consequence, lecture capture only occurred for a small fraction of the taught sessions that took place in the lecture theatres it is installed in (estimated to be around 10%). Experience from a variety of other institutions that have introduced lecture capture indicate that opt-in approaches seldom achieve greater than 10-15% of the available material being recorded. Opt-out policies, where the default position is that a teaching activity in a lecture capture-enabled location is recorded unless otherwise stated, achieve far more.

4. Why is an opt-out policy required?

An opt-out approach to lecture capture has the potential to have a transformative effect on the experience of students studying at the University of Manchester. Such a system would generate far more recordings that could be used by a much greater proportion of the student body than an opt-in system could achieve. Making as much of the University's lecture content available online as possible is an important part of the University's eLearning Strategic Plan (approved by Senate in June 2012). Doing so will allow us to foster and develop blended and flexible learning styles.

The lecture capture service at the University, that will be fully enabled by August 2013, will be capable of dealing with such large numbers in a cost effective manner if an opt-out approach is adopted.

Whilst an opt-out policy is proposed here, it is recognise that the purpose of lecture recordings is not to alter what may already be excellent teaching practice. Therefore,

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[6] Saunders, F.C. and Hutt, I. (2012). Richness, responsiveness and relationship: Using rich media materials to enhance the teaching of core concepts. *Innovation, Practice and Research in Engineering Education Conference*, 18th-20th September 2012, Coventry, UK. Available from http://cede.lboro.ac.uk/ee2012/papers/ee2012_submission_125_rdp.pdf [accessed 19 March 2013]

[7] Pilarski, P. P., Johnstone, D. A., Pettepher, C. C. and Osheroff, N. (2008). From music to macromolecules: Using rich media/podcast lecture recordings to enhance the preclinical educational experience. *Med. Teach.*, 30:630-632.

[8] Bollmeier, S.G., Wenger, P. J. and Forinash A. B. (2010). Impact of online lecture-capture on student outcomes in a therapeutics course. *Am. J. Pharm. Educ.*, 74:127.

requests from teaching staff to opt-out of the automated recording process will be complied with, except in cases where the Disability Support Office (DSO) has determined that a reasonable adjustment for a student on a unit with a particular learning style is the availability of recorded teaching and learning sessions. Under the circumstances, the recordings made will only be available for those specifically identified students.

5. Consultation

The policy document you are being asked to consider has been distributed to Schools and Faculties and a very large number of comments have been obtained through this consultation process. In addition, the rationale for the introduction of such a policy and the policy itself has been presented at, and endorsed by, the Teaching and Learning Group (TLG), the Online Education Strategy Group, the Disability Consultative Group and a number of Faculty Teaching and Learning Committees.

It is probably not unfair to say that the policy has polarised opinion among individual staff. While many academics, especially those that have used the pilot system, were in favour of an opt-out lecture recording policy, many others are opposed.

A number of the concerns raised against such a policy relate to legitimate issues with respect to pedagogical style. For example, if a particular, but nonetheless excellent or appropriate, teaching style does not lend itself toward recording in the format suggested, it is not the intention of this policy to alter the teaching style itself. Such cases represent good examples of where the opt-out should be used. In the form implemented at the University, lecture capture cannot routinely be used to, for example, capture activity that predominates around a chalkboard, whiteboard or flipchart. Teaching activities that use such equipment as the predominant visual form could rightly be excluded from automated recordings.

Other common reasons cited for opposition to such a policy are as follows:

- *I do not want to be recorded* - there is overwhelming support, particularly from UMSU and students who have experienced the lecture recording system that make this stance difficult to justify. However, the policy has been modified from its original form such that teaching staff choosing to opt out of the recording process may do so, and that such requests will be honoured, except in cases where the DSO has determined that a reasonable adjustment for a students particular learning style is the availability of recorded teaching and learning sessions.
- *I can withdraw my permission for recording to take place since I own the IP of my teaching materials* - there appears to be a lot of misinformation regarding the intellectual property of lectures. The University owns the IP of all teaching materials produced by its staff. In the recording of lectures, the performance rights associated with the lecture belong to the academic delivering it, but the University has the right to use these as a consequence of employment.
- *My lectures contain copyrighted materials that should not be disseminated elsewhere* - no lecture should contain unattributed copyrighted materials. The Library has established a copyright advice service[9] that can provide information to academics about how to avoid copyright issues.
- *Lecture attendance will decline as a consequence of recordings* - in Manchester, and elsewhere, lecture attendance has not suffered notable declines as a consequence of the introduction of recordings. Students gain much more from their presence at the lecture event itself rather than just listening to/watching a recording of it.
- *We cannot control the material when it released to students* - the policy clearly sets out that duplication or redistribution of lecture capture material by students is

[9] http://subjects.library.manchester.ac.uk/copyright/

prohibited and that doing so may result in disciplinary action. It is unrealistic to expect that any digital asset can be completely secure. However, the nature of recordings (images projected and the voice of the teacher) minimises, in so far as possible, the risk to the University and to individuals of potentially embarrassing or appropriate material.

