Engaging the online learner: Student reactions to the use of audio podcasts in off campus courses

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Abstract

The topic of high attrition rates in distance courses is well documented (Holder, 2007; Patterson & McFadden, 2009) and a lack of personal interaction and support are cited as contributing factors for student drop out (Carr, 2000; Street, 2010). New technologies provide opportunities to personalise the experience for students studying at a distance (Lee, Tan & Goh, 2004) and there is a growing body of research on the use and effectiveness of audio and video podcasts in higher education (Bolliger, Supanakorn & Boggs, 2010; Taylor & Clark, 2010). This study explores the effectiveness of audio podcasting as a tool to engage students studying by flexible delivery at a dual sector tertiary institution in Australia. Surveyed students reported that educators used the audio podcasts to announce weekly requirements, explain complex concepts, provide guidance about assessment and to add information related to the unit content. The study suggests that the use of audio podcasts may be effective as a way of personalising the learning experience for students studying off campus. Students reported that they felt more connected to the educator through listening to the podcasts and appreciated the variation in technology as a way of keeping their attention. The low cost and technical simplicity of recording and listening to audio podcasts suggests that it may be an accessible and cost effective method of engaging students studying at a distance.

Keywords: audio; distance education; engagement; personalisation; podcasts; retention

Introduction

Online education in Australia is growing at a rapid pace with an estimated growth rate of 20% per annum over the next five years (Kidson, 2010). However, attrition in online courses far outstrips that of its on campus counterpart (Carr, 2000; DiRamio & Wolverton, 2006) and the issue of retention in online courses is the subject of many studies (Berge & Huang, 2004; Betts, 2008; Tyler-Smith 2006). The use of podcasts as a tool for delivering educational content, guidance and feedback has become popular in recent years (McGarr, 2009) and there is a growing body of research on the use and effectiveness of audio and video podcasts in higher education (Bolliger, Supanakorn & Boggs, 2010; Taylor & Clark, 2010).

The College, a dual sector tertiary education provider, offers both on and off campus delivery to approximately 3,500 students. Consistent with findings reported in the literature, the College has been facing high drop-out rates of students studying off campus. In an attempt to better engage students studying off campus, an audio

podcasting pilot was launched early in 2011. This paper reports on the findings of the pilot study with the first section presenting an overview of the relevant literature and more information on the context of the study. The paper then provides details about the methods employed to collect data, discusses the findings and suggests ideas for further research.

Literature Review

There have been a large number of studies focusing on the topic of student attrition in higher education, with Tinto's (1975, 1993) findings being drawn upon heavily in the literature. Tinto suggests that, among other factors, social interaction and integration into the institutions academic culture contribute to student retention. In higher education, the term 'engagement' is used to describe students' involvement in activities that lead to positive outcomes, including retention (Krause, 2005). Such activities may encompass academic, non-academic and social elements of the student experience (Coates, 2006).

Student engagement and integration

Engagement and integration is an important concept in the literature on retention and it is well recognised that the development of relationships, with other students and with teaching faculty, is one key factor in the engagement, integration and retention of students (Betts, 2008; Rovai, 2002; Tinto, 1993). Specifically, the role of faculty contact has been identified in a number of studies as a key factor in student retention (Betts, 2008; Chickering and Gamson, 1987; Miller, 2007; Sweet, 1986; Terenzini and Pascarella, 1980).

Integrating and engaging distance and online students is especially important as dropout among this group is frequently attributed to feelings of isolation, a lack of engagement and personal contact (Angelino, Williams & Natvig, 2007; Carr, 2000; Pugliese, 1994; Sweet, 1986; Wojciechowski & Palmer, 2005). Engaging and integrating distance and online learners has traditionally been more difficult to achieve (Rovai, 2002) given the physical separation of students from the institution, teachers and other students.

However, strategies and interventions to engage, and possibly retain, the distance and online learner abound. Early and frequent faculty-initiated contact has been identified as having a positive impact on student persistence (Angelino, Williams & Natvig, 2007; Nash, 2005; Rovai, 2002; Sweet, 1986). Methods such as emails, phone calls and bulletin board posts are common suggestions (Angelino & Natvig, 2009; Sweet, 1986) with some advising quite specific formulas for student contact (Ali & Leeds, 2009). Such strategies however, can prove difficult to sustain with large numbers of students (Nash, 2005).

