To Podcast or not to Podcast? Pedagogical decision making in the use of new technologies

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Abstract: Podcasting is a cheap and portable technology that allows students to download and listen to lectures when and wherever convenient. Most students provided with Podcasts have embraced this technology and many view Podcasts as a useful additional learning resource. Hence, an increasing number of students are requesting lecture Podcasts from academic staff. This study investigated the pedagogical decision making of health science educators in the use of Podcasting technology. Data were gathered from interviews and via an online survey sent to all teaching staff within the Division of Health Sciences. Two thirds of the staff who responded (92/167; 55%) elected to Podcast their lectures. Most did so in response to staff or student expectations rather than pedagogically-based reasons. This study has shown that the decision making inherent in using Podcasting technology is based on student demand and anecdotal evidence rather than a sound pedagogical basis.

Introduction

There appear to be numerous advantages of Podcasting lectures to higher education students. Podcasting requires only a digital voice recorder and software to upload the recordings onto a suitable web page. Thus the basic technology is cheap, easy to use and portable (Boulos, Maramba & Wheeler, 2006), although more complex systems which automate the recording and uploading process are available. Students may download audio recordings of lectures as an additional learning resource from a University website such as a course home page. Those unable to attend lectures due to sickness, work or family responsibilities can listen to the lecture, either in audio format only or in conjunction with PowerPoint presentations which are commonly made available to students. Students can listen to a Podcast at any time or place that is convenient to them, possibly even when riding a bicycle to University or at the gymnasium.

Student perceptions of the usefulness of Podcasts are generally very positive. Podcasting can accommodate a wider variety of learning strategies; while some students learn most effectively by taking notes during a lecture and reviewing these in their own study time, others learn more effectively by active listening, without the need to take notes. Students generally use lecture Podcasts as a tool for review rather than a replacement for attending lectures (Malan, 2007) and those who use them to revise for exams believe it has a positive impact on their overall exam grades (Brittain, Glowacki, Van Ittersum & Johnson, 2006). However, as this and most other studies have shown, there is little evidence of any effect, either positive or negative, on student learning outcomes.

Despite the apparent advantages of Podcasting lectures for students, some academic staff have expressed concerns about the ways in which students use Podcasts and how this may impact upon their learning. These concerns in turn influence decisions by the academic about whether or not to Podcast lectures, or which teaching sessions they will Podcast.

One of the major concerns of academic staff is that provision of recorded lectures will decrease student attendance at teaching sessions. This concern is underpinned by the belief that lecture attendance is vital for engaged participation and active learning, and hence, supplying audio lectures only encourages students to become 'utilitarian social and cognitive consumers', focussed on the 'objective and literal' rather than 'subjective, complex and interrelated interpretations' of knowledge (Dobozy, 2007). This concern is unsupported by the literature as most studies have shown that whilst

the availability of recorded material might make some students more likely to miss a class, the overall effect on class attendance is insignificant (Brittain et al. 2006).

Another staff concern is that Podcasting encourages passive learning particularly in content heavy courses (Carpenter & Gordon, 2001). As Palmer and Devitt (2007) have shown, in the majority of cases where Podcasts are used as learning tools, students remain as passive participants focused on the audio facility alone. However, there is some preliminary evidence to suggest that when Podcasts are used in conjunction with active learning strategies such as pausing and reflecting and linking current learning to previous learning events then students do experience some positive learning benefits as evidenced through improved exam scores (McKinney, Dyck & Luber, 2008).

This paper presents the findings of a research project investigating the pedagogical decision making of health science educators in the use of Podcasting technology. It examines the reasons why educators chose to use (or not use) Podcasts in their teaching practice and relates their decision making processes to the current literature on e-learning pedagogy. Whilst student feedback supports the use of Podcasting for all lectures, this paper argues that the decision of whether to Podcast or not needs to take into consideration factors other than student feedback.

