

Where are audio recordings of lectures in the new educational technology landscape?

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The increasing availability of audio recordings of lectures is having an impact on the role of the traditional lecture in universities. The reasons why students use lecture recordings have been well documented, however, less is known about the impact of listening to recorded lectures on the quality of the learning experience. Undergraduate psychology students were asked to rate how well attending lectures and listening to audio recordings of lectures met a range of learning objectives. The results show that, compared to attending lectures, listening to recorded lectures was at least as effective in meeting the learning objectives, and even rated significantly higher than attendance in relation to acquiring information and clarifying what needs to be learned. Notwithstanding the limitations of the study, the results are encouraging in terms of the usefulness of lecture recordings in meeting the lecture needs of today's students, that is, if information transmission is the primary goal.

Keywords: audio recordings of lectures, learning objectives, lectures

Lectures have been a ubiquitous part of the higher education landscape for many years, although at present there is growing concern about diminishing student attendance at lectures. Part of the discussion has been about the changing needs of students as they balance study and work commitments (McInnes & Hartley, 2002). Others have focused on the impact of new educational technologies, including web-based lecture capture systems such as Lectoria (or iLecture), which allow students to access digital recordings of the lecture (McElroy & Blount, 2006; McNeill et al., 2007; Williams & Fardon, 2007).

Among students there is strong agreement that lecture recordings are a useful learning resource (Cramer, Collins, Snider & Fawcett, 2007; Soong, Chan, Cheers & Hu, 2006; Williams & Fardon, 2007), and that the flexibility they afford is important (McElroy & Blount, 2007). Academic staff have been less enthusiastic, expressing concern about the potential negative impact on attendance and added restrictions on the actual delivery of the lecture (Buxton, Jackson, deZwart, Webster, & Lindsay, 2006; Chang, 2007; Phillips et al., 2007). On the question of attendance, studies show that students use the recorded lectures to supplement, not replace, going to lectures (Copley, 2007; McElroy & Blount, 2006; Phillips et al., 2007). The reasons why students access lecture recordings are most commonly for review and revision (especially around exam time) and to 'catch up' a missed lecture (due to travel time, timetable clash, sickness or work commitments); but also because some students prefer the convenience of listening to recordings, and to help with language difficulties (Cramer et al., 2007; Copley, 2007; Fardon, 2003; McElroy & Blount, 2007; McNeill, et al., 2007; Soong et al., 2006; Williams & Fardon, 2007).

Less attention has been paid to investigating whether listening to a recording of a lecture that was delivered primarily for students sitting in the lecture theatre has an impact on the quality and nature of the learning experience. Bligh (2000) argues that, compared to other methods of delivery, the lecture is just as effective if the goal is information transfer, but is not as useful if you want to encourage students to think deeply about the subject matter, change their attitudes or learn new skills. We might expect then, in terms of information transmission, listening to a recorded lecture would be at least as effective as attending in person. If so, then lecture recordings may be sufficient to meet the needs of today's students. According to Dolnicar (2005), students attend lectures primarily to "find out what they are supposed to learn, not to miss important information and to find out about assessment tasks" (p. 111), rather than to be motivated and inspired. In contrast, Copley (2007) reported that students mostly still attend lectures for the opportunity to interact and because 'live' will always be better. McNeill et al., (2007) also identified the motivational aspect of 'live' lectures, and the 'added value' of having the lecturer present as important reasons for attending.

The aim of this study was to examine undergraduate psychology student's perceptions of attending lectures versus listening to audio recordings of lectures. Students were asked to rate what the objectives of

attending lectures *should be*, and then to rate how well they thought attending lectures met these objectives. Students were asked to rate how well they thought listening to audio recordings of lectures met these same objectives. Data were collected as part of a larger survey of psychology students' perceptions of the teaching and learning resources used in undergraduate units. In all core psychology units the audio lecture recordings were made available to students online through the university's library lecture recording system. Students had access to the lectures slides via Blackboard, but these were not synchronised with the audio recordings as would be the case with a lecture capture system such as Lectopia. For all students, the audio recordings of lectures were available as an extra resource to supplement existing teaching practice. Although on-campus students are strongly encouraged to attend lectures, attendance is not compulsory. Off-campus students and mixed-mode students (no lectures delivered at that campus) receive lecture summaries in hard-copy.