Attendance at an orientation session has been reported as a factor in the retention of students studying at a distance (Ali & Leeds, 2009; Wojciechowski & Palmer 2005). Such sessions can assist students to prepare for study, provide technical advice and skills (Ali & Leeds, 2009; Carr, 2000) as well as providing an opportunity for the early formation of relationships (Ali & Leeds, 2009; Rovai, 2002). Supplemental tutoring and the provision of online support services have been identified as a strategy to address attrition in distance and online courses (Angelino, Williams & Natvig, 2007) and Nash (2005) argues that extra tutoring, whether provide by peer students or paid faculty, can assist in providing much needed guidance and support to those studying online or at a distance.

While these strategies may assist in retention, the literature highlights the difficulty of engaging students in these activities. Distance and online learners are often characterised by their independence, autonomy and lack of available time, and therefore may not desire or be able to engage in a high level of interaction with fellow students and educators (Nash, 2005; Rovai, 2002). Nonetheless, making meaningful contact with others, the development of relationships and building of social connections and communities is clearly a critical element in efforts to engage and retain students in online and distance courses (Ali & Leeds, 2009; Betts, 2008; Miller, 2007; Rovai, 2002). Within this, and perhaps most critical of all is the 'presence' of the teacher and the impact of their interactions with students (Miller, 2007; Rovai, 2002; Savery, 2005).

Changing technology and changing demands

Recent advances in connection speeds, reduced technology costs and greater access to personal computers, laptops and mobile devices mean that more people than ever are 'connected' and able to access information and education via the internet. Technology is now integrated into everyday lives with eight out of ten Australian households having an internet connection, broadband comprising ninety-five percent of this group (Ewing & Thomas, 2010) and this trend is set to continue with the future rollout of the national broadband network (Australian Government, 2011). In Australia, online education has grown twenty-five percent each year over the

past five years (Kidson, 2010).

Technology, in one form or another, has always featured in distance education (Taylor 1995, 2001) and the advent of, and access to new technologies has provided greater opportunities and possibilities for personalised contact, interaction and integration for students in distance and online programs (Park & Bonk, 2007). Web 2.0 technologies, which support co-creation, collaboration and connectedness (Lee et al., 2004; McLoughlan & Lee, 2010) can allow for the student to play a more active role in the learning process (Brown & Adler, 2008).

Echoing a broader societal trend in the use of technology (Collis & Moonan, 2008), students are also seeking more personalised and customised online learning experience with options and choices that are relevant and meaningful to them (Ausburn, 2004; Bollinger, Supanakorn & Boggs, 2010; McLoughlin & Lee, 2010). While this poses a challenge to current models of teaching and learning (McLaughlan & Lee, 2008), it also offers many opportunities for the sought after development of engaged, participating students in online communities of learning (Rovai, 2002).

Supported by improved connection speeds and reduced technology costs, recent developments in digital media production mean that making, watching, downloading or sharing digital video and audio is now a commonplace activity, with almost half of Australian internet users downloading video (Neilson, 2010) and thirty-five hours of video being uploaded onto YouTube every minute (YouTube, 2011). As this trend continues, demand for the use of such technologies in education is also likely to increase (McKee, 2010).

Podcasting as a strategy to address student engagement

Recent mainstream adoption of multimedia also provides alternatives to text-based communication, which has been widely used in distance and online learning (Betts, 2008). Video and audio technologies in particular can assist facilitating social connections and the availability of different mediums of instruction accommodates different learner styles and preferences (Ausburn, 2004) and can lead to enhanced student performance (Balaji & Chakrabarti, 2010).

According to Salmon and Nie (2008), the use of audio in distance learning is undergoing somewhat of a 'renaissance'. Employed as a learning tool in distance learning for many years via cassette tapes and CD Rom, the learning, engagement and motivational benefits of audio are well documented (Betts, 2008; Bolliger et al., 2010; Durbridge, 1984). The role of the human voice in personalising, creating a sense of belonging and a 'social presence' for the lecturer (Salmon & Nie, 2008; Taylor & Clark, 2010) can have specific benefits for students studying at a distance by facilitating connectedness between members of the learning group and developing a sense of community.

