

Instructor Utilization Of Podcasts In The Online Learning Environment

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Abstract

The utilization of podcasts in online learning environments has become common in higher education. The study examined how instructors used podcasts to deliver instructional material and instructors' experiences with the use of podcasts in online courses. Twenty-five instructors who taught fully online courses at a research university in the United States completed the Instructional Use of Podcasts Survey. Instructors utilized different file types for a variety of purposes in their courses. Instructors shared several benefits and issues pertaining to podcast use in online teaching. Results provide the field with a better understanding of instructors' use of podcasts and offer guidance to those who may consider the utilization of podcasts in online courses.

Keywords: Podcasts, Online teaching, Instructor utilization, Benefits, Issues

Introduction

The utilization of podcasts in online courses has become more common in higher education because it offers an alternative teaching approach. In the past few years, podcasts have been incorporated into online courses in many disciplines, such as education, healthcare, and science (Edirisingha & Salmon, 2007; Hanson, Thackeray, Barnes, Neiger, & McIntyre, 2008). Instructors have utilized podcasts in a variety of ways (Brown, Brown, Fine, Luterbach, Sugar, & Vinciguerra, 2009; Carvalho, Aguiar, Santos, Oliveira, Marques, & Maciel, 2009; Chester, Buntine, Hammond, & Atkinson, 2011). The utilization of podcasts can bring a range of benefits and challenges to students' learning (Fernandez, Simo, & Sallan, 2009; Kay, 2012).

Podcasts can offer several benefits such as active learning, which has the potential to increase student engagement and learning (Armstrong, Tucker, & Massad, 2009; Lee, McLoughlin, & Chan, 2008; McGarr, 2009; Seo, Curran, Jennings, & Collins, 2010; Sprague & Pixley, 2008). However, ineffective usage of podcasts may lead to a failure to gain or maintain students' attention; this may lower their overall engagement and motivation. When instructional material is properly designed, it will allow learners to engage in their learning more easily.

Theoretical Framework

Podcasts in Education

A podcast refers to the distribution of media files with the use of rich-site summary (RSS) feeds. Users who subscribe do not need to retrieve each file; instead, the files are automatically downloaded to all subscribers. An example of a site that utilizes RSS feeds is iTunes University. Users, however, need to download and install the iTunes software program on their computers in order to use the service (Zanten, Somogyi, & Curro, 2012).

Three common types of podcasts identified in the literature are audio-only, enhanced, and video podcasts (Brown et al., 2009; Liu & McCombs, 2008). The audio-only podcast is an audio delivery format. An enhanced podcast or screencast is a combination of the audio and visuals such as slides, images or graphics (Fernandez et al., 2009). A vodcast or video podcast is a video file that can require a large amount of storage; however, with the increase of high speed bandwidth, the use of video files has become more common (Kay, 2012).

Integration of Podcasts in Online Learning

The integration of podcasts in online courses has become more common in higher education (Caladine, 2008) because of their unique attributes. Podcasts can be used to promote personalized learning and introduce cross-curricular activities (De Souza-Hart, 2011; Donnelly & Berge, 2006; Lee, Miller, & Newnham, 2009). Donnelly and Berge (2006) and Liu and McCombs (2008) point out that podcasts provide learners with anytime-anywhere-learning opportunities. Kay (2012) indicates one of the benefits of podcasts is that students have control over their learning.

Because of these unique characteristics, educators use podcasts to offer students online instructional material such as introductions to topics, key point summaries of lectures or feedback on assignments (Brown et al., 2009; Carvalho et al., 2009; Chester et al., 2011). Podcasts are also used for collaborative activities in order to promote team work and get students engaged in their learning (McGarr, 2009; Seo et al., 2010).

Benefits and Challenges with Using Podcasts

Podcasts allow instructors to use multiple methods of communication in online courses (Brown et al., 2009). Screencasts and vodcasts can be used to assist students in understanding more complex concepts and accommodate those who are visual learners or prefer multimodal presentations (Brown & Green, 2008). Instructors can use podcasts to increase students' motivation in online courses by providing students with feedback and perspectives of others in different formats (Hill, Nelson, France, & Woodland, 2012; McKinney, Dyck, & Luber, 2009).

