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# A CROSS-DISCIPLINE INVESTIGATION OF STUDENTS' ACCEPTANCE OF PODCASTING AS A LEARNING TOOL

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## ABSTRACT

*Podcasting makes it easy and inexpensive to distribute audio files, while giving faculty members the opportunity to reach students in their own environments. It promises several advantages as a learning tool, including pervasiveness and portability. However, little is known regarding students' willingness to use their digital audio software and digital audio players as a learning tool. This paper applies concepts from the Technology Acceptance Model to investigate students' acceptance of podcasting in higher education. Results of a survey of students enrolled in six classes where podcast episodes were offered as optional classroom materials are presented. Findings suggest that students' experiences using podcasting as a learning tool were generally positive, but students were not capitalizing on the mobility offered by podcasting.*

**Keywords:** podcasting, IT in education, mobile technology, technology acceptance

## Introduction

The Internet provides an ideal medium to deliver learning material as digital content, i.e., e-learning (Shim et al. 2006). For example, a simple computer microphone and basic sound recording and playback software, which can be downloaded for free, is all that is needed for an educator to create and manipulate digital audio (Chan & Lee 2005). Although audio is considered by some to be a vastly neglected and underused teaching and learning medium, it does provide 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).

One rapidly growing method of delivering content online is via podcasting. Podcasting is a method of distributing audio content via the Internet, allowing users to subscribe to a feed of files (Walton et al. 2005). It is the automatic delivery of audio or visual content over a network via free subscription (apple.com). Although the concept of downloading audio from the Internet is not new, the ease of publication, ease of subscription via Really Simple Syndication (RSS) enclosures, and ease of use across multiple environments has contributed to the rapid growth of podcasting (Campbell 2005), as has a growth in broadband Internet access, access to multimedia capable personal computers, and the adoption of portable media players (i.e., MP3 players, music-capable mobile phones and PDAs) (Udell 2005).

When Apple Computer added a podcasting feature to their iTunes software in 2005, users subscribed to over one million podcasts in the first two days (Apple Computer 2005), and an estimated 56.8 million podcast users are expected in the United States by the end of this decade (Communications Executive Council 2006). The growth has been so rapid that the editors of the New Oxford American Dictionary declared "podcast" the 2005 word of the year, a mere year after the term was initially coined.

Because podcasting requires little investment in technology, people have created podcasts on a wide variety of topics that suit their interests and make them available to a global audience for free. For example, its low delivery cost and the convenience of automatically downloading content have made it an enticing choice for companies looking to expand their communications (Communications Executive Council 2006). Companies have used podcasts to promote new products and service offerings, to build a community and brand allegiance by providing information on broad subjects (e.g., helpful tips for working mothers) that may interest target consumers, and as an alternative communication channel internally and externally for communications not requiring live interaction (e.g., quarterly earnings meetings) (Communications Executive Council 2006).

For educational institutions, podcasting provides educators with an opportunity 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, thus, intertwining a student’s educational experience with other aspects of his/her life (Campbell 2005). By combining podcasting with the widespread popularity of portable media players, a vision of anytime and anyplace education, i.e., mobile learning, will soon be realized (Chan & Lee 2005).

Because of the infancy of podcasting, its effectiveness as a learning tool is not well understood. This study investigates the potential of podcasting as a supplement to the classroom, while simultaneously discovering whether students would want to integrate it into the learning process. The following research questions are addressed:

- Do students find podcasting technologies easy to use? What technologies do they use to access the podcasts?
- Do students find podcasting useful as a learning tool?
- Will students accept podcasting as a learning tool? If so, is its acceptance shared across students of differing majors, ages and gender?
- Does a student’s prior experience with podcast influence his/her acceptance?

Answering these questions will begin to help us understand the developing role of podcasting in higher education. After providing an overview of podcasting technologies, which will include a discussion of its advantages and challenges as a learning tool, this paper will apply the Technology Acceptance Model (Davis et al. 1989) to investigate students’ acceptance of podcasting in higher education. Surveys were administered to students enrolled in four graduate-level, online MIS courses and one undergraduate, on-campus Chemistry course participating in semester-long trials of podcasting during the Spring and Fall 2006 semesters. Results of the survey are presented.