Podcasting is the term used to describe digital files (usually audio and/or video) that are available for users to download and 'consume' at a later time, either from a computer or a portable device. Since the advent of digital audio files and portable MP3 players early this century the uptake of this technology in society has been remarkable, with an estimated one third of UK adults owning an MP3 player, a figure likely to be mirrored in other countries such as Australia and the USA. There is also growing interest in, and use of podcasting in education (McGarr, 2009; Salmon & Nie, 2008; Scutter et al., 2010; Taylor & Clark, 2010).

Podcasting offers a number of possible benefits to student learning experiences and outcomes, including flexibility and learner control, learner motivation and engagement, and enhanced cognition (Salmon & Nie, 2008; Taylor & Clark, 2010). There are a variety of ways in which podcasting is being used in educational settings, with Taylor and Clark (2010) identifying twenty different podcast types. The capture and podcasting of on-campus lectures (audio, video, presentation or a combination of all three) has been well documented (McGarr, 2009; Scutter et al., 2010) and other strategies identified include podcasts to summarise content, provide feedback, give instructions or to conduct interviews (Nathan & Chan, 2007; Taylor & Clark, 2010).

The benefits of podcasts have been documented in terms of flexibility and accessibility (McGarr, 2009; Nathan & Chan, 2007). Enhancement to learning and the student experience has also been identified, especially for students who wish to revise the content at a later date, who prefer listening to reading or, simply in order to feel more 'connected' by hearing the lecturers voice (Bolliger et al., 2010; Salmon & Lie, 2008; Scutter et al., 2010; Taylor & Clark, 2010). However, as pointed out in many studies, it is not the technology itself that provides benefits to learning or the student experience, but the appropriate use of that technology driven by the educational need, within a specific learning context (Anderson & Dron, 2011; McGarr, 2009; Scutter et al., 2010; Taylor & Clark, 2010).

Local Context

The College, an Australian dual sector tertiary institution, offers both on and off campus delivery to approximately 3,500 students in the areas of counselling, management, coaching and psychology. A large proportion of students in undergraduate and postgraduate social science programs study by flexible delivery, which combines elements of traditional distance education, such as hard copy written materials and on line activities, such as access to resources, interaction with the educator and classmates, as well as assessment submission and feedback.

To date, the course content and tools for interaction have been predominantly text-based, utilising threaded discussion boards, live chat facilities, written content and self managed activities. While instructional videos, telephone conferences and individual phone conversations with educators offer opportunities to access multiple forms of media, both the curriculum resources and class interaction is dominated by text.

Consistent with the experience of other tertiary institutions, the College has been facing higher drop-out rates of students studying by flexible delivery when compared with on campus students and a number of initiatives have been put into place in an attempt to improve the retention of students. Previous internal surveys of educators and students have identified the need for more interactivity and 'connection' in the online classroom including the incorporation of a greater range of multimedia technologies.

Given the possible benefits of audio podcasting and the student/educator requests for enhanced media choices, an audio podcasting pilot was launched in Trimester 1, 2011 (February-May). In selecting this technology, the ease of use (for educator and student), widespread access to the technology and suitability for asynchronous delivery was considered. Important in the context of these courses, given that students study wholly at a distance, was the possible benefits of audio podcasting in personalising learner experience. Specifically, it was hoped that hearing the voice of the educator might diminish students' feelings of isolation and enhance their connection with the educator and the College. The benefits of mobility associated with podcasting were less important in the decision to pilot the technology.

The primary aim of this study was, therefore to explore the effectiveness of audio podcasting as a tool to engage students studying by flexible delivery. More specifically, the research sought to examine:

- How podcasts were used by educators and which strategies students found the most useful
- Which characteristics of audio podcasts were important to students – for example *social aspects* such as personalisation, connectedness and belonging and *media aspects* such as media choice or learning by listening

Method

In early 2011, prior to the commencement of Trimester 1, educators teaching in undergraduate and postgraduate social science programs were invited to participate in the audio podcasting trial. Using the college's learning management system, Moodle, an online space for educators, the 'Podcasting Sandbox' was created to provide information, resources and guidance for educators. Step by step instructions on how to download 'Audacity', the freely available software program selected to create digital audio files, was included in the Sandbox site. Literature on the use of audio podcasts was made available and suggestions and ideas about how to incorporate podcasts into teaching were provided. Educator questions and sharing of ideas were managed through discussion forums in the Sandbox site.