In this paper we refer to podcasting as the uploading of lectures onto the subject website, as quickly as possible after the lecture. For most lectures, the PowerPoint slides are also uploaded, usually before the lecture. Although technologies are now being used that automate the process of recording both audio and video recordings of lectures, we have used simple digital voice recorders operated by the lecturer. For the most part, the teaching staff found this technology easy to use as it did not require extensive editing of the audiofiles. Rather, the 'raw' recordings of the lectures were compressed to reduce the file size and then uploaded directly onto the appropriate (password protected) website. Software to download podcasts is readily available, and players to listen to them are becoming cheaper and better (Boulos, Maramba & Wheeler, 2006). Thus the technology is cheap, easy to use and portable. Students can download podcasts onto MP3 players to listen to them in a variety of settings, or can listen to podcasts played directly from home or University computers. Therefore there is no impost upon the students to purchase new equipment or learn sophisticated technologies in order to access Podcasts.

Methods

An online survey[1] was sent via email to all contract and continuing teaching staff within the Division of Health Sciences. Raw data and descriptive statistics were collated in Microsoft Excel and statistical analyses (Fisher's exact test) were performed using GraphPad Instat. Academic staff were also invited to participate in an in-depth interview to gain further insight into their motivations to Podcast, or not Podcast their teaching sessions. Purposeful sampling was used in order to gain a range of views about Podcasting and interviews are ongoing. Thematic analysis was performed on the survey and interview data. The study was approved by the University Human Ethics Committee.

Results

A total of 92/167 (55%) teaching staff responded to the online questionnaire. Of those who responded to the survey, 65% used Podcasts in some or all of their teaching and 35% chose not to use Podcasts. Table 1 presents the demographic data of the cohort. Despite a trend showing that

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[1] The full survey can be accessed by contacting the corresponding author.

proportionately more females used Podcasts than males there were no statistically significant differences in gender or age between those groups that chose to Podcast versus those that chose not to Podcast.

	Gender		Age range				
Podcast	Male	Female	<30	31-40	41-50	51-60	>60
Users	17	43	1	11	21	22	5
Non-users	13	19	6	6	6	12	2
Totals	30	62	7	17	27	34	7

Table 1: Demographic data of academic staff responding to the survey

Of those staff who had been using Podcasting, most (90%) had been doing so for more than one year, predominantly Podcasting lecture sessions (90% lectures; 3% tutorials). Of those using Podcasting technology 22 (37%) had Podcast less than 6 teaching sessions, however the majority of staff members (44%) had some experience, with a few (22%) Podcasting more than 20 teaching sessions.

As shown in Table 2, most staff began Podcasting to meet expectations of students, although many also thought that it was a good idea to Podcast. Peer pressure from other academic staff appears to have had an influence on some staff. Other reasons for Podcasting included "students were doing this themselves, often without permission, so at least all could have access if I did it too" to "I felt that it would affect my student evaluation of teaching (SETs) data badly if I didn't".

Why did you begin to use Podcasts?	Number of Staff
Thought it was a good idea	25
Other staff were doing it and encouraged me	16
To meet expectations of other staff	16
To meet expectations of students	29
Other reason	14

Table 2: Reasons given for Podcasting (As staff could select more than one option, the total is more than 92)

Of those staff who were using Podcasts, just under half (47%) were Podcasting in all courses in which they lectured, generally in the larger cohort first year classes, such as anatomy and physiology. Reasons for choosing to Podcast in some courses but not others included, whether the course was run externally or not, to meet expectations of colleagues or managers and whether the session had a large interactive component which did not easily lend itself to Podcasting.

The reasons given by those choosing not to Podcast their teaching sessions were also varied and ranged from lack of knowledge about the technology to lack of time (Table 3). Surprisingly, the majority of reasons provided by staff as to why they chose not to Podcast their lectures related to their familiarity or access to this technology. Only six participants specified that they considered Podcasts unnecessary or not useful to students. 'Other reasons' for not choosing to Podcast ranged from "I have never thought to do it" to "No one has shown me any data which analyses in a scientific way what benefit it brings to my students".

Why do you choose not to use Podcasts?	Number of Staff
I don't know how to do it	15
I don't have the technology to do this readily	5
Have not had the time	7
I don't think that it is necessary or useful to students	6
Other reason	14

Table 3: Reasons given for not using Podcasts

To further investigate the pedagogical decision making inherent in staff members use of this technology a series of interviews were conducted. Purposeful sampling was used to identify four non-users and six Podcast users. For those staff that chose to Podcast, the majority (83%) had made the decision based on requests from other people (other staff or students) or as part of a team decision. Only one staff member had initiated Podcasting because they wanted to try something new and they thought that, "... it provides students with an opportunity to review my lecture." Most of the academics who chose to Podcast were lecturing to large classes (>150 students) and delivering content rich material in an environment where student interaction with the lecturer is often minimal due to class size. Not surprisingly, those who were not Podcasting were more likely to have smaller classes where there was a lot of student staff interaction or 'hands on' activities.