## The Podcasting Process

The podcasting process begins with the creation and editing of an audio file, such as an MP3 file. The creation of a podcast requires only a small amount of resources, although it is recognized as the most challenging part of the process (Campbell 2005). The content provider uses audio capturing and editing tools (e.g., a personal computer, a microphone, recording software and audio editing and compression software) to record and edit the audio file of the content he/she wishes to distribute (Meng 2005). The audio file could also be enhanced with graphics, photos, and video (i.e., vidcasting). The created audio file is referred to as one episode of a podcast.

The next step of the podcasting process is the distribution of the podcast. The created file (e.g., an MP3 file) is uploaded to a publicly-available web server on the Internet using file transfer software (e.g., FTP). The file is packaged and encoded within an XML format in order to make it RSS-enabled.

The content provider then acknowledges the existence of the created file by referencing it in an RSS-enabled web site known as the podcast’s feed. The feed lists the locations of all episodes of a podcast and other relevant information, such as the publish dates, titles, and text descriptions of all episodes of the podcast. The feed is posted to a permanent location on a web server (e.g., a website or blog). The content provider can then list the podcast in a podcast directory (e.g., Apple iTunes or iPodder) or distribute the feed location to the intended audience.

The next step of the podcasting process occurs when users (listeners) access the podcast via subscription. The RSS-enabled subscription process has revolutionized how users access web-based, dynamic information (Chan & Lee 2005). After downloading an aggregator program that reads RSS, such as Apple iTunes, the user subscribes to a podcast by searching for it in a podcast directory or by entering its permanent RSS feed (i.e., a URL) directly into the aggregator program.

Users can subscribe to podcasts from a variety of sources on topics of interest to them. The publish-and-subscribe model of podcasting is a version of push technology in that the information provider chooses which files to offer in a feed with the subscriber automatically receiving those files (Johnes 2006).

Once subscribed, all new podcast episodes identified in the feed are automatically downloaded to the user's computer, eliminating the need for users to manually monitor website for updates (Chan & Lee 2005). The aggregator program retrieves and processes data from each feed location at specified intervals, such as every day. If the feed data has changed from when it was previously checked or if the feed was just added to the aggregator program, the program determines the location of the most recent episodes and automatically downloads them from the web server to the user's computer. The downloaded episodes can be played, replayed, or archived as with any other computer file, and they remain on the user's computer until he/she deletes the files (Campbell 2005). Podcast subscriptions can be added to or removed from the aggregator program at any time (Chan & Lee 2005).

Although the term podcasting combines the words iPod and broadcasting, listening to podcasts does not require an iPod or any other portable player (Campbell 2005). Any audio-playing software can be used to play the downloaded episodes (Walton et al. 2005). The downloaded files can also be transferred to a portable media player, as many aggregator programs allow content to be easily synchronized to portable devices (Chan & Lee 2005).

Podcasts allow for flexible listening at times convenient to the user, such as when commuting or exercising (Chan & Lee 2005). They also allow for spatial flexibility by giving the listener the control of where to listen to the files as they remain in a persistent state (Shim et al. 2006). They can be listened to off-line, as opposed to streaming files that require the user to be connected to the Internet

## 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. Many universities have adapted podcasting (see Campbell 2005 or Educational Pathways 2006 for a partial list), and it can be used in many ways. Universities use podcasts to record and distribute campus news or sporting events, record and archive meetings and conferences, and as a recruiting tool (Meng 2005). The most common use is to provide university or department news to staff and students, as a supplement to traditional paper versions of newsletters (Shim et al. 2006).

Podcasting also has wide application in the classroom. Faculty can use podcasts to share announcements, describe homework assignments, and distribute lectures to students, and it can be used to supplement class material with content that help students better understand concepts, theories, and applications (i.e., speeches, music or other audio recordings) (Shim et al. 2006). Podcasting can provide access to experts through interviews and guest lectures (EDUCAUSE 2005). Faculty can use podcasting for student assignments and presentations, to provide feedback and evaluations of student work, or to provide lessons that help students develop listening and speaking skills (Meng 2005, University of Minnesota 2006). Some instructors have adopted podcasts as their primary means of communicating with students (Shim et al. 2006).

