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# An investigation into the usefulness of podcasts for tertiary students.

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**Abstract**

This paper describes a study into the use of podcasts in a New Zealand ITP. The findings suggest that podcasts are seen as useful by students, and the study identifies benefits not previously identified in the literature. As well as providing a New Zealand and in particular an ITP focus and context for some questions raised in the literature, it addresses questions identified in the literature and raises issues specific to the New Zealand context.

**Keywords**

podcasts, mobile learning, 21st century learning

**Introduction**

Many educators are experimenting with the use of new technologies in the classroom or lecture theatre. One such technology is the use of sound recordings to make "podcasts", which can be made available to students for later revision. However the provision of any additional learning materials take time, and the provision of any new forms of materials may or may not be of value to students.

This paper presents the preliminary findings of an ongoing study into the value of providing podcasts in tertiary courses. It addresses the following questions:

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1. Are the podcasts seen as useful and effective by students?
2. Does the provision of podcasts lead to a lack of attendance? This question has been addressed in the Australian literature (Larkin, 2010; Scutter et al., 2010); this paper addresses the question in a New Zealand ITP context and at different levels of study.
3. What issues are perceived by students and educators around the use of podcasts? This paper supports overseas studies (for example Larkin, 2010) but also addresses the question in a New Zealand ITP context. New Zealand has technical issues not found in other countries, such as a lack of broadband coverage and high cost of data on mobile phones.

This paper adds to the body of knowledge around mobile learning in general and podcasting in particular. As well as providing a New Zealand and in particular an ITP context for some questions raised in the literature, it addresses questions identified in the literature for further research (Larkin, 2010, Taylor, 2010) , and raises issues specific to the New Zealand context. It informs researchers into mobile learning on the use of mobile devices within this study and provides some suggestions for the future use of mobile learning materials in general and podcasts in particular.

### **Literature Review**

Evidence suggests that "we can improve learning effectiveness by giving the learner control over, and responsibility for their own learning" (McLachlan & Lee, 2007). Mobile learning can help facilitate learner

independence since it offers the possibility of greater autonomy of the learner (Liu & Li, 2009) as students can assess learning content when needed and when they have the desire. Learners who are self-directed are often more successful in their learning as they are able manage their learning more effectively (Minnaert & Janssen, 1999). Educational technology can help support learners self direction, as it can provide access to a rich set of resources and tools that can help support learners (Candy, 2007). Hung, Chou, Chen, & Own (2010) conclude that self-directed students who take responsibility for their learning are more likely to be more enthusiastic about their learning. However it is important that the level of self-direction required for this learner centered approach match the readiness of students, or students will be disenfranchised and disengage (Shapley, 2000).

Podcasts can also be used to alleviate students' anxiety so that they can focus more on their learning (Chan & Lee, 2005).

#### *What is a podcast?*

The term "podcast" generally refers to an audio or video recording which is available on the internet, either for downloading for later listening or "streamed live" - i.e. played directly on the web page which makes it available. The term is an amalgamation of the term "iPod" (Apple Inc's portable MP3 player) and the word "broadcast" (Wikimedia, 2010), although podcasts can be played on any digital media player, not just an iPod.

One proposed academic definition of a podcast is "a digital audio or video file that is episodic; downloadable; programme-driven, mainly with a host and/or theme; and convenient" (Zuniga et. al., 2010).



Scutter et al. (2010) describes three ways podcasts can be used in higher education: class recordings of lectures can be made available to students; scripted "bites" or short recordings can be made available, for example to explain one concept; or pre-class recordings of material.

#### *The use of podcasts in education*

Scutter et al. (2010) highlighted that the literature does not yet agree on the best way to use podcasts in education. Raw lecture recordings are obviously useful for students who have missed lectures (Larkin, 2010; Scutter et al., 2010). Students report that raw lecture recordings are also useful for revision, and better than "bites" if the concept was not understood in the original lecture, because they can listen to the same words; are useful for International students if they did not understand something in class; and useful for all students if they "missed something" in class (Scutter et al., 2010). Scutter et al. (2010) report that students appreciated hearing the same words again, rather than wanting a different explanation. Raw lectures are also fairly quick and easy for the lecturers to record and post online (Scutter et al., 2010; Larkin, 2010). Students report that podcasts are useful to learn pronunciation of new terms (Scutter et al., 2010). This is equally true for any of these three forms of podcasts. All three forms of podcast also provide an alternative learning material to the original lecture; although it still uses the same auditory learning style (Fleming, 1992), they provide students the chance to reflect on the lecture (Honey & Mumford, 1982). Copley (2007), in a UK study cited in Larkin (2009), reported that students most commonly indicated that their reasons for downloading online lecture material were for revision purposes and preparation of assessment tasks.