Interestingly when interviewed, all of the academics that did not Podcast their lectures cited pedagogical reasons for their decision. These included:

"…I expect students to take comprehensive notes as this is what is required of a Health Sciences graduate at conferences and professional meetings."

"…I have seen data that suggest that students try to learn everything that is on the Podcast and I don't want them to rely on only one source of information."

".. I think that they (the lectures) along with PowerPoint, become the sole content and therefore stop students from researching more widely."

When asked about the benefits of Podcasting most staff, regardless of whether they Podcast or not, thought that there were some benefits including:

- a record of the lecture for those who missed classes or were distance education students
- a recording of the correct pronunciation of difficult terms; particularly drug names or anatomical terms
- the ability to revise the lecture content at a later date and at the students' own pace.

Both groups of staff expressed similar concerns about the limitations of Podcasting and its potential to inhibit student learning by:

- facilitating passive learning where students do not actively engage with the lecture material
- inhibiting skill development in note taking
- encouraging students to rely on the Podcast as the sole source of information on the topic.

In terms of benefits for staff, 50% of those who did Podcast viewed it as highly useful tool, for both internal and external students, which minimised emails and questions on class on-line discussion boards. However, two staff expressed the view that the Podcast technology may be more beneficial to students if it was used to summarise the key concepts from lectures thereby providing a succinct summary of the lecture and dispelling any notion that students can use Podcasts as a lecture substitute.

Discussion

There have been numerous studies examining students' perceptions of the utility of Podcasting as a learning tool (Chan, Lee & McLoughlin, 2006) but few that have examined staff perceptions. This

study aimed to explore the basis upon which academic staff make the decision to Podcast or not Podcast their teaching materials. The main findings from this study were that two thirds of the academic staff surveyed chose to Podcast their lectures and almost one third of those surveyed did so in response to their perception of an expectation by students. Student expectations can be a strong driver of academic practices and Miller and Piller (2005) have argued that student satisfaction is higher in courses that provide Podcasts of lecture materials. However, student satisfaction does not necessarily equate with better educational outcomes Gibson (2008). In an era where student evaluations of teaching are used for staff promotion many academics feel pressured to provide students with as many extra resources as practicable. In the words of one academic "…there is a tension between giving students what they want and providing an educational experience".

Of those staff members who were interviewed, and were comfortable with Podcasting their lectures, most felt that Podcasting was highly beneficial for external students and for those from a non-English speaking background (NESB). Some external students do not have access to lectures and therefore providing Podcasts of lectures together with PowerPoint slides is one way to address this inequity. A study by van Zanten (2008) indicated that external students downloaded more lecture Podcasts than internal students. These authors did acknowledge that downloading lectures does not necessarily mean that students listened to them. However, it is not unreasonable to expect that external students would listen to Podcasts if they were provided. This view is supported by data recently obtained from a large Podcasting study of Health Sciences students at our university where 88% (313/356) external students reported listening to lecture Podcasts (pers comm. Scutter 2009). Lee and Chan (2007) have also reported an improvement in the sense of social isolation and lack of connection to university life experienced by external students. Hence Podcasts appear to have benefits beyond mere access to teaching materials.

For many students and particularly those from a NESB the ability to revisit lectures in their own time and listen at their own pace has obvious benefits. Explanations of difficult concepts can be played repeatedly, students hear the correct pronunciation of unfamiliar terms and it aids students who find it difficult to follow lecturers who speak too quickly. Moreover, as one staff member commented "… I'm conscious of the fact that I am Podcasting and it makes me speak more slowly and clearly". The question that arises is 'does this translate into better student learning outcomes?' According to Abt and Barry (2007) there is no evidence to suggest that Podcasts do improve student test scores in examinations. Interestingly a study on Podcasting and assessment by Bond, Wells and Holland (2008) reported that students from a NESB background gained more benefit from this technology than students from a non-NESB background. Collectively, these studies suggest that Podcasts maybe be most beneficial to NESB and external students.

