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THE PERCEIVED USEFULNESS OF PODCASTING IN HIGHER EDUCATION: A SURVEY OF STUDENTS' ATTITUDES AND INTENTION TO USE

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ABSTRACT

Because of the infancy of podcasting, its effectiveness and acceptance as an educational tool is not well understood. After providing an overview of podcasting technologies and current uses of podcasting in higher education, this paper will present the results of a study that investigates students' potential acceptance of podcasting as an educational tool. The survey, which was based on constructs from the Technology Acceptance Model (Davis et al. 1989), was administered in early 2006 to graduate Management Information Systems students. Results suggest that students perceive podcasting to be a useful educational tool, but they question its potential effectiveness in improving their performance as student-learners.

KEYWORDS

Podcasting, Educational Technology, Perceived Usefulness, Attitude, Intention to Use

INTRODUCTION

One rapidly growing method of delivering audio content online is via podcasting. Through podcasting, audio content from one or more subscribed feeds can be automatically downloaded to a user's computer as it becomes available (Chan & Lee 2005). The audio file can be listened to on the user's computer, or it can be transferred to an iPod or other portable media player for listening at a time and place convenient to the user (Chan & Lee 2005).

An estimated 56.8 million podcast users in the United States are expected by the end of this decade (Communications Executive Council 2006). Udell (2005) identifies the following contributors to the rapid growth of podcasting: pervasive internet activity, growth in broadband internet access, access to multimedia capable personal computers, a blur between streaming and downloading media content, and the rapid adoption of portable MP3 playback devices.

At the same time, the World Wide Web provides an ideal medium to deliver learning material as digital content (Shim et al. 2006). Audio, while a vastly neglected and underused teaching and learning medium, provides several educational advantages over printed media, including the ability to add clarity and

meaning, motivation, emotion, intimacy, and personalization (Durbridge 1984; Power 1990; Chan & Lee 2005).

Educators can lift students' learning to a new level through podcasting (Campbell 2005) by giving educators "one more way to meet today's students where they 'live'—on the Internet and on audio players" (EDUCAUSE 2005). Classroom material and leisure-time entertainment come through the same medium and desktop utility, intertwining a student's educational experience with other aspects of his or her life (Campbell 2005). By combining podcasting with the widespread popularity of portable media players (i.e., MP3 players, music-capable mobile phones, and PDAs), a vision of anytime and anyplace education will soon be realized (Chan & Lee 2005).

This paper will provide an overview of podcasting technologies. It will present possible uses of podcasting in higher education, and will discuss the advantages and challenges that have been identified. The paper will conclude with a presentation of the results of a study that investigates students' general perceptions of podcasting technology as a learning tool in higher education.

OVERVIEW OF PODCASTING TECHNOLOGIES

Podcasting is a method of distributing audio recordings via the Internet, allowing users to subscribe to a feed of new files (Walton et al. 2005). The podcasting process begins with the creation of content through the use of audio capturing and editing tools (i.e., a personal computer, a microphone, recording software, audio editing and compression software) (Meng 2005). Producing a podcast is recognized as the most challenging part of the process (Campbell 2005). The created file (e.g., MP3 file) is then uploaded to a publicly-available webserver on the Internet. This file is referred to as one episode of a podcast.

The subscription process of podcasting relies on the use of Really Simple Syndication (RSS) technologies, which have revolutionized how consumers access web-based, dynamic information (Chan & Lee 2005). The content provider acknowledges the existence of the created file by referencing it in an RSS-enabled Web site, i.e., the feed. The feed lists the locations of all episodes of a podcast, including episode publish dates, titles, and accompanying text descriptions. The content provider posts the feed to a permanent location on a webserver, which is made known to the intended audience.

A user subscribes to a podcast by entering the permanent feed location into an aggregator program that reads RSS, such as Apple iTunes. Once subscribed, new podcast episodes are automatically delivered to the user's computer (Chan & Lee 2005). The downloaded episodes can then be played, replayed, or archived as with any other computer file.

Despite its name, listening to podcasts does not require an iPod or any portable player, but many aggregator programs allow content to be easily synchronized to portable devices (Meng 2005). Podcast subscriptions can be added or cancelled at any time (Chan & Lee 2005), and podcast episodes remain on a user's computer until he or she deletes them (Campbell 2005).

Because of the automated delivery of content, podcasting is recognized as a "push technology" (Johnes 2006). The information provider chooses which files to offer in a feed with the subscriber automatically receiving those files. This feature differentiates it from alternative methods of distributing audio content to students (i.e., the uploading of audio files to course management systems). Alternative methods require multiple steps which cause student dissatisfaction or a lack of participation, while podcasting seamlessly delivers educational content onto students' computers via the RSS feed (Maag 2006).