Method

Participants

All students enrolled in core undergraduate psychology units at Monash University were invited to participate in the study. A total of 513 students responded, yielding an overall response rate of 28.11%. Data from 63 participants were incomplete, leaving 463 responses in the final sample. Within this group, response rates were poorest among 2nd and 3rd year on-campus students (13% and 15%, respectively), and better from 1st year on-campus (34.9%) and 3rd year off-campus (35.2%) students.

Materials and procedure

The development of the Psychology Teaching and Learning Resources Survey was based on a range of items used in previous research (Cramer et al., 2006; Devlin & James, 2003; Johnston, 2001; McElroy & Blount, 2006; McSporran, 2004; Soong et al., 2006; White, Sartore, Gallate, Cartwright & Curthoys 2006). The survey consisted of six sections (only data from the first two and final sections are reported here): 1) Demographic information; 2) Lectures (attendance, reasons for not attending; use of audio recordings of lecture, and ratings of learning objectives; 3) Laboratory classes; 4) Online resources; 5) Online discussion groups; 6) Reasons for studying psychology and importance of learning resources. The items most germane to the current paper relate to the questions about how well lectures meet specific learning objectives. For each objective (as outlined in Table 1), students were asked firstly: "what do you think should be the major learning objectives of attending lectures in psychology" (where 5 = strongly agree), and then "in reality, how well do you think your attendance at psychology lectures meets these objectives" (where 5 = very well). Finally, students were asked to rate "how well does listening to the recordings of lectures online meet these learning objectives" (where 5 = very well). The study also included the Approaches and Study Skills Inventory for Students (Tait & Entwistle, 1996) as a measure of students' approaches to learning, the results of which are not reported here. Almost all students completed the survey online, and responses were anonymous. The study was conducted during the last weeks of second semester. At the same time lecturers were asked to report an approximate 'head count' of the number of students attending scheduled lectures.

Results

The majority of students were full-time (79.5%), studying on campus (84.7%), 22 years of age or under, (76.0%), and female (75%). Reports of work commitments were at levels similar to previous studies (James, Bexley, Devlin, & Marginson, 2007; McInnes & Hartley, 2002), with 72.6% of full-time students reported engaging in paid work. Forty-two percent of full-time students reported working more than 11 hours per week, compared to 77.7% of part-time students and 67.3% of off-campus students.

Although not all lecturers returned reports on attendance, on average estimates were about 28%. Given attendance was recorded at the end of the semester, it is not surprising that this percentage is similar to the 30% of students who reported attending "all or close to all lectures". Approximately 63% of students reported attending 75% or more lectures, with only 14% report attending less than 25% of lectures. In comparison, 45.6% of students reported accessing the audio recordings of lectures for less than 25% of lectures. As expected, more off-campus and mixed-mode students (58.5%) accessed the audio recordings of lectures for 75% or more lectures, compared to 23.3% of on-campus students.

Not attending lectures due to travel time was particularly prominent in this sample (35%), compared to work commitments (29.4%), sickness (26.8%), and other commitments (24.8%). Timetable issues, such as lecture too early (20.3%) or too late (21.2%) and timetable clashes (13.6%) were less problematic. The

majority of students (75.7%) cited ‘to catch up on a missed lecture’ as a reason for using audio lecture recordings. Other reasons included because it was convenient (53.4%); for exam preparation (48.1%); to review difficult concepts (42.5%) and clarify lecture notes (36.9%); and because they were too busy to attend (30.6%). Only 6.3% of students indicated the reason was to help with language difficulties, reflecting the small percentage of students (8.6%) with English as a second language in the sample.

In terms of importance to their learning experience (5 = very important), students rated access to audio lecture recordings ($M=4.01$, $SD=1.16$) ahead of attendance at lectures ($M=3.64$, $SD=1.31$). When asked what *should* be the major learning objectives of attending lectures, students rated the acquisition of information and clarification of what needs to be learned more highly than other aspects of lecturing, particularly those which focus on interaction (see Table 1). Across the board, students did not feel that attending lectures was meeting the objectives of the lecture *in reality* as well as they *should be*, and these differences were significant. Further analyses examined these differences as a function of whether students were classified as ‘high attenders’ or ‘low attenders’. There were no differences between the groups on what they thought the objectives of attending lectures *should be*, except that high attenders rated interaction with the lecturer more highly than low attenders ($p < .05$). However, low attenders rated the lectures as meeting all objectives significantly less well *in reality*, than high attenders ($ps < .01$).