Concerns have been raised by teaching staff and researchers that students will miss lectures if recordings of lectures are available (Larkin, 2010; Scutter et al., 2010). Some researchers dismiss this as lecturers thinking, incorrectly, that their role is to be the "sage on the stage" (Scutter et al., 2010), however it may also reflect valid concerns: that students may miss important class interaction; that lectures are a chance for lecturers to ensure that students are up to date with course work and not experiencing difficulties; and that lectures can be an important part of building a social network and therefore engaging students (Edirisingha & Salmon, 2007). It is therefore valid to ask whether the provision of podcasts reduces lecture attendance. Current Australian research seems to indicate that it does not (Larkin, 2010; Scutter et al., 2010), with students reporting that class interaction is important to them (Larkin, 2010). In addition, Scutter et al. (2010) pointed out that providing the recording is merely doing centrally what many students have long done individually, as students have recorded lectures for a long time. Larkin (2010) surmises that "students are strategic in the choices that they make as to what they will attend, and [in accordance with] the findings by Copley (2007) that students value the interactive nature of face to face teaching".

Advantages for teachers identified in the literature include the opportunity for lecturers to listen and reflect on their teaching style (Larkin 2010; Kane et al., 2004) and enhancing the relationship between staff and students by providing audio recordings for other things such as assessment material (Kane et al., 2004).

## Methodology

Podcasts were developed and deployed for three courses on the Bachelor of Computing Systems degree at the Eastern Institute of Technology (EIT), one of the larger ITPs (Institutes of Technology and Polytechnics) in New Zealand. One level 6 course and one level 7 course were chosen for the study. Two types of podcasts were deployed: (1) podcasts which were deployed before the class which highlighted key aspects that would be covered in the class and (2) class recordings, deployed after the class. The podcasts were made available on EIT's online learning management system, along with lecture slides and discussion forums. An email was sent out informing students of new podcasts when they had been uploaded.

Questionnaires were utilised to gather feedback and opinions on a range of issues relating to mobile learning itself and to podcasting in particular. A pre- and post-questionnaire, adapted from Mac Callum (2009), was adopted to gauge change of attitude before and after the introduction of podcasts to the course. A seven-point Likert scale was utilised to assess students' attitudes towards podcasts along with their attitude and usage of other learning support tools, such as discussion forums and lecture slides.

The questionnaires were supplemented by structured group interviews which were conducted at the end of the semester. The focus groups enabled the researchers to gain more insight into the students' attitudes towards and adoption of the podcasts.

Based on an Australian study on the effect of podcasts on student attendance by von Kinsky, Ivins and

Gribble (2009), attendance at the lectures were also recorded. Individual student attendance was correlated with the individuals' access of podcasts on the online learning system, to determine whether there was a pattern between student attendance and the use of podcasts.

This research was conducted under the auspices of Eastern Institute of Technology research committee ethics protocols.

## Findings

16 students took part in group interviews and completed the questionnaires; 5 from the level 7 course and 11 from the level 6 course.

All students downloaded at least some of the podcasts. Only one student listened to the podcasts with an MP3 player; all other students listened to podcasts at their desktop computers.

Not all students listened to the pre-class podcasts but several students commented that listening to the pre-class podcasts was useful as it motivated them to prepare for the class in advance. On several occasions a podcast from a previous semester was made available before the class, and students commented that they enjoyed these as a "taster" to get them thinking about the topic. They did not find the class session repetitive, although it covered the same material, because "class discussion and questions led to a different focus" and more in-depth questions were asked by the students who had prepared.

Based on a short survey given out to students after the course, students rated the post-class podcasts to be

useful or very useful (based on a 5-point likert scale,  $M=4.4$ ,  $SD=1.22$ ). One student said that they “would have been useful if [she] had time”, but did not actually use them. In the interview she commented that she still liked to have them, in case there was something she wanted to refer back to.

International students for whom English was not a first language found the podcasts very useful. They used them to “listen to things we missed” and found them “very, very useful for assessment requirements and case studies - we could listen again and again until we got all the details”.

A student with difficulties writing commented that they could concentrate on listening and learning without the need to take notes to remember later, and several other students without writing difficulties agreed that this was of benefit to them.

#### *Link to attendance*

There was no obvious correlation between the use of podcasts and class attendance (or lack of it). Both classes had a very high attendance rate, with only one student regularly skipping classes, and that student also did not download the podcasts regularly. In group interviews the students reported that they did not feel that the podcasts were a substitute for being in class, and that they valued the class discussions, questions, peer interaction and interaction with the lecturer, which they would miss if they did not attend class.