USES OF PODCASTING IN HIGHER EDUCATION

Podcasting's initial appeal was to allow individuals to distribute their own radio shows, but the technology is increasingly used for other reasons, including education. Numerous colleges and universities have adopted podcasting as a supplemental learning tool (See Campbell 2005 and Educational Pathways 2006 for sample institutions). In fact, some instructors have adopted podcasts as their primary means of communicating with students (Shim et al. 2006).

Shim, Shropshire, Park, Harris, and Campbell (2006) suggests that podcasting should be used to “supplement class materials so that students can better understand concepts, theories, and applications that may not have been available during the class.” Faculty can use podcasting to share announcements, describe homework assignments, and distribute lectures to students (Shim et al. 2006). They can be used to record and distribute news broadcasts and they can be used for student assignments and presentations (Meng 2005). Podcasting can provide access to experts through interviews (EDUCAUSE 2005), and faculty can use podcasting to provide feedback and evaluations of student work (University of Minnesota 2006).

In a case study by Johnes (2005), students who used podcasts in an Economics class reported that they found the podcasts to be “immensely helpful.” A pilot study of podcasting by Chan and Lee (2005) found that a series of informal, talkback radio-style audio clips, delivered in a timely fashion through podcasting, reduces the in-class anxieties of Information Technology students while also being more flexible and effective than alternative methods (i.e., Web sites and handouts). They found that 96% of the respondents would be willing to listen to additional audio material made available in MPS format (Chan & Lee 2005).

BENEFITS OF PODCASTING IN HIGHER EDUCATION

Podcasting offers several advantages to the learning process. Chan & Lee (2005) suggest that the time-shifted aspect of podcasting is a primary benefit to education: “podcasting combines the benefits of broadcast radio with the flexibility, learner control and personalization afforded by recorded audio.” Podcasts allow for spatial and temporal flexibility by giving the listener the control of where and when to listen to files (Shim et al. 2006). Thus, educational materials can be offered independently of time and place (Walton et al. 2005). Recorded lectures distributed via podcast can allow students to “re-attend” class or can accommodate absent students.

Because podcasts are relatively easy to produce, publish, and access on the go (Lorenzo 2006), they enable educators to rapidly address student needs and concerns as they surface in a timely manner (Chan & Lee 2005). In addition, podcasts can be a significant learning aid to auditory learners (Meng 2005). For online classes, podcasts can provide a conversational voice that may enhance learning (Maag 2006). The use of technology in higher education improves student learning and diminishes the attrition of underrepresented groups of students (Boylan 2004).

CHALLENGES OF PODCASTING IN HIGHER EDUCATION

Maag (2006) identifies the following potential challenges of using podcasting technologies: students' adoption of the educational aspect of the device, technical support from university instructional technology departments (e.g., server space, bandwidth, maintenance), and faculty member buy-in of the use of the technology. Maag (2006) argues that if educators understand the generation of students they are teaching, perhaps they will recognize that ubiquitous podcasting may assist learners and educators to share a voice and enhance communications.

Podcasting has limited usefulness for the hearing impaired, and it is not designed for two-way interaction or audience participation (EDUCAUSE 2005). In addition, a permission-based distribution architecture would need to be established to limit access to enrolled students (Meng 2005).

Because of the relative newness of podcasting in education, another challenge is in understanding its effectiveness as a learning tool and in identifying effective ways for delivering content. This study takes a step in increasing our understanding of the effectiveness of podcasting as a learning tool by investigating students' acceptance of the technology.

RESEARCH MODEL

Constructs from the Technology Acceptance Model (Davis et al. 1989) were used in our model to assess students' acceptance of podcasting as a learning tool in higher education. The Technology Acceptance Model (Davis et al. 1989) and subsequent research confirms the importance of understanding the user and the impact that usage requirements has on individuals' acceptance of IT applications. The research model tested is illustrated in Figure 1.



Figure 1. Research Model

The first construct in the research model is *Perceived Usefulness of Podcasting*, which is defined as the probability that a student finds podcasting valuable to the learning process. In research based on the Technology Acceptance Model, perceived usefulness frequently has been found to have an impact on attitude. We define *Attitude* as the student's positive or negative beliefs towards podcasting. Studies based on the Technology Acceptance Model have found that attitude has a direct influence on one's behavioral intention to use the technology under study. In this study, we define *Behavioral Intention to Use Podcasting* as a student's intention to use a specific technology to access podcasts.