Podcasting offers several advantages to the learning process while lifting students' learning to a whole new level (Campbell 2005). Because podcasts are relatively easy to produce, publish, and access on the go (Lorenzo 2006), educators can rapidly address student needs and concerns as they surface, and they can distribute new content as it becomes available (Chan & Lee 2005). Educational materials can be offered independently of time and place (Walton et al. 2005), as it frees learning from physical constraints like the classroom. Recorded lectures distributed via podcast can allow students to "re-attend" class or can accommodate absent students. For online classes, podcasts can provide a conversational voice that may enhance and personalize learning (Maag 2006). In addition, podcasts can be a significant learning aid to auditory learners (Meng 2005).

Because podcasting seamlessly delivers educational content into student's computers via an RSS feed, it can be more effective than alternative methods of distributing audio content to students, such as uploading audio files to a course management system. Obtaining audio files from a course management system requires multiple steps to access and download the file. This can cause student dissatisfaction or a lack of participation (Maag 2006). Podcasts also overcome the negative "click and wait" experiences of streaming audio and video (Chan & Lee 2005). Podcasting "combines the benefits of broadcast radio with the flexibility, learner control and personalization afforded by recorded audio (Chan & Lee 2005)."

Podcasting is not without some challenges (Maag 2006). Before podcasting can be used, university technical support in the form of server space, bandwidth, and maintenance is recommended. Faculty members also need to be accepting of the technology as a learning tool, which may require an adaptation to their established delivery methods. In addition, a permission-based distribution architecture would need to be established to limit access to enrolled students (Meng 2005). Podcasting also has limited usefulness for the hearing impaired, and it is not designed for two-way interaction or audience participation (EDUCAUSE 2005).

One prerequisite for students to subscribe to podcasts is that they have ongoing access to a single computer.

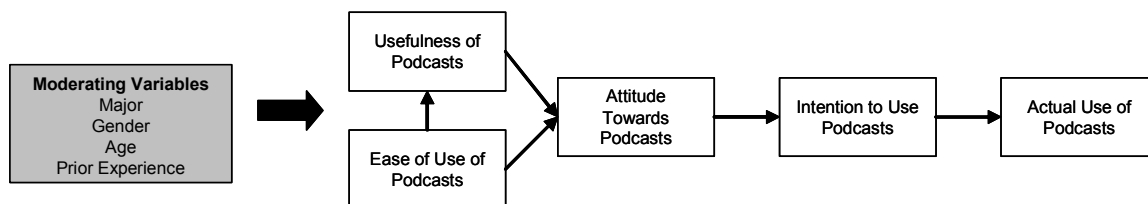
An EDUCAUSE Center for Applied Research study of over 18,000 students at 63 institutions found that 61.6% of students owned a personal desktop and 55.6% owned a laptop (Caruso 2006). However, educators should not assume that all students will have access to their own computer in which they can download the aggregator program and subscribe to the podcast feed. One option to reach out to these students, as well as to students with auditory limitations, is to provide text-based transcripts of the podcast episodes.

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. Students' adoption of the educational aspect of podcasting has been recognized as a potential challenge (Maag 2006). 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.

In addition to this study, a limited (albeit growing) number of studies of podcasting in higher education are available. 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 & 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., websites and handouts). They found that 96% of the respondents would be willing to listen to additional audio material made available in MP3 format (Chan & Lee 2005). Shim et al. (2006) found that students perceive podcasting to be a better communication tool than streaming audio content, and a pilot study by Brittain et al. (2006) found that students who access podcasts while mobile preferred audio recording over video recordings.