The nine educators who participated in the pilot taught across 35 classes with a total enrolment of 620 students. Throughout the Trimester, participating educators used the Audacity program and a headset microphone to record audio podcasts and make them available in their online class spaces. There were no specific requirements placed on the educators in terms of the way in which they could use podcasting in their teaching, however guidance, examples and suggestions were made available in the Sandbox site.

Toward the end of the Trimester, a link to an online survey was placed in the announcements section of each of the classes where podcasts had been used. Students were offered the opportunity to provide anonymous feedback on their experiences of the audio podcasts by following the link to the survey. The survey was made available through the College's subscription to the commercial online survey tool 'SurveyMonkey'. Students gained access to the survey by following the link to the external site. The first page included a statement about the purpose of the survey and information that the survey was anonymous and voluntary. Students could then opt to proceed to the questions or exit without completing the survey.

The survey included sixteen questions with 5-point Likert scale items, one yes/no question and four multiple choice questions. The development of the instrument was informed by the work of Bolliger et al. (2010) and adapted to suit the focus of this study.

The multiple choice and yes/no questions in the survey asked about the way in which the educator used audio podcasts, how often they were used throughout the trimester and whether or not the student experienced any technical difficulty listening to the podcast. The remaining sixteen Likert scale items were divided into two sections. The first, consisting of eight items, gathered information related to 'task orientation' and 'social orientation', which were two major themes arising from Bolliger et al. (2010) study. Task orientation pertains to podcasts being used as an alternative media choice in learning activities and the usefulness of the media for the task. Social orientation relates to the way in which audio podcasts can impact the students' sense of connection and speaks to the personalisation of the students learning environment.

The final eight Likert scale items relate to student motivation and were adapted from Keller's (1987) ARCS Model, which measures individuals' levels of motivation. The ARCS Model consists of four factors - Attention, Relevance, Confidence and Learner Satisfaction. Student motivation was seen to be relevant in the context of this study as lack of motivation and engagement could contribute to student attrition. The eight items in this section of the survey relate to each of the ARCS Model factors. Three items related to Attention, two items each related to Relevance and Confidence, with one item related to Learner Satisfaction.

The data was analysed using the online survey tool's in-built summary and analysis functions including filtering and cross-tabulation. Data was also entered into excel for analysis and reporting. Given the small sample, it was not possible to undertake more detailed interpretive analysis.

Results

A majority of educators expressed an interest in audio podcasting and were provided with access to the podcasting sandbox resources and nine educators proceeded to use podcasts in their teaching. These nine educators taught across thirty-five class groups. Of the 620 students enrolled into those class groups, 73 students (12%) responded to the questionnaire. Two students (2.7%) reported technical difficulties in downloading or listening to the podcasts and of these, one was able to access the podcasts. The other student indicated that they could not access the podcasts. This respondent was excluded from the analysis, leaving a total of 72 useable questionnaires for analysis.

Students were asked about the frequency of podcasts provided by their educator and, as shown in Table 1, just over half (54%) experienced one or two podcasts in the trimester, while 31 students (43%) reported weekly podcasts. Two students (3%) indicated that their educator produced podcasts several times per week.

Table 1: Frequency of Podcasts

Generally, how often are audio podcasts used in your class?	Response Count	Response %
Once or twice in the term so far	39	54%
Weekly	31	43%
Several times a week	2	3%

Students were asked about how their educator used podcasts, which strategy they found most useful and how they would like podcasts to be used in the future. As shown in Table 2, podcasts were categorised into four types: 1) to announce weekly requirements; 2) to explain complex concepts; 3) to provide guidance about assessment; and 4) to add information related to the content. Students were able to choose more than one podcast category.

Table 2: Podcast types

	To announce weekly requirements	To explain complex concepts	To provide guidance about assessment	To add information related to the content	Response Count
How has your educator used audio podcasts?	34 (48%)	32 (45%)	56 (79%)	41 (58%)	71
What did you find most useful?	24 (38%)	30 (48%)	51 (81%)	32 (51%)	63
How would like podcasts to be used in the future?	40 (62%)	52 (80%)	54 (83%)	53 (82%)	65

A high proportion of students (79%) reported that educators used podcasts to provide guidance about assessment, however, educators employed a variety of uses for podcasts, with just under half (48%) indicating that their educator used podcasts to announce weekly requirements and to explain complex concepts (45%), while 41 students (58%) reporting that their educator used podcasts to add information to the content.