Podcasts can also increase feelings of proximity between students and instructors (Brown et al., 2009; Hill et al., 2012). The use of podcasts can generate a more humanized online learning experience (Bolliger, Supanakorn, & Boggs, 2010). Educators can use podcasts to provide students an opportunity to share newly acquired knowledge by creating and sharing their own podcasts with their peers (Lee et al., 2008; McGarr, 2009). Podcasts, particularly video podcasts, can also be used to provide lectures and resources in order to *flip* the classroom; a pedagogical model where students view lectures in the form of media files independently outside the classroom and use class time to work on exercises and complete assignments (*EDUCAUSE*, 2012).

The use of podcasts, however, can be technologically challenging for instructors (Brown et al., 2009; Kay, 2012) and can be time consuming, particularly when instructors have to acquire production and editing skills (Brown & Green, 2008; Carvalho et al., 2009). Educators without podcast experience may not produce good quality files without proper training (Santos & Ali, 2012). Producers should speak in an informal or a conversational style, and use a variety of tones in their voices to gain students' attention (Mayer, 2006, 2009; Mayer, Fennell, Farmer, & Campbell, 2004). Researchers (Carvalho et al., 2009; Edirisingha & Salmon, 2007; Kidd, 2012; Tam, 2012) recommend a podcast should be between 5-10 minutes and no longer than 15 minutes. In order to keep the podcast files short without omitting vital information, the content needs to be broken up into smaller pieces (Brown & Green, 2008; Seo et al., 2010; Sprague & Pixley, 2008; Zanten et al., 2012).

Other issues include file size and compatibility with other applications. Files should be relatively small, because large files and long downloading times associated with these files have been a barrier to the use of video files (Caladine, 2008). Instructors need to make sure that all files are in compatible formats

(Armstrong et al., 2009; Parson et al., 2009). With some programs, users may not be able to produce files in compatible-ready formats to upload them to Web sites with RSS feeds or Web applications such as the iTunes University site.

Because of lack of technical skills or support (Seo et al., 2010) and the time required to create podcasts (Kennedy, Hart, & Kellems, 2011; Lin, Zimmer, & Lee, 2013; O'Bannon, Lubke, Beard, & Britt, 2011), instructors may perceive the use of podcasts as extra work and for that reason avoid the utilization of podcasts in their courses.

Methodology

Purpose and Research Questions

It was the purpose of the study to explore how online instructors use podcasts to deliver instructional material and to investigate instructors' perceived benefits and challenges with the use of podcasts. Additionally, the researchers sought recommendations for podcast use from instructors who utilized podcasts in their fully online courses. For the purpose of this study, podcasts were defined as audio podcasts, screencasts, and video podcasts. The research questions were:

1. How are instructors using podcasts in their fully online courses?
2. How are instructors producing and distributing the podcasts?
3. What recommendations do instructors have for other educators who are considering the integration of podcasts in their online courses?

Procedure

The data were collected during three semesters (Fall 2011, Spring 2012, and Summer 2012) at a small, land-grant research university in the western United States. The university has an annual enrollment of over 13,300 students and offers over 180 academic programs. The university has participated in the delivery of distance education programs for over 30 years utilizing a variety of delivery methods such as audio conferencing, video conferencing, Web conferencing or online delivery. Several academic programs and certificates are delivered fully online, and most distance education courses are taught by full-time faculty housed in their respective academic units.

All instructors who taught fully online courses and used podcasts were invited to participate in the study. A staff member in the unit that administers the university's for-credit distance education programs distributed an e-mail with instructions on how to access an online survey that was available during the second quarter of each semester for a period of two weeks. At the beginning of the survey, participants were informed that the word *podcast* referred to audio, enhanced audio, and video files, as defined by Brown et al. (2009) and Liu and McCombs (2008). A total of 25 online instructors completed the survey for a course they taught during a specific semester.

Instrument

The data were collected with the use of the Instructional Use of Podcasts Survey (IUPS) instrument developed by the researchers based on existing literature. The survey aimed to gather information on how online instructors developed and used podcasts, how often they offered podcasts in their online course, types of instructional methods delivered through podcasts, and their general perception of using podcasts. The questionnaire includes 13 items consisting of eight multiple-choice questions, two short answer questions, two open-ended questions, and one demographic question (see Appendix). The instrument underwent the review of an expert panel to ensure face validity before it was administered to the sample. The expert panel consisted of three experts who had knowledge and experience in online teaching, online communication, and the design and development of instructional material for online courses. After the review, three items were slightly modified based on the experts' feedback.