- *The University will assess my teaching activities through the recordings* – while recording can, and should be used as self-reflective improvement in teaching, the policy contains an explicit statement that the recordings will not be used in performance management.
- *We are pandering to the students* - although fully supported by students, the main drivers for the introduction of lecture capture have not originated from students themselves.

The almost ubiquitous nature of recording devices (dictaphones, mobile phones, *etc*.) means that, even in the absence of University-enabled lecture recording, teaching staff must assume that all group-based teaching activities are already being recorded. The policy you are being asked to consider brings a greater level of control of these recordings to the University whilst also providing a rich and varied learning environment for students.

Professor Richard J. Reece
Associate Vice-President

April 12 2013

Appendix 1.

University of Manchester teaching spaces equipped for automated lecture capture by August 2013

Tiered Lecture Theatres:

	Theatre	Capacity
1	Beyer - Beyer Th.	60
2	Chemistry - G.51	275
3	Chemistry - G.53	146
4	Chemistry - G.54	146
5	Coupland 1 - Pear Th.	100
6	Coupland 3 - Th. A	130
7	Coupland 3 - Th. B	80
8	Crawford House - Th. 1	394
9	Crawford House - Th. 2	80
10	Dover Street - Base. Th.	100
11	Ellen Wilkinson - A2.16	80
12	Ellen Wilkinson - A2.6	80
13	Ellen Wilkinson - A2.7	56
14	Ellen Wilkinson - C5.1	108
15	George Begg - C001	100
16	Hum Bridgeford St – Cord.	244
17	Hum Bridgeford St - G.32	78
18	Hum Bridgeford St - G.33	78
19	Hum Bridgeford St - G.6	78
20	Hum Bridgeford St - G.7	78
21	Kilburn - 1.1	250
22	Kilburn - 1.3	80
23	Kilburn - 1.4	75
24	Kilburn - 1.5	80
25	Mansfield Cooper - G.19	102
26	Mansfield Cooper - G.20	150
27	Mansfield Cooper - G.21	150
28	Mansfield Cooper - G.22	102
29	Martin Harris - Casken	112
30	Pariser - C021	98
31	Renold - C002	300
32	Renold - C009	300
33	Renold - C016	490
34	Renold - D007	157
35	Renold - E007	157
36	Renold - F014	157
37	Renold - H011	157
38	Renold - J017	157
39	Roscoe - Th. A	474
40	Roscoe - Th. B	236
41	Sackville - C009	80
42	Sackville - C014	135
43	Sackville - C053	120
44	Sackville - F047	180
45	Sackville - G037	48
46	Sackville - G041	52
47	Samuel Alexander - A101	82
48	Samuel Alexander - A112	49
49	Samuel Alexander - A113	98
50	Samuel Alexander - A7	54
51	Samuel Alexander - LG12	149
52	Samuel Alexander - SG1	92
53	Samuel Alexander - Th.	238
54	Schuster - Blackett	145
55	Schuster - Bragg	150
56	Schuster - Moseley	148
57	Schuster - Rutherford	258
58	Simon - Basement Th.	120
59	Simon - Ground Th.	121
60	St Peters House - Chapl.	300
61	Stopford - Th. 1	323
62	Stopford - Th. 2	204
63	Stopford - Th. 3	204
64	Stopford - Th. 4	72
65	Stopford - Th. 5	52
66	Stopford - Th. 6	196
67	The Mill - B019	108
68	University Place - Th. A	284
69	University Place - Th. B	600
70	Williamson - G.03	80
71	Williamson - G.33	45
72	Williamson - G.47	80
73	Zochonis - Th. A	162
74	Zochonis - Th. B	108
75	Zochonis - Th. C	55
76	Zochonis - Th. D	55

Flat Seminar Rooms:

	Room	Capacity
1	Roscoe - 1.001	40
2	Roscoe - 1.002	15
3	Roscoe - 1.003	35
4	Roscoe - 1.007	60
5	Roscoe - 1.008	60
6	Roscoe - 1.009	60
7	Roscoe - 1.010	60
8	Roscoe - 2.2	60
9	Roscoe - 2.3	60
10	Roscoe - 2.4	60
11	Roscoe - 2.5	60
12	Roscoe - 3.2	60
13	Roscoe - 3.3	60
14	Roscoe - 3.4	60
15	Roscoe - 3.5	60
16	Roscoe - 3.9	30
17	Roscoe - 4.10	10
18	Roscoe - 4.11	10
19	Roscoe - 4.2	36
20	Roscoe - 4.3	60
21	Roscoe - 4.4	60
22	Roscoe - 4.8	60
23	Roscoe - 4.9	25

The locations highlighted in red were enabled for automated lecture capture as part of the pilot.