RESEARCH METHODOLOGY

A survey was distributed to students enrolled in two online, graduate-level Management Information Systems courses. Table 1 displays the survey questions. The questions measured respondents' familiarity with podcasting, perceived usefulness of podcasting and attitude towards podcasting. In addition, students were asked about their intention to use various technologies to access and listen to podcasts, assuming that podcasts were made available by faculty. Lastly, an open-ended question was used to gather additional insight. The survey was administered through the classes' course management systems to preserve the anonymity of respondents. Of the 49 students enrolled in the two classes, 47 completed the optional survey for a response rate of 95.9%.

<p><u>Familiarity with Podcasting</u> Which of the following statements best represents your current familiarity with podcasts?</p> <ul style="list-style-type: none"> • I am very familiar with podcasts (i.e., I listen to numerous podcasts) • I am familiar with podcasts (i.e., I listen to a few podcasts) • I am familiar with podcasts, but I have never listened to any • I am not familiar with podcasts <p><u>Perceived Usefulness of Podcasting</u></p> <ol style="list-style-type: none"> 1. My performance as a student/learner could be improved with the integration of podcasting into college curriculum. (5 Pt. Likert Scale) 2. My effectiveness as a student/learner could be improved with the integrating of podcasting into college curriculum. (5 Pt. Likert Scale) 3. Overall, integrating of podcasting can be useful in college curriculum. (5 Pt. Likert Scale) <p><u>Attitude towards Podcasting</u></p> <ol style="list-style-type: none"> 1. I think it would be very good for instructors to use podcasting technologies to supplement online classes. (5 Pt. Likert Scale) 2. I think it would be very good for instructors to use podcasting technologies to supplement on-campus classes. (5 Pt. Likert Scale) <p><u>Intention to Use Podcasting</u> Which of the following technologies would you be willing to use to listen to podcasts?</p> <ul style="list-style-type: none"> • Desktop computer (Would use ... would not use) • Laptop computer (Would use ... would not use) • iPod (Would use ... would not use) • MP3 player (excluding iPods) (Would use ... would not use) • Other portable device (Would use ... would not use) <p><u>Open-Ended Question</u> Do you have any additional comments regarding the potential of podcasting in higher education?</p>

Table 1. Survey Questions

FINDINGS

At the time of the survey, the majority of the students had limited exposure to podcasting. Fifty-five percent (55%) were not aware of and had not listened to any podcasts. Nearly one-fourth (23%) of the students knew of podcasts, but had never listened to any. Only a small number of the students had experience listening to podcasts, as 9% had listened to numerous podcasts and 13% had listened to a few podcasts.

The students surveyed agreed that podcasting could be useful in higher education with 70.21% of the respondents agreeing or strongly agreeing with the statement “Overall, integrating of podcasting can be useful in college curriculum.” Interestingly, only 44.68% and 38.30% expressed that podcasting would have a positive impact on their own performance and effectiveness (respectfully) as a student/learner. One explanation for the difference between the usefulness of podcasting in higher education overall and the usefulness of podcasting for the students surveyed could be the fact that the students surveyed were graduate students. Research has found that younger college students are more likely to own portable devices (EDUCAUSE 2006).

The students surveyed had a positive attitude towards an instructor’s use of podcasting for online classes, with 63.83% of the respondents indicating that they agreed or strongly agreed. The students had a less

positive attitude towards an instructor's use of podcasting for traditional, on-campus classes, with only 42.55% of the respondents responding favorably.

Students expressed the highest intention to use a desktop computer to access podcasts made available by their instructors, as nearly three-fourths would be willing to use a desktop computer to access podcasts (74.46%). The laptop computer followed close behind with 70.21% of the students indicating that they would be willing to use a laptop to access podcasts. Forty percent (40.42%) of the students indicated a desire to use an iPod to access podcasts, while other portable devices (i.e., smartphones, PDAs) and other MP3 players were less desirable (25.53% and 19.14%, respectfully).

CONCLUSION

Podcasting has the potential to provide many benefits to educators. It provides them with a low-cost method to distribute timely audio content seamlessly to students. At the same time, podcasting can give students additional opportunities to learn course content, with the benefit of being at times and locations convenient to them. Although the graduate students surveyed in this study debated the potential effectiveness of podcasting in improving their own performance as student-learners, the results confirm that they do perceive podcasting to be a useful educational tool.

Additional research is needed to increase our overall understanding of podcasting as a learning tool. Because this study was based on student perceptions, studies that investigate actual acceptance and usage are needed. In addition, our understanding of the effectiveness of podcasting in higher education would be enhanced by identifying the specific classroom-related tasks that are best suited for podcasting.

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