Despite reporting variance in the use and usefulness of podcasts types as shown in Table 1, the majority of students indicated that they would like podcasts to be used to explain complex concepts (80%), provide guidance around assessment (83%) and to add information related to the content (82%). Less, but still over half (62%) indicated that would like to see 'announcing weekly requirements' as a podcast strategy in the future.

Table 3 provides a summary of student responses to statements relating to the way in which audio podcasts might assist students in their learning processes (task oriented items a – f) and the social/personal benefits that podcasts may provide (socially oriented items g –h). For ease of reporting the 5-point Likert scale was collapsed into three categories: 1) Strongly Agree and Agree (SA/A); 2) Not Sure; and 3) Strongly Disagree and Disagree (SD/D).

Table 3 shows that 66 students (93%) agreed or strongly agreed that they felt more connected to their educator through the provision of audio podcasts and 68 students (96%) indicated that audio podcasts made their learning experience more personal. Using the online survey tool's in-built analysis function, the frequency of podcasts was cross-tabulated with responses to the socially oriented questions (items g-h in Table 3). The results indicate that of students who experienced podcasts weekly or more often, 27 felt more strongly connected (82% strongly agree) to their educator than those who experienced podcasts less often where 24 (63%) strongly agreed. A similar effect could be seen in item h, whereby 27 students (69%) who experienced podcasts once or twice in the term strongly agreed that the podcasts personalised their learning experience, compared with 26 students (79%) who experienced podcasts weekly or more often.

Task oriented items identify the way in which the podcasting medium can assist student in their learning processes. Two items (e-f) related to the medium of audio and listening as a method of learning. Almost all students (68) agreed or strongly agreed that they like to learning by listening (95%) or enjoy listening as an additional way of learning (96%). Items a-d in Table 3 related to the way in which podcasts may assist students in their learning processes and organisation. Item c rated less favourably than other items with 11 students (16%) indicating they either disagreed or were not sure whether podcasts helped them to know what was expected each week. Further analysis shows that of the 33 students (46%) who experienced podcasts on a weekly basis, 31 (94%) either agreed or strongly agreed that podcasts helped them to know what was expected each week.

Table 3: Task Orientation, Social Orientation

	SD / D	Not Sure	SA / A	Count
a. Podcasts help me to better understand some of the concepts in my course	3 (4%)	3 (4%)	63 (91%)	69
b. Podcasts add depth to my learning	4 (6%)	5 (7%)	60 (87%)	69
c. The podcasts help me to know what is expected each week	3 (4%)	8 (12%)	57 (84%)	68
d. The podcasts help me to focus on what is important	3 (4%)	2 (3%)	65 (93%)	70
e. I enjoy listening as an additional way of learning	0 (0%)	3 (4%)	69 (96%)	72
f. I like to learn via listening	1 (1%)	3 (4%)	68 (95%)	72
g. I feel more connected to my educator through the podcasts	2 (3%)	3 (4%)	66 (93%)	71
h. Podcasts make the learning experience more personal	1 (1%)	2 (3%)	68 (96%)	71

Items in Table 4 relate to the four factors in the ARCS Model (Keller, 1987). Items i-k., relating to 'attention', indicate that podcasts do generally assist in keeping students' attention (94% agreement), make the topic more interesting (88% agreement) and include information that stimulates curiosity (80% agreement). Of the 19 students who disagreed or strongly disagreed with these statements, fifteen (79%) experienced podcasts once or twice during the term and three experienced podcasts on a weekly basis or multiple times per week, indicating that frequency of podcasts may impact motivation.

Results from the 'confidence' factor (items n & o) show that the podcasts reassured 64 students (92%) that they were on the right track and 61 students (87%) felt more confident about what they were supposed to learn. The final item in Table 4 relates to learner satisfaction, where 65 students (93%) reported that they agreed or strongly agreed to enjoyment of learning by use of podcasts. Of these students, 25 (38%) agreed and 40 (62%) strongly agreed to this item.

All items in Table 4 were cross-tabulated with frequency of podcasts (weekly/several times a week and once or twice in the term). The results indicate that the more frequently students experience podcasts, the more likely they are to strongly agree with statements representing motivational factors.