Other reasons cited in both the survey and also interviews as to why staff members elected to use Podcasting technology in their teaching was related to meeting the needs of an increasingly diverse student population. Many students entering university come from a non-traditional background, for example many are mature aged, working part-time or even fulltime, some have parenting or carer responsibilities, others are elite athletes or students with a disability. Hence, many staff feel obliged to provide additional resources for students who cannot always attend class. In addition, some staff members felt that large class sizes (up to 600+ in some courses) diminished opportunities for students to engage interactively in class time and therefore believed that it was necessary to provide additional learning resources such as Podcasts to support these students.

Although student feedback concerning the availability of Podcasts has been overwhelmingly positive (Chan et al 2006), students may over estimate the usefulness of Podcasts such that it draws them away from more effective study strategies (Deal 2007). Interviews of staff that chose not to Podcast, indicated that that their prime concerns centred on the use of Podcasts,

together with PowerPoint slides, being relied upon as the sole source of information on the topic presented. These concerns were largely based on anecdotal evidence rather than empirical findings. However, recent research investigating student use of podcasts at the same University shows that many students use active learning strategies when re-listening to the lecture Podcasts, frequently stopping the recordings to review the textbook and add additional notes to their lecture handouts. This may allay one concern expressed by staff that students were losing the ability to take comprehensive notes. A final concern expressed by staff was that podcasts would diminish opportunities for personal interaction in class, as one staff member commented, "…I prefer students to come and ask me questions rather than listening to a Podcast after the lecture".

Whilst other researchers share these concerns (Carpenter et al., 2001), Dobozy (2007) argues that students should have a free choice in accessing resources and utilising them and that we should not "protect" them from developing bad study habits "…safeguarding students from their own potentially destructive behaviour objectifies them and takes away their power to choose a certain course of action…". Dobozy (2007) posits that when academics decide what is in students' best interests, and do not allow them the autonomy to make their own decisions, we are hindering the development of their reasoning skills and decision making abilities; skills which are seen as important attributes of a university graduate. Clearly there is a disconnect between academics providing what they see as a quality educational experience and allowing students the autonomy to make their own judgements about their learning.

Finally, a common concern expressed by many staff interviewed was the passive nature of Podcasting. This included the lack of student engagement with the content material itself outside of class and the tendency to have less student interaction in the session if the lecture was being recorded. Most staff interviewed felt that it would be inappropriate to have the students' voice on the Podcast and hence they would be less inclined to ask questions or expect interaction during the lecture. Others reported that their teaching style was more inhibited when they were Podcasting and that they were less likely to use anecdotes, particularly about friends or patient case scenarios. In the words of one staff member "… I feel like a different person when I am Podcasting lectures. I am less relaxed and less animated when I am Podcasting." One obvious solution to this is use the Podcasting technology to record lecture summaries rather than whole lectures. Chan, et al (2006) have provided a set of recommendations for best practice when Podcasting and these include: short lively Podcasts rather than lengthy lecture monologues; not Podcasting just for the sake of it, rather considering the purpose and refraining from duplicating content that is available elsewhere. Never-the-less, whilst these recommendations are sound, if Podcasts were to be used in this way, they would add to an academic's workload and probably few staff would be willing to provide these additional resources. Podcasting an entire lecture is easy and not onerous on staff time. Moreover, now that students are accustomed to entire lectures being Podcasted it is hard to envisage them accepting summaries recorded in a staff member's office.

In summary, the majority of staff in this study were Podcasting entire lectures. However, the reasons for doing so were generally not based on pedagogical considerations, rather they were more likely to Podcast if they had been asked to by other staff or by students, or if they were involved in teaching external courses. Staff who were interviewed and chose not to Podcast, cited pedagogical reasons such as the passive nature of learning through Podcasts, the inhibition of skill development in note taking and the concern that the Podcasts discourage students from researching the topic more widely. As this study has shown there needs to be more research into the pedagogical decision making inherent in the use of new technologies such as Podcasting. In order for academics to make informed decisions they need to have evidence which demonstrates positive outcomes on student learning.

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