
PROMOTING ENGAGEMENT AND MOTIVATION FOR DISTANCE LEARNERS THROUGH PODCASTING

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E-learning and blended approaches facilitate timely communication between students' peers, community and instructors, and provide resources to allow for independent learning. The use of podcasting technology holds particular promise for the creation of learning settings that can interest and motivate learners and support their engagement, while at the same time addressing the motivational elements of effective learning. This paper reports on an initiative in which university students undertaking an information technology subject listened to podcasts comprising supplementary audio material structured as short, talkback-radio style segments. The podcasts were created by a group of volunteer students, with minimal instructor intervention in the process. Using a theoretical framework underpinned by motivational theory, the study analysed responses to a survey investigating student listeners' perceptions of podcasting, and found that engagement was enhanced when participants received and listened to the podcasts.

Audio in e-learning and distance education

Radio has been used in distance education for several decades. In combination with tutorials, print materials, local listening groups and face-to-face meetings, it has been used to teach a wide range of subjects at various levels. Audio cassette tapes, and more recently, compact discs (CDs), have been used as a solution where the ephemeral nature and fixed transmission times characteristic of radio broadcasts [1] pose a problem, where the distance learners are geographically distributed over too large an area, or where radio air time is simply not readily available. Cassettes are perceived by learners as being more personal and informal than radio, and have been found to be more appropriate for controlled, didactic teaching [2].

Predominant platforms in online learning, such as commercial learning management systems, focus on text as the primary medium. It appears that according to the popular view, "[listening to audio is] not learning...[because it] is not synonymous with comprehension and action" [3]. But as noted by Smaldino, Russell, Heinich and Molenda, the use of audio in education presents numerous advantages. These include but are not limited to: the fact that it is inexpensive and readily available; its ease of production and use; the qualities of repeatability and reproducibility; the ability to stimulate listeners and to provide a verbal message for non-readers; and the portability of this medium [4].

Nicola Durbridge of the UK Open University emphasises the distinct pedagogical advantages of audio over printed media, stating that "[a]s compared with a written text, the spoken word can influence both cognition (adding clarity and meaning) and motivation (by conveying directly a sense of the person creating those words)" [5]. Power concurs: "The ability to adjust or modulate [the] frequencies [of the human voice] allows us to communicate in a correct and artistic way with words and sounds...[T]he ability to adjust intonation, inflexion, phrasing, pacing, volume, loudness and timbre [distinguish speech from text]" [6].

Along similar lines, Barnes points out that despite all the capabilities of the cyber classroom, one of the elements still missing is the non-verbal communication: the confused look, the attentive posture, the "light bulb" coming on [7]. By contrast, "spoken words through heightened intonations or subtle nuances can communicate...emotions and create a sense of intimacy at the same time...allow[ing] a learner to identify...[and] interpret audible nuances that personalize [the] content" [6]. Similarly, the Scottish Council for Educational Technology attests to the affective strengths of audio:

Audio is an extremely powerful medium for conveying feelings, attitudes and atmosphere. It is less good at conveying detail and facts. In other words, you will not remember very many facts and figures after listening to a 30-minute audiotape. You will, however, be able to remember general opinions, and arguments. [8]

More complex multimedia and interactive elements may have a high success rate in terms of boosting attention, motivation and interest, but they are expensive and time consuming to develop, typically requiring a great deal of technical expertise. If well designed and packaged, they may be optimised for reuse between cohorts from semester to semester, but are difficult to create or modify mid-semester to suit the needs of a particular cohort. Digital audio, on the other hand, is cheap and simple to produce and manipulate, due to the availability of basic sound recording and playback hardware and software in homes and educational institutions. This makes a “just-in-time” delivery model possible – Content can be produced on the fly in response to information obtained from formative feedback mechanisms, enabling educators to address distance learners’ needs and concerns as they surface.

Moreover, for the 21st century distance learner, learning is intermingled with a multitude of other activities and tasks related to his/her personal and professional life. Although the portability of other digital media forms is becoming increasingly viable with portable video players, 3G mobile phones and smart phones, the true mobility of users is severely restricted due to the need for visual fixation on a screen. This is not the case with listening, which “frees eyes and hands” [9] to perform other tasks. As such, it is an unobtrusive activity that can be integrated with other activities in our lives, paving the way for true mobile learning.