## Research Model

This study applies the Technology Acceptance Model (Davis et al. 1989) to develop an understanding of students' potential acceptance and usage of podcasting as a learning tool in higher education. A large number of technology usage studies in the Information Systems field are based on models extended from the Theory of Reasoned Action (Fishbein & Ajzen, 1975), including the Technology Acceptance Model (Davis et al., 1989) and the Theory of Planned Behavior (Ajzen, 1985). In these models, the beliefs and attitude of the individual towards a certain behavior are important determinants of the individual's intention towards the adoption of that behavior (Khalifa & Cheng, 2002). The Technology Acceptance Model (Davis et al. 1989) and subsequent research confirms the importance of understanding the user and the impact that usage requirements have on individuals' acceptance of IT. The research model tested is illustrated in Figure 1.



**Figure 1. Research Model – Acceptance of Podcasting as a Learning Tool**

The first construct in the research model is *Ease of Use*. *Ease of use* is defined as the degree to which a student perceives the use of podcasting technologies to be free of effort (adapted from Davis et al. 1989). In research based on the Technology Acceptance Model, ease of use frequently has been found to have an impact on usefulness and attitude. In this study, *Usefulness* is defined as the probability that a student finds podcasting valuable to the learning process. *Attitude* is defined as the student's positive or negative beliefs towards podcasting as a learning tool.

Technology Acceptance Model studies have found that attitude has a direct influence on one's behavioral intention to use the technology under study, and intention to use has an impact on one's actual use of the technology. In this study, we define *Intention to Use* as a student's willingness to use podcasting as a learning tool (using various technologies) and *Actual Use* as a student's self-reported usage of podcasts as a learning tool (using various technologies).

Moderating variables are also included to determine if students' acceptance and usage of podcasting as a learning tool varies based on other factors. The moderating variables are attributes related to the student's demographic profile (e.g., major, gender, age), as well as their prior experience with podcasts.

## Research Setting

In the spring and fall semesters of 2006, podcast episodes were available to students enrolled in five graduate-level MIS courses and one undergraduate-level Chemistry course at a public university located in the Midwestern United States. Combined, there were 153 students enrolled in the six courses.

The podcast episodes were available as supplemental, optional content. The episodes were created and distributed to the students on a regular basis, usually weekly. The content of the episodes varied based on the course and instructor, but typically included one or more of the following: learning objectives, discussion of content, relevant examples, description of assignments, etc. Text-based transcripts of the podcast episodes were also made available to the students on the classes' course management systems.

During the first week of the semester, students were provided with a step-by-step tutorial on how to subscribe to the podcast feeds using Apple iTunes. Additional help was provided for students who had difficulty with the subscription process. Because accessing and listening to the podcast episodes was optional for all courses in the study, students could choose to listen to none, some, or all of the episodes. Students also had control over how frequently they listen to each episode.

## Research Methodology

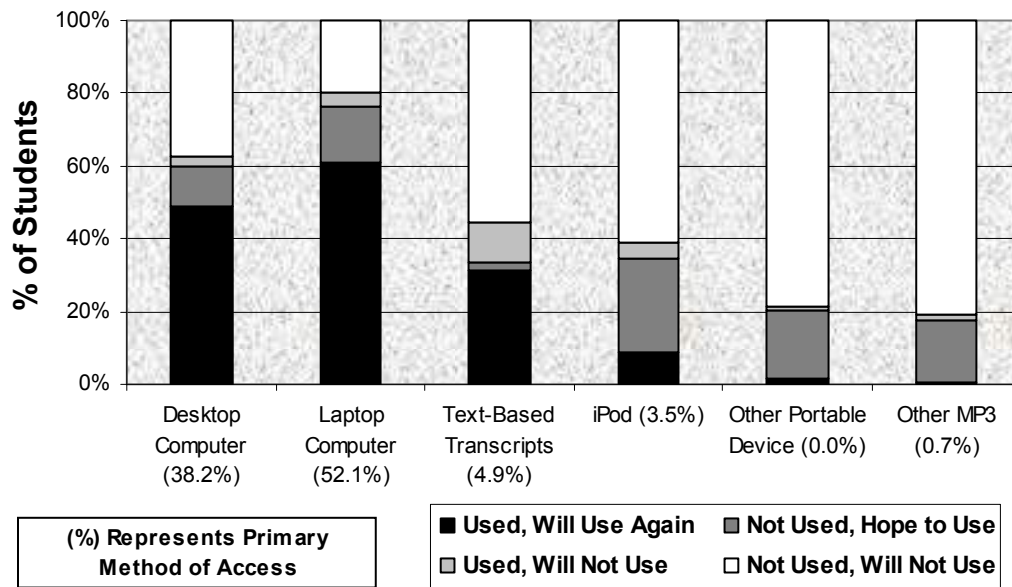
A 23-question survey was distributed to students while enrolled in one of the six courses. The surveys were distributed around the midpoint of the semester. The questions measured respondents' prior experience with podcasting, perceived usefulness and ease of use and attitude towards podcasting as a learning tool. In addition, students were asked about their behavioral intention to use and actual usage of various technologies to access and listen to podcasts. Questions pertaining to the students' demographic information were also asked. Lastly, two open-ended questions were used to gain additional insights and feedback. The surveys were administered through the classes' course management systems to preserve the anonymity of respondents. Of the (153) students enrolled in the six classes, 144 completed the optional survey for a response rate of 94.1%. Demographic information of the respondents can be found as Appendix A.