Data Analysis

Frequencies and descriptive statistics were calculated to provide a summary of how instructors utilized the podcasts in their courses. Responses to open-ended questions were coded using open coding (Flick, 2006) in order to find common themes for instructor utilization of podcasts in an online learning environment. All categories of themes were sorted and compared to develop major themes.

Results

Demographics

Twenty-five participants completed the survey. Participants taught in many discipline areas (Figure 1). Fifteen instructors taught an undergraduate course, and 10 instructors taught a graduate-level course during the semester of participation in the study.

Their experience with the use of podcasts in courses varied by the number of semesters ($M = 3.76$); the majority of instructors had experience using podcasts for 1-4 semesters (80.0%). Nine respondents (36.0%) had used podcasts for 1-2 semesters, 11 respondents (44.0%) had used them for 3-4 semesters, and five respondents (20.0%) had used them for five or more semesters.

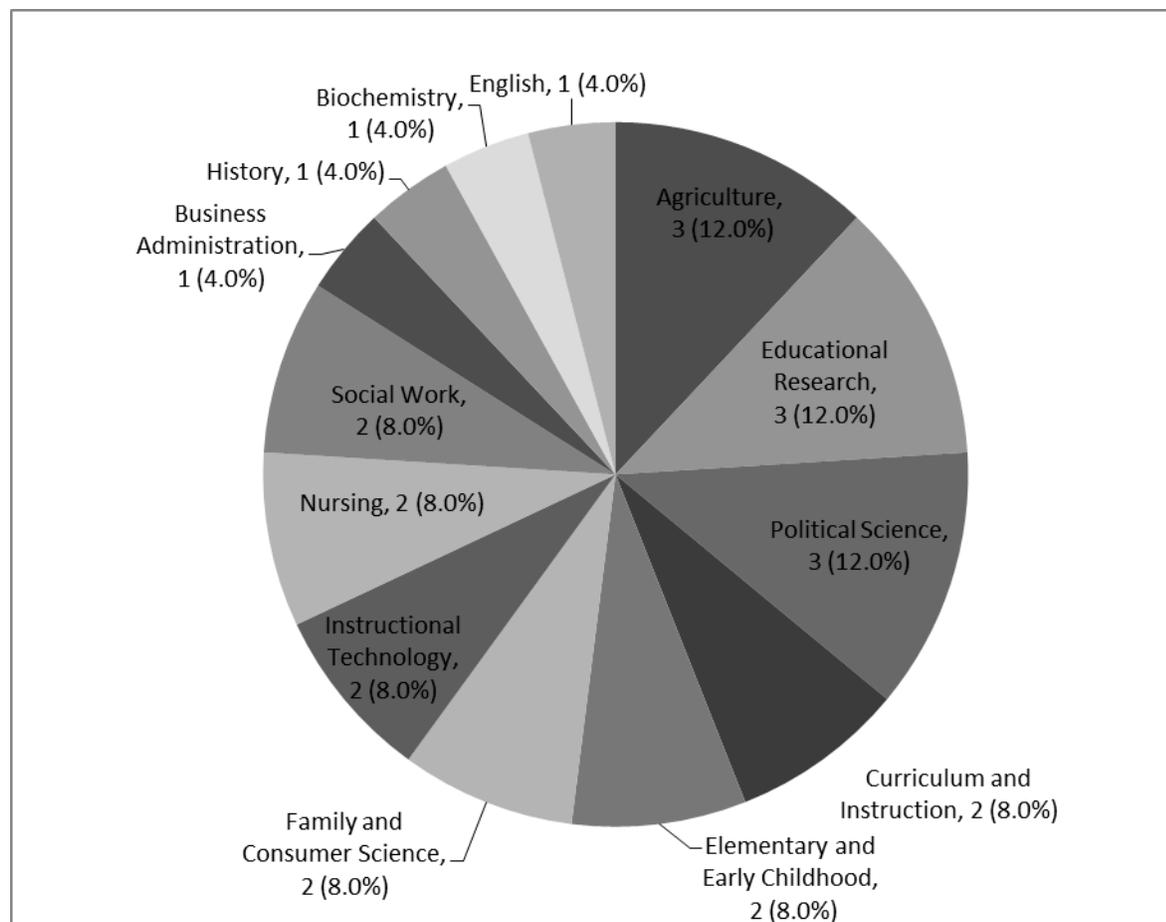


Figure 1. Participants' disciplines.