Overview of podcasting

According to Schlosser, “The use of audio...is experiencing a renaissance fuelled by the ubiquity of portable audio players, broadband Internet, and software tools that allow the relatively easy creation and distribution of audio files” [10]. Podcasting may offer the best of both worlds by combining the benefits of the broadcast nature of radio with the flexibility, learner control and personalisation afforded by recorded audio. The term ‘podcasting’ is a portmanteau that combines the words ‘iPod’ (Apple’s popular portable music player) and “broadcasting”. Podcasting differs from simply making media files available for download from a web page, or streaming (playing the media as it downloads), in that it avoids a ‘click and wait’ situation by having a computer that is continuously online so that bandwidth-intensive content can be “dripped in” and made available when ready [11]. This is especially useful where high-speed, reliable broadband access is not readily available.

Podcasting is based on Really Simple Syndication (RSS). RSS-enabled web sites generate a feed of Extensible Markup Language (XML) data summarising the content of the site. This XML is maintained either manually – a process that is simpler than authoring (X)HTML for a web page – or more commonly, generated on-the-fly by software on the web server. For example, many weblog (blog) and content management systems automatically syndicate RSS. On the client-side, programs called aggregators periodically poll subscribed feeds for updates and deliver new content directly to the user’s desktop. RSS content can be filtered and aggregated from multiple feeds.

Podcasting-capable aggregators or “podcatchers” are used to download podcasts. They are configured to do so by supplying them with the URL of the relevant RSS feed. The podcatcher monitors the feed for RSS 2.0 [12] <enclosure> elements, which specify the URL of the media file, its size and MIME type. Downloaded files are typically in MPEG Layer 3 (MP3) format can be transferred to a variety of portable devices, including but not limited to MP3 players, handheld computers, laptop computers and tablet PCs, as well as many modern mobile phones and personal digital assistants (PDAs). Users without access to such devices can simply listen to the content on their PCs.

The increasing ubiquity of MP3-capable devices in mainstream society is fuelling the growth of podcasting. The Pew Internet & American Life Project [13] reports that almost one in five (19%) of those ages 18 to 30 own MP3 players, compared to 14% of those aged 30 to 39 and 14% of those aged 40 to 48. Internet usage, level of Internet experience and the availability of broadband access were found to correspond directly to MP3 player ownership. Over 80% of college students in the US own at

least one device capable of downloading and playing recordings [14]. The Pew study also found that 29% or around 6.4 million of the 22 million American adult owners of MP3 players have downloaded podcasts from the Web for later listening. A more recent study by Nielsen/NetRatings [15] revealed that 6.6% of the US adult online population (9.2 million users) recently downloaded an audio podcast. Web users between the ages 18 and 24 are almost twice as likely as the average user to download audio podcasts, which may signal that adoption will continue to grow.

Many existing educational applications of podcasting, particularly within the university sector, focus on the use of the technology to deliver instructional content such as recorded lectures, which can lead to questions of pedagogical soundness. Used appropriately, however, podcasting can enhance both face-to-face and virtual classroom learning by engaging students in the material and adding yet another modality of learning [15]. The authors believe the real potential of this technology ultimately lies in its community-building value, and its use as a vehicle for disseminating student-generated content.

Student engagement and motivation: Does technology help?

The term ‘engagement’ has become somewhat of a mantra for educators seeking a catch all term for students who have the motivational qualities that enable them to succeed in formal educational settings. Basically, engagement refers to the time, energy and motivational resources that students devote to activities designed to enhance learning [16]. Many e-learning settings are designed to engage students, for example, through peer learning where students work together to construct knowledge and negotiate meanings through group-based and collaborative learning activities.

Many recent practices have contributed to the growing body of knowledge on technology supported learning, for example, the phenomenon of ‘iPod learning’ [9]. Technologies that enhance connectivity and mobility, such as mobile devices improve socio-emotional engagement in the learning process, as well as being perceived as being socially acceptable and portable, unlike traditional forms of teaching and learning. In other words, a well-designed online environment with appropriate technologies is conducive to both learners’ affective and cognitive development.