## Survey Results

Before the semester began, only a small number of the students had experience listening to podcasts. Numerous podcasts had been listened to by 6.3% of the students and 10.4% of the students had listened to a few podcasts. During the semester, students experimented with multiple technologies to access and listen to the podcast episodes. The majority (63.2%) used a laptop to listen to the podcast episodes at least once during the semester. A desktop computer was used by 49.3% of the students at some point during the semester. The text-based transcripts were used at least once by 31.9% of the students, while 14.6% used an iPod or other MP3 player at least once during the course.

The primary method students used to listen to the podcast episodes followed a similar trend. A laptop was the primary method used by 52.1% of the students, a desktop computer was the primary method used by 38.2% of the students, the text-based transcripts were the primary method used by 4.9% of the students, and an iPod or an MP3 player was the primary method used by 4.2% of the students.

Although iPods and other MP3 players were not as frequently used during the courses to listen to the podcasts, students did display a desire to use these devices to listen to podcast episodes. Nearly one-third of the students (32.6%) displayed an interest in using an iPod, 16.7% displayed an interest in using another MP3 player, and 19.4% would like to use another portable device, such as a smartphone. Figure 2 displays the distribution of technologies used by the respondents and their intention to use various technologies to listen to podcasts in the future. Appendix B provides additional data regarding students' intention to use and use of various technologies.



**Figure 2. Intention to Use & Actual Use of Various Technologies**

The students surveyed generally confirmed that podcasting was easy to use. Over eighty-two percent (82.6%) of the students agreed or strongly agreed that it was easy to access each episode of the podcast. Nearly eighty percent (79.9%) of the students agreed or strongly agreed that the aggregator program was easy to use, and 77.8% of the students agreed or strongly agreed that it was easy to subscribe to their class's podcast.

The usefulness of podcasting as a learning tool was also confirmed, although the results were not as strong as they were with the ease of use construct. Fifty-five percent (55.6%) of the students agreed or strongly agreed that their podcasting experience using podcasts was better than expected. Fifty-four percent (54.9%) of the students agreed or strongly agreed that the podcast episodes added to their learning experience. Just over half of the students (52.8%) agreed or strongly agreed that listening to the podcast episodes assisted with learning. Students were satisfied with their experiences using podcasts in their class, as 64.6% agreed or strongly agreed to that survey item.

The students also displayed a favorable attitude towards the integration of podcasting in higher education, as 72.9% of the students agreed or strongly agreed that the integration of podcasting could be useful in college curriculum. Students indicated that it would be very good for instructors to use podcasting technologies to supplement both on-campus (43.6% agreed or strongly agreed) and online classes (71.5% agreed or strongly agreed). Nearly half of the students indicated that the integration of podcasting into the college curriculum could improve their performance and effectiveness, as 48.6% of the respondents agreed or strongly agreed to these two survey items.

Appendix C provides the means and standard deviations of the survey items measuring ease of use, usefulness, and attitude. A reliability analysis was conducted for the survey items to test for internal consistency. The Cronbach alpha for the constructs are .907 for the items measuring ease of use, .889 for the items measuring usefulness, and .890 for the items measuring attitude.