Instructional Uses of Podcasts

Instructors included podcast files for a variety of purposes (Table 1). Seven participants (28.0%) utilized audio only files. Four (16.0%) recorded either video files or a combination of audio, screencast, and video files. Three respondents (12.0%) created audio and screencast files, and three respondents used video and screencast files. Two instructors (8.0%) used only screencasts, and two instructors used a combination of audio only and video files.

Video podcasts were integrated the most, followed by audio podcasts. Screencast files were used the least (Table 1). Overall, the purposes mentioned most often for the use of the files were lectures (96.0%), topic introductions (80.0%), welcome messages (68.0%), and key concepts (68.0%). The fewest purposes reported were interviews (8.0%), guest speakers (20.0%), and course tours (32.0%).

Table 1
Instructor Use of Files for Instructional Materials

	Audio podcast		Screencasts		Video podcasts		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>N</i>	%
Welcome messages	7	28.0	1	4.0	9	36.0	17	68.0
Syllabus explanations	5	20.0	1	4.0	7	28.0	13	52.0
Course tours	0	0.0	1	4.0	7	28.0	8	32.0
Lectures	6	24.0	9	36.0	9	36.0	24	96.0

	Audio podcast		Screencasts		Video podcasts		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>N</i>	%
Unit introductions	5	20.0	3	12.0	8	32.0	16	64.0
Topic introductions	6	24.0	5	20.0	9	36.0	20	80.0
Content reviews	4	16.0	3	12.0	7	28.0	14	56.0

Demonstrations	1	4.0	5	20.0	7	28.0	13	52.0
Key concepts	6	24.0	3	12.0	8	32.0	17	68.0
Assignment explanations	4	16.0	1	4.0	6	24.0	11	44.0
Assessment explanation	5	20.0	1	4.0	4	16.0	10	40.0
Guidelines	4	16.0	3	12.0	5	20.0	12	48.0
Misconception clarification	5	20.0	0	0.0	5	20.0	10	40.0
Feedback	7	28.0	2	8.0	2	8.0	11	44.0
Interviews	0	0.0	0	0.0	2	8.0	2	8.0
Guest speakers	2	8.0	1	4.0	2	8.0	5	20.0
Total	67		39		97			

Note. n = multiple categories were selected by participants

Instructors overwhelmingly preferred the use of video files for almost all instructional purposes with the exception of assessment explanations and feedback. Here they preferred the inclusion of audio only files. In order to clarify misconceptions and utilize guest speakers, respondents used either audio only files or video files equally.

Requirements for podcast use and activities supported with the files varied between instructors. The majority of instructors (56.0%) required students to access the podcasts in the online courses. Seven respondents (28.0%) required their students to use some but not all of the files. Only four instructors (16.0%) did not require students to use the files; their intent was to include the files as course supplements. When asked whether instructors used podcasts for students to participate in class activities or collaborate on course projects, only five individuals (20.0%) indicated they used files for those purposes. Only one participant used student podcast production assignments in their online course.

The quantity of podcasts provided by instructors who completed the survey varied considerably (see Table 2). The number of files ranged from 2 to 151 files ($M = 22.16$). Only two instructors included 100 or more podcasts. Respondents also included a different number of podcast files in their course units (Table 3).

Podcast Production and Distribution

Respondents were asked to mark all responses that applied for development and distribution questions. They used a variety of approaches in the development of podcast files. The majority (96.0%) used their

own voice when recording the files. Eighteen instructors (72.0%) chose to present the information in a conversational or informal style. Twelve instructors (48.0%) utilized images or moving pictures in conjunction with verbal information. Eleven respondents (44.0%) included a static image of themselves or a guest speaker.