The literature also acknowledges that cognitive achievement and the adoption of learning strategies are not sufficient to promote student achievement. The key factor is that students must be motivated to learn intentionally and in a self-regulated manner [17][18]. Student motivation is underpinned by a number of theoretical models and theories. The most commonly applied is the expectancy value model of motivation [19]. According to Pintrich & De Groot, there are three motivational components that may be linked to the different models of student centered learning [20]:

1. An *expectancy* component: this includes students’ beliefs about their ability to perform a task;
2. A *value* component: This includes students’ goals and belief about the importance of the task;
3. An *affective* component: This includes students’ emotional reactions to the task.

The study

Background

The study reported on in the present paper forms part of a larger project at Charles Sturt University in the broad area of educational podcasting, which originated in early 2005 as an attempt to use pre-class listening material as a means to address the preconceptions and anxiety that traditional, on-campus university students bring into the lecture hall [21]. The scope of the project was initially limited to students studying an undergraduate information technology subject in on-campus mode at the university’s Wagga Wagga campus, but it has since expanded to encompass a range of IT subjects as well as subjects in other disciplines, involving both undergraduate and postgraduate students, studying at other campuses of the university as well as by distance education in various locations around Australia and overseas. The authors’ emphasis was not and is not on recording full-length lectures, but

instead on producing short, 3 to 5 minute audio clips that students can casually listen to in their “wasted” time or “dead-time” while waiting, travelling or performing household chores.

The scriptwriting, editing and recording process of the podcasts is driven by a group of volunteer students [22][23]. The podcasts themselves are structured as talkback radio-style segments comprising dialogues/discussions hosted by one or more of the volunteer students on pertinent issues related to the subject and its content in a relaxed and informal style. The lecturer and/or other subject matter experts are occasionally brought in as “guests” to offer insight into, or clarification of, the more difficult or complex issues and topics. The material contained in the podcasts is supplementary in nature and not directly examinable, although it is designed to provide background material and expose students to terminology used in the subject, in addition to allaying their concerns about issues such as assessment.

Participants, context and methods

The participants were from a cohort comprising both on-campus and distance education students enrolled in an undergraduate information technology subject, ITC204 User Interface Design and Evaluation, as well as its postgraduate version, ITC504 Interface Usability, in the Autumn 2006 semester. The two versions are identical in content, and the students enrolled in both versions were provided with access to the same podcasts, with a new episode released each week. At the end of Week 5 of the 13-week semester, e-mail invitations were issued to the students to participate in a mid-semester online survey, which was advertised as being completely voluntary and anonymous. At this time, a total of five podcast episodes had been made available for download by the student listeners. A similar survey was administered at the end of the semester, at which time nine podcast episodes had been released in total.

A subset of the data collected in the surveys that is relevant to the present paper is presented below, namely the distance education students’ responses to questions pertaining to uptake levels and the motivational value of the podcasts. In particular, a number of items in the survey were directly related to Pintrich & De Groot’s (1990) three motivational components, mentioned earlier:

1. ***Expectancy*** – i.e. students’ beliefs about tasks and technology (Can I do this task? Is it within my scope? Are there any barriers to usage?)
2. ***Value*** – i.e. goals and beliefs about importance/interest of the task (Why am I doing this? Is this going to help me?)
3. ***Affect*** – i.e. emotions, feelings and attitudes to task and environment (How do I feel about this? What emotions does it evoke?)

Results and discussion

A total of 42 students (33 undergraduates and 9 postgraduates) studying ITC204/504 in distance mode in Autumn 2006 were invited to participate in the mid-semester survey, of whom 18 completed the survey, representing a 43% response rate. In the end-of-semester survey, a total of 38 students (30 undergraduates and 8 postgraduates) studying ITC204/504 in distance mode in Autumn 2006 were invited to participate, of whom 18 completed the survey, representing a 47% response rate.

As Table 1 shows, the uptake levels of the podcasts were excellent. In the end-of-semester survey, for example, 82% of respondents reported that they had listened to seven or more of the nine available podcasts from start to finish, and a majority reported that they had listened to at least three of the episodes multiple times. All but one respondent had downloaded at least seven of the podcasts.