The data was tested using SPSS to confirm that the established Technology Acceptance Model relationships held true. The relationship between ease of use and usefulness resulted in an  $R^2$  value of 0.334, with a significance of  $p < 0.001$ . The relationship between ease of use and attitude resulted in an  $R^2$  value of 0.243, with a significance of  $p < 0.001$ . The relationship between usefulness and attitude resulted in an  $R^2$  value of 0.603, with a significance of  $p < 0.001$ .

Comparing the responses across various demographic (moderating) variables provided some interesting insights. Students' major and age were found to be significant factors in predicting ease of use. Students majoring in MIS and Business Administration indicated a more favorable ease of use ( $p < 0.01$ ). Interestingly, students over age 25 indicated a higher ease of use ( $p < 0.05$ ). Students' gender and prior experience using podcasts did not significantly influence ease of use. Students' prior experience using podcasts was the only moderating factor that influenced usefulness ( $p < 0.05$ ) and attitude ( $p < 0.05$ ).

Students' major was found to be a significant factor in influencing how students accessed the podcasts, as well as their intention to access podcasts. Biology and Chemistry students were significantly more likely to use desktop computers ( $p < 0.05$ ) or text-based transcripts ( $p < 0.01$ ) when compared to the MIS and Business Administration students. Gender also

factored into how students used or intended to access the podcasts, as female students were significantly more likely to use desktop computers ( $p < 0.05$ ) or text-based transcripts ( $p < 0.05$ ).

All of the moderating factors except for Gender were found to influence how frequently students accessed the podcasts. Biology and Chemistry students listen to each podcast episode more frequently ( $p < 0.001$ ), as did younger students ( $p < 0.005$ ), and those with greater prior experience with podcasting ( $p < 0.1$ ).

## Conclusion & Future Research Direction

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.

Results of our study indicate that most of the students, despite having little or no previous exposure to podcasting, quickly developed positive attitudes towards the use of podcasting as a learning tool. Because this study consisted of a limited sampling of courses that integrated podcasting into the curriculum, additional research is needed to increase our overall understanding of how students' perceive the ease of use and usefulness of podcasts as a learning tool and how these perceptions contribute to their acceptance and use of podcasts in their courses.

Although the podcasting experiences of students in the courses were generally positive, the results indicate that there is room to improve the usefulness of podcasting as a learning tool. 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. As educators experiment with different podcasting approaches, best practices can be developed.

Our findings also suggest that, despite its name, faculty should not assume that podcasting equates to learning via a mobile device. Although the technology does support the possibility of mobile learning, very few students in this study actually used mobile devices (e.g., iPods, other MP3 players) to listen to the podcast episodes. It would be interesting to investigate whether students' preferred method of accessing educational-based podcasts evolve as mobile devices continue to grow in popularity among consumers.

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## Appendix A – Demographic (Moderating) Variables

Moderating Variables	N	% of Responses
<b>Semester</b>		
(1) Spring 2006	47	32.60%
(2) Fall 2006	97	67.40%
<i>TOTAL</i>	<i>144</i>	<i>100%</i>
<b>Dept. of Course</b>		
(1) MIS	96	66.70%
(2) Chemistry	48	33.30%
<i>TOTAL</i>	<i>144</i>	<i>100%</i>
<b>Age</b>		
(1) Under 25	59	41.00%
(2) Over 25	35	24.30%
(0) Unanswered	50	34.70%
<i>TOTAL</i>	<i>144</i>	<i>100%</i>
<b>Gender</b>		
(1) Male	47	32.60%
(2) Female	48	33.30%
(0) Unanswered	49	34.00%
<i>TOTAL</i>	<i>144</i>	<i>100%</i>
<b>Degree Program</b>		
(1) MIS (graduate)	56	38.60%
(2) MBA (graduate)	40	27.80%
(3) Chemistry (undergraduate)	12	8.30%
(4) Biology (undergraduate)	26	18.10%
(5) Other/Undecided (undergraduate)	10	6.90%
<i>TOTAL</i>	<i>144</i>	<i>100%</i>
<b>Prior Experience with Podcasting</b>		
(1) Very familiar (i.e., listened to numerous podcasts)	9	6.30%
(2) Familiar (i.e., listened to a few podcasts)	15	10.40%
(3) Familiar, but never listened to any	31	21.50%
(4) Not familiar	88	61.10%
(5) Unanswered	1	0.70%
<i>TOTAL</i>	<i>144</i>	<i>100%</i>