Table 2

Total Number of Files

Number	No. of Instructors	% of Instructors
2-9	10	40.0
10-19	8	32.0
20-29	2	8.0
30-99	3	12.0
100 or more	2	8.0

Table 3

Frequency of File Distribution

Frequency	No. of Instructors	% of Instructors
Only at the beginning	2	8.0
1 podcast per unit	7	28.0
2-4 podcasts per unit	10	40.0
More than 4 podcasts per unit	2	8.0
When it was a relevant topic	4	16.0

Six instructors (24.0%) used a variety of tones to serve as cues when they recorded their voices. A few instructors recorded live lectures (16.0%) or a guest speaker (8.0%). Additionally, the length of the files varied (see Table 4). Most instructors (56.0%) recorded files that were between 6 to 15 minutes in length.

Table 4

Length of Files

Minutes	No. of Instructors	% of Instructors
1-5	5	20.0
6-15	14	56.0
More than 15	6	24.0

The majority of respondents uploaded their podcast files to the university's iTunes University site. Four instructors (16.0%) distributed the files using a Web site with RSS feed; two individuals mentioned they uploaded the files to a Web-based video sharing site (screencast.com) and embedded the links in the course management system (CMS). Two respondents (8.0%) also made the files available in the CMS only.

Not all instructors provided instructions to students on how to access their podcasts. Eleven individuals (44.0%) included text-based instructions, and five others (20.0%) created interactive tutorials on how to access the files. Instructions on how to create podcasts was only provided by two respondents.

Challenges. Respondents were asked to share challenges they had encountered with the production of podcasts. Twenty instructors (80.0%) completed this open-ended question.

Technical difficulties: Issues that were reported most frequently by participants pertained to technical issues. Five of these comments impacted instructors negatively and four comments related to negative student experiences. One instructor wrote, "limited technological capacity is a real problem in using podcasts." Instructors had experienced difficulties with software programs and their incompatibility. Apparently the CMS allowed the upload of podcast files at one time and not at other times. Another CMS-related issue was that some audio files ended up corrupt when the course was "migrated from one semester to another." One instructor who invited guest speakers was concerned about their access to software and tools or the lack thereof.

Several participants mentioned students had difficulty accessing or downloading the files. Others mentioned some students did not have the appropriate software programs to open the files. For example, one person produced all multimedia files with a Macintosh computer and saved them as video files (.m4v). Some students were unable to open these files with Windows Media Player.

Developmental Issues: Five individuals noted that the development of multimedia files – particularly video files – is time consuming. They reported the process requires time commitment. According to them, it takes time to: learn the process; produce the files; keep up with updates to current software updates and new tools; and modify or produce new files when course material or content change. Two instructors wrote about a steep learning curve and seeking assistance from others. They either had difficulties following instructions on how to embed links to files or simply could not retain the information and had to consult an instructional designer every semester.

Six comments pertained directly to task-specific elements such as editing, integrating different elements, or uploading files. They wrote it was either a challenge to learn to edit files or did not know how to edit and had to start over once they had made a mistake. One person found the entire process of editing

challenging. Others felt the uploading of files was a challenge and thought the process took too long. One person had difficulties integrating different elements (e.g., music).

Single responses pertained to the fact that it “is difficult to record oneself in the absence of students; the lack of contact is making it extremely difficult.” One instructor had difficulties “getting motivated to produce the podcasts.” One participant indicated he had to force himself “to stick to 5-minute time limits” because he used a free, but limited-use software program; however, according to him it was a “good challenge” because he “found this actually helps me focus and separate key ideas.” Only one respondent had not experienced any challenges with the production of podcasts, but this individual had just begun integrating them and had not received “much feedback from students, so I might not know the challenges yet.”

Instructor Viewpoints and Recommendations

Twenty-two participants (88.0%) responded to an open-ended survey question that asked them to share their recommendations for educators who may consider the inclusion of podcasts in online courses. Two themes quickly emerged: (a) the instructors’ need for justification for the use of podcasts (general opinions, student feedback, student learning, connectedness, media attributes) and (b) their recommendations for the inclusion of podcasts.

Viewpoints.

Three comments communicated positive feelings about the instructors’ use of podcasts, e.g., they highly recommended their use, the files were “great assets” or simply “amazing.” Instructors who had received feedback from learners indicated that the feedback had been very positive, and that using the files was worth the effort due to student satisfaction. Only one person mentioned that not all students enjoyed using the files.

Four individuals commented on the impact podcasts had on student learning. They thought that it was “another form of learning” and that “it does benefit certain learning styles.” They felt that “the initial investment is worth the effort” and (