Table 4: Motivational factors

	SD / D	Not Sure	SA / A	Count
i. The podcasts include information that stimulates my curiosity	8 (11%)	6 (9%)	56 (80%)	70
j. Podcasts make the topic more interesting	8 (11%)	1 (1%)	61 (88%)	70
k. Podcasts make my learning more varied and help keep my attention	3 (4%)	1 (2%)	66 (94%)	70
l. There are stories or examples in the podcasts that make the material more relevant to me	8 (11%)	3 (4%)	59 (85%)	70
m. The content in the podcasts is not relevant as I already know most of it (recoded)	13 (18%)	3 (4%)	54 (78%)	70
n. After hearing the podcasts, I feel confident that I know what I was supposed to learn	4 (6%)	5 (7%)	61 (87%)	70
o. The podcasts reassure me that I am on the right track	5 (7%)	1 (1%)	64 (92%)	70
p. I really enjoy learning this way	2 (3%)	3 (4%)	65 (93%)	70

Discussion

The purpose of this study was to explore the different ways podcasting was used (Taylor & Clark, 2010) and the extent to which audio podcasting assisted students' learning processes (Balaji & Chakrabarti, 2010; Daft & Lengel, 1986), engaged students (Bolliger et al., 2010; Keller, 1987) and personalised their learning experience (Betts, 2008; Miller, 2007; Sweet, 1986).

Mirroring findings in the literature (Bolliger et al., 2010; McGarr, 2009; Taylor & Clark, 2010), the results from this study indicate that a majority of students are positive about the use of audio podcasts. Of the students who provided feedback on podcasts, only two (2.7%) indicated that they had technical difficulties. As there were no technical instructions or guidelines provided to students about how to open or listen to the audio podcasts it would appear that technology was not a barrier for most students. This supports findings in the literature regarding the accessibility of audio podcasts (McGarr, 2009; Salmon & Nie, 2008), however, the questionnaire did not ask students to rate their technical skills and, given the low response rate, the issue of technical barriers would need to be explored further.

Students reported that educators used podcasts for a number of different purposes – to announce weekly requirements, to explain complex concepts, to provide guidance about assessment and to add information related to the content. Guidance about assessment was the most utilised by educators and most desired by students. This result may be due to the high priority ascribed to assessment rather than any specific benefit of podcast media. While students reported all four strategies to be useful, it should be noted that nine students (12%) did not respond to the question related to usefulness of podcasts. The lack of response to this question might indicate

that students did not have an opinion on the usefulness of the strategies listed, they did not find any of the strategies useful, or their educator did not employ any of the strategies listed. An open-ended question in this section of the survey would be important for any future research so as to better capture students' views on podcast strategies. As student characteristics such as class standing or prior technology experience may also affect results (Bolliger et al., 2010), this data could also be captured in future research.

Student feedback from this study indicates that the vast majority of respondents (96%) 'enjoy listening as an additional way of learning' and 95% 'like to learning by listening'. Additionally, students indicated that they would like to see each of the four strategies utilised in future podcasts, with assessment, explanation of complex concepts and adding information being favoured by over 80% of respondents. While this may well indicate that students want to see more of these specific strategies, it may also be an indicator that students are generally keen to experience a more diverse range of media during their learning activity. Balaji and Chakrabarti (2010) propose that the use of a variety of media, each matched to the purpose of the task, could enrich the communication context and lead to enhanced student learning. The use of audio as a medium for instruction, almost regardless of which podcast strategy was used, may have 'struck a chord' with the students who responded to the survey, especially given that the majority of their learning content was, up until that time, in text-based formats. Alternatively, the purposes for which audio podcasts were used by educators in this study may have just 'worked' better than in traditional text formats (Salmon & Nie, 2008). Either way, a deeper exploration of student views about the use of podcast as an additional media and the way in which the media was used to enhance learning could be incorporated into future research.

One of the objectives of this study was to explore the extent to which audio podcasts assist in connecting and engaging students studying at a distance. Previous studies have shown that the voice of the lecturer can humanise and personalise the learning experience, and diminish feelings of isolation for distance students (Salmon & Nie, 2008; Taylor & Clark, 2010). Responses to the survey indicate that students do feel a sense of connection through the audio podcasts, with 75% of students strongly agreeing and a further 21% agreeing that 'podcasts make the learning experience more personal'. A similar result can be seen for the item 'I feel more connected to my educator through the podcasts' with 72% strongly agreeing and 21% agreeing to the statement. Responses to these items indicate that audio podcasting personalises learning experience for students and enhances feelings of connection to the educator.