**Appendix B – Students' Intention to Use & Usage of Various Technologies to Listen to Podcasts**

<b>Intention to Use - Which of the following technologies would you like to use to access podcast episodes?</b>	<b>N of "Yes" Responses</b>	<b>% of "Yes" Responses</b>
(1) Desktop Computer	82	56.90%
(2) Laptop Computer	108	75.00%
(3) iPod	47	32.60%
(4) MP3 player (excluding iPod)	24	16.70%
(5) Other portable device (i.e., cell phone)	28	19.40%
(6) Text-based transcript	58	40.30%
(0) Wouldn't like to use any	12	8.30%
**Please note the totals do not equal 100%, as respondents could select multiple technology		
<b>Actual Usage of Various Technologies - Which of the following technologies have you used to access podcast episodes this semester?</b>	<b>N of "Yes" Responses</b>	<b>% of "Yes" Responses</b>
(1) Desktop Computer	71	49.30%
(2) Laptop Computer	91	63.20%
(3) iPod	18	12.50%
(4) MP3 player (excluding iPod)	3	2.10%
(5) Other portable device (i.e., cell phone)	3	2.10%
(6) Text-based transcript	46	31.90%
(0) Haven't used any	20	13.90%
**Please note the totals do not equal 100%, as respondents could select multiple technology		
<b>Primary Usage Method - Which of the following represents your primary method for accessing the podcast episodes this semester?</b>	<b>N</b>	<b>% of Responses</b>
(1) Desktop Computer	55	38.20%
(2) Laptop Computer	75	52.10%
(3) iPod	5	3.50%
(4) MP3 player (excluding iPod)	1	0.70%
(5) Other portable device (i.e., cell phone)	0	0.00%
(6) Text-based transcript	7	4.90%
(0) Did not access	1	0.70%
<i>TOTAL</i>	<i>144</i>	<i>100%</i>
<b>Actual Usage Frequency - How many times have you listened to each podcast episode this semester?</b>	<b>N</b>	<b>% of Responses</b>
(1) Each episode more than once	6	4.20%
(2) Some episodes more than once, but some episodes only once	36	25.00%
(3) Each episode once	44	30.60%
(4) Some episodes, but not all of the episodes	42	29.20%
(5) Have not listened to any episodes	16	11.10%
<i>TOTAL</i>	<i>144</i>	<i>100%</i>

## Appendix C – Results of the Ease of Use, Usefulness, &amp; Attitude Constructs

Construct	Mean (5pt. Likert Scale)	Std. Dev.
<b>Ease of Use</b>		
EU1 - It was easy to subscribe to the podcast for this class	4.10	0.985
EU2 - It is easy to access each podcast episode for this class	4.26	0.883
EU3 - I find the podcatcher software easy to use (i.e., iTunes).	4.13	0.900
<b>Usefulness</b>		
U1 - My experience with using podcasting this semester was better than what I expected.	3.58	0.882
U2 - The podcast episodes add to my learning experience for this class.	3.49	1.010
U3 - Listening to podcasts this semester assisted with my learning.	3.44	0.966
U4 - I am satisfied with my overall experiences with podcasts in this class.	3.69	0.929
<b>Attitude</b>		
A1 - I think it would be very good for instructors to use podcasting technologies to supplement online classes.	3.95	0.963
A2 - I think it would be very good for instructors to use podcasting technologies to supplement on-campus classes.	3.25	1.113
A4 - My performance as a student/learner could be improved with the integration of podcasting into college curriculum.	3.39	0.947
A5 - My effectiveness as a student/learner could be improved with the integrating of podcasting into college curriculum.	3.44	0.891
A6 - Overall, integrating podcasting can be useful in college curriculum.	3.90	0.831