Comparing student ratings of lecture attendance and audio lecture recordings indicates that, *in reality*, listening to recordings was at least as effective as attending the lectures at meeting each of the learning objectives (see Table 1). In fact, students rated listening to a recorded lecture as meeting the objectives to acquire information and to clarify what needs to be learned significantly more highly than attending lectures. Further analysis comparing students classified as ‘high users’ versus ‘low users’ of the lecture recordings showed that the ratings of the high users were more positive than those of the low users only on the objectives relating to providing a framework, motivation, and promoting thought ($ps < .05$).

Table 1: Means and standard deviations (in parentheses) of student ratings of how well attending or listening to lectures meet a range of learning objectives

Learning objective	Attending lectures			Attending vs. lecture recordings		
	“should be”	“in reality”	<i>N</i>	“in reality” attending? ^a	How well listening?	<i>N</i>
To acquire information	4.46 (0.85)	4.03 ** (1.03)	416	4.09 (1.00)	4.30 ** (0.82)	302
To motivate me to learn	4.06 (0.97)	3.27 ** (1.17)	419	3.28 (1.20)	3.40 (1.15)	302
To provide an opportunity to interact with lecturer	3.58 (1.08)	3.08 ** (1.23)	401	-	-	-
To provide an opportunity to interact with other students	3.43 (1.09)	3.28 ** (1.25)	408	-	-	-
To provide a framework for learning	4.25 (0.80)	3.90 ** (0.96)	414	3.93 (0.97)	4.00 (0.91)	301
To stimulate my interest in the topic	4.32 (0.88)	3.57 ** (1.15)	415	3.58 (1.13)	3.61 (1.14)	302
To promote thought and stimulate ideas	4.32 (0.87)	3.65 ** (1.13)		3.66 (1.14)	3.73 (1.08)	298
To clarify what I am supposed to learn about a topic	4.40 (0.86)	3.86 ** (1.06)	411	3.88 (1.07)	3.99 * (0.99)	290

** $p < .001$ * $p < .05$ ^a *N* reflects removal of students who answered “NA” to use of audio lecture recordings.

Conclusions

Students’ perceptions of what *should be* the major learning objectives of attending lectures reflect the idea that the lecture is primarily about delivery of information (Bligh, 2000). The finding that using audio recordings of lectures is at least as effective at meeting the learning objectives of the lecture, *in reality*, as attending lectures is encouraging. In particular, listening to a lecture recording seems to achieve the objectives of information transfer as well, if not better than a live lecture, possibly due to the advantage of being able to use the recording for the purposes of review and clarification. Accessing lectures via recordings is therefore likely to fulfill the needs of students who are primarily seeking out information about what they need to learn (Dolnicar, 2005). The idea that attending lectures should also stimulate interest, motivation and thought, a view shared by students and lecturers alike (McNeill et al., 2007; Phillips et al., 2007), was also evident here. Surprisingly though, students did not rate the audio

recordings of lectures as less effective in these areas, although high users were somewhat more satisfied. Neither attending lectures nor listening to recorded lectures rated particularly well in terms of actually meeting these objectives, which reflects a more general view that lectures are not the most effective means to inspire and motivate students (Bligh, 2000). In more general terms, the observed differences between student perceptions of what *should be* the objectives of lectures and how well they are achieving these objectives *in reality* is cause for concern, particularly for the 'low attenders'. These conclusions, however, must remain tentative until future research is able to address the limitations of this study, such as improving the response rate and representation of student groups, and broadening the context to investigate whether the use of audio lecture recordings may be more suitable for some disciplines of study than others. Nonetheless, these findings reinforce the need to continue questioning the contribution of lectures, both live and recorded, to the learning experience. Further research needs to assess the impact of variations in the practice of lecturing (i.e., lecture style, Fardon, 2003; McNeill et al., 2007), and the type of technology used (i.e., video and podcasting, Williams & Fardon, 2007) on the usefulness of recorded lectures. It may be the case that, depending of the discipline, the use of audio recordings of lectures finds a place as a means by which core information can be effectively made available to students, leaving more flexibility for the 'live' lecture to focus on other areas of student engagement, such as application or problem-focused methods of delivery.

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