Terenzini and Pascarella (1980) and Sweet (1986) found that frequency of contact with faculty was the most significant factor in student persistence. In this study, the results show that students who experienced more frequent 'contact' with the educator through audio podcasts responded more positively to social, task and motivational factors. While an audio recording of the educators voice is not strictly 'contact' with the educator as defined in this previous research, a number of more recent studies indicate that audio podcasts of the lecturers voice, when delivered in a normal, relaxed tone, can make the students feel like they are there with the lecturer, having a private consultation (Salmon & Nie, 2008; Taylor & Clark 2010). In this way, aspects of audio podcasting may simulate personal contact with the lecturer thereby enhancing a distance learner's feeling of personal and social connection. Further examination of which characteristics of audio podcasting best enhance students' feelings of connectedness could be a focus of future research.

Motivation is an important element in engaging students (Bolliger et al., 2010), especially those studying at a distance (Holder, 2007). The results from the eight items relating to motivation indicate that audio podcasts may have a positive effect on student motivation. Keller's (1987) ARCS model of motivation was used in this study and the first factor, 'attention' received positive responses from students, with between 80% and 94% of students reporting that the information contained in podcasts stimulated their curiosity, made the topic more interesting and helped to keep their attention. The second factor relates to 'relevance', or how well the instruction meets the needs of the learner and connects with their previous experiences (Bolliger et al., 2010). Again, students responded positively to the questions representing relevance, with 78% indicating that the content was relevant and 85% indicating that the podcasts contained relevant stories or examples.

Durbridge (1984) found that students liked the encouragement they received from the voice of their lecturer through the medium of audio. In keeping with these findings, podcasts in this study seemed to have a positive impact on student confidence, the third factor in the Keller's (1987) ARCS model, with 87% of respondents indicating that, after hearing the podcasts, they felt more confident about what they were supposed to learn, and 92% indicating that the podcasts reassured them that they were on the right track. The sound of the educator's voice and their words of instruction and guidance provided students with confidence and reassurance, a key aspect of engaging students who are learning at a distance (Rovai, 2002).

Almost all (93%) students who responded to the survey reported that they 'enjoyed learning this way' using podcasts. The 'satisfaction' element of learner motivation is an important consideration for students, especially those studying at a distance. Distance students are often difficult to engage due to their physical separation from the institution (Nash, 2005; Rovai, 2002) and the incorporation of activities, resources or other curriculum elements that students find enjoyable is more likely to better involve them in the learning activity.

The study was not able to control for podcast type or educator experience in podcasting, and given the small sample size and other limitations of the study, it is not possible to draw strong conclusions. However, it is interesting to note that the responses from students who experienced podcasts weekly or several times per week were more strongly motivated than those who experience podcasts only once or twice in the trimester.

Conclusion

Developing relationships and building social connections are important elements in engaging and retaining students studying at a distance (Ali & Leeds, 2009) and audio podcasts can enhance the social aspects of learning (Salmon and Nie, 2008). In this study, distance students who listened to audio podcasts reported feeling more connected to their educator and indicated that podcasts made the learning experience more personal. The study suggests that audio podcasts in distance and online courses could have a positive effect on student motivation in terms of attention, relevance, confidence and learner satisfaction.

The findings show a strong positive response to the use of audio as a medium for learning and indicate that audio podcasts have the potential to improve engagement for students studying at a distance. Students indicated that they like to learning by listening and, as reported elsewhere (Durbridge, 1984; Salmon & Nie, 2008), audio can provide an effective addition to text-based communication and content. The results of this study will provide educators with a better sense of the podcast strategies that were used across different classes and the podcast types that students found useful. This initial result provides impetus for further use of podcasting within the College and more detailed exploration of its impact on student learning, motivation and retention.

The low response rate and small sample size need to be taken into account when drawing conclusions from this study. Bias may have been introduced to the results as both students and educators were self-selecting due to the voluntary nature of participation. Student characteristics, such as experience with technology, prior use of podcasts and class standing was not taken into account and the study was not able to control for the types of podcasts used by educators. Further research could take student and educator characteristics into account and include additional classification of podcast types such as length, presentation style, topic and frequency. Information from educators about their use of audio podcasts could add depth to future research and open-ended responses may add richness and provide insights to quantitative findings.

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