In addition, in both surveys respondents were generally in strong agreement that the podcasts were of educational *value* to them, and that they were beneficial to their understanding of the subject content. Their responses spoke highly of the podcasts’ entertainment value and social cachet, amongst other *affective* qualities. In terms of the *expectancy* component, The respondents largely had little or no difficulty obtaining and playing back the podcasts, and largely saw listening to the podcasts as a worthwhile activity that they would recommend to other students studying the subject (Table 2). In

addition to the above, a large number of respondents indicated that they would be interested in exploring the possibility of joining the team to produce podcast content for future cohorts.

Table 1: ITC204/504 podcasting survey results: Uptake levels (N=23)

<i>To date, how many of the available podcasts have you...</i>	Mid-semester survey (N=18; 5 podcasts released in total)				End-of-semester survey (N=18; 9 podcasts released in total)			
	Mean	Median	Mode	StdDev	Mean	Median	Mode	StdDev
Q2. Downloaded (whether or not you have listened to them)?	3.67	4.00	4.00	1.53	8.06	9.00	9.00	0.59
Q4a. Listened to from start to finish?	3.35	4.00	4.00	1.50	7.61	8.00	9.00	0.64
Q4b. Listened to in part only?	1.55	1.00	0.00	2.07	2.43	0.00	0.00	2.30
Q4c. Listened to multiple times?	1.14	1.00	1.00	1.10	3.19	3.00	2.00	1.29

Table 2: ITC204/504 podcasting survey results: Motivation and impact/effectiveness (N=23)

<i>Please rate the following statements using the scale 1=Very Strongly Disagree, 2=Strongly Disagree, 3=Disagree, 4=Neutral, 5=Agree, 6=Strongly Agree, 7=Very Strongly Agree:</i>	Mid-semester survey (N=18)		End-of-semester survey (N=18)	
	Mean	StdDev	Mean	StdDev
Q8a. I find the podcasts useful for this subject. [V]	5.78	0.45	6.17	0.36
Q8b. I find listening to the podcasts educational. [V]	-	-	6.00	0.36
Q8c. I find the podcasts to be entertaining. [A]	-	-	5.17	0.59
Q8d. Listening to the podcasts is trendy and socially acceptable. [A]	-	-	5.33	0.71
Q8g. I enjoy the style and format of the podcasts. [A]	5.50	0.46	5.28	0.68
Q8i. The topics selected are appropriate and useful. [E]	5.33	0.48	5.56	0.45
Q8j. I find it easy to access the podcasted audio files. [E]	5.83	0.48	5.94	0.46
Q8k. I find it easy to play the podcasted audio files. [E]	5.78	0.63	6.35	0.27
Q8l. Podcasting is not appropriate for this subject. [V]	2.00	0.85	2.24	1.04
Q8m. Listening to the podcasts helps clarify and/or enhance my understanding of the subject. [V]	5.67	0.40	5.83	0.46
Q8o. Listening to the podcasts makes me feel less anxious about the subject. [A]	4.44	0.42	5.17	0.68
Q8p. Listening to the podcasts helps alleviate my concerns about subject-related matters like textbooks and assessment. [A]	5.44	0.43	5.72	0.46
Q8q. I find the topics presented not appropriate to my needs. [V]	2.89	0.81	2.44	0.75
Q8r. I feel that listening to the podcasts is not a productive use of my time. [E]	2.00	0.62	1.94	0.84
Q8s. I would recommend that other students undertaking this subject listen to the podcasts. [V]	6.00	0.45	6.06	0.42

[E] = Expectancy, [V] = Value, [A] = Affect

Conclusion and future plans

The authors believe that their podcasting approach was successful in promoting engagement and enhancing motivation for the student listeners. Further analysis will be conducted in order to determine the precise factors that have an effect on student motivation and engagement, and in turn to identify the design features that contribute to the production of pedagogically sound podcasts. It is hoped that this work will help inform the development of best practice in this still nascent area of educational podcasting.

In future semesters, through the use of a podcast-enhanced collaborative blog, students will also be able to respond to the podcasts, thereby enabling two-way dialogue between the student listeners and producers. This may be viewed as a form of peer mentoring or tutoring, and promises to further bridge the divide between on-campus and distance education students. Once again, the authors plan to study the effect of this strategy on students' engagement and motivation, and consequently on their learning.

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