One student had enrolled in the course knowing that he could not attend one class every week due to full-time employment. He commented that he found the

podcasts “invaluable” to catch up and felt that it “kept me in touch” with the class for the session he missed.

#### *Learning styles*

Most students listened to the podcast on their computer or laptops with only two students downloading the podcast to a mobile device. The one student, who downloaded the podcast to his mp3 player, commented that the fact that he could listen to the podcasts away from his computer, while he was out walking, helped him focus on the content and clear his head. The other students’ who listened to the podcast on their computers, most often viewed the lecture notes at the same time and or made notes. This difference may be due to how the students process information, for those that are auditory, they were typically happy to just listen, whereas more visual learners are more likely to need other props, such as lecture notes, to process the recordings (Dale & Pymm, 2009). The more kinesthetic or tactile learners may find the action of taking notes more congruent to their learning (Boyle, 2010). Learning styles however, were not directly investigated in this study. It would be something worthwhile investigating at a later date.

#### *Problems Identified*

One student did not have Internet access at home and found this a problem, as she had to remember to access the podcasts at EIT. This issue was also raised by Larkin (2010).

Not all of the students had smartphones which could access the Internet, and none of the students in the student used their mobile phones to download data due to the high cost of downloading data over the mobile phone network in New Zealand.

Students noted that there were delays in making some of the podcasts available online, and said that this caused problems for them when they wanted to review the class soon afterwards. They also noted that questions from the class were not audible on the recordings, which was an issue as they felt that the questions and answers added value.

The lecturer found the time needed to edit and upload the podcasts to be a problem at busy times of the semester, although doing the actual recording was no additional burden. She found that a significant proportion of the podcasts did need to be edited for different reasons, including a class discussion about a student's place of work which was confidential and (commonly) the lecturer forgetting to stop recording at the end of the theory portion of a class. The podcasts also had to be compressed to make them small enough to upload to the learning management system and so that they did not take too long to download. If podcasts were not uploaded fairly soon after they were recorded they also took longer to edit and upload as the lecturer had to listen to portions of it to distinguish whether editing was needed and which class the podcast was for.

### **Discussion**

This study confirmed earlier studies that reported class recordings as very useful for international students and for all students to repeat concepts again and again as needed. It also identified new benefits, such as for those with writing difficulties who can listen and take in without having to concentrate hard on making notes. This may be a benefit to many students, particularly those with a predominately auditory learning style. The value of pre-class recordings has not been discussed in

the literature before, and it was interesting to note that students found them motivating to prepare for class - something lecturers have long been searching for! It was also interesting that the students who listened to a previous semester's podcast before the class did not find it repetitive, when they covered the same material as that presented in the class.

Both classes in this study had a very high attendance rate, so the students involved did not choose to skip class because of the availability of the podcasts. However many other factors were at play; for example, both classes were fairly small so the students would not think that their attendance would go unnoticed. The lecturer observed high motivation amongst the students in these students; it is beyond the scope of this study to consider whether this was related to the availability of podcasts to encourage self-directed learning, but it would be nice to think so!

From the findings, the following suggestions for the use of podcasts were drawn:

- Use a good quality recording device so that class questions and discussions are audible on the recordings.
- Set up a good system for recording, editing and uploading podcasts to reduce the workload as much as possible, so that podcasts can be made available to students as soon as possible after classes
- Recordings about difficult or new concepts can be useful for the students to repeat as needed.

- Recording class notices and discussions about assessments can be useful for international or other students who wish to listen again to make sure they don't miss things.
- It should not be assumed that all of your students have access to the Internet at home, and that those who don't need to prepare in advance for study sessions using online resources.

Questions arising from this study include whether pre-class podcasts can be used to motivate students to prepare for class, and how New Zealand students actually use mobile learning resources, as the students in this study did not use them "mobilely", but on desktop computers.

### Conclusion

This paper describes the initial findings in an ongoing study. The findings to date indicate new uses for podcasts not yet mentioned in the literature, such as the listening of podcasts before classes, to prepare for class; and that podcast availability does not affect class attendance, although the podcasts are useful if a student cannot make a class. Surprisingly, responses to date indicate that most students listened to podcasts at their computers rather than using a mobile device such as an MP3 player or even a laptop. This finding raises the question of the true "mobility" of podcasts.

Issues raised by the students and lecturers reflect the issues in the literature, with the main issues raised in this study being the timely provision of podcasts to students, sound quality of class recordings to enable class questions to be heard, and the time needed by the lecturer to edit and compress podcasts. Issues specific to the New Zealand context have been

identified; specifically the cost of data over the mobile phone networks stopping the students in this study from downloading podcasts on their mobile phones, or generally using more advanced web capabilities of their phones; and the lack of broadband access for all students, making it difficult for them to access podcasts in a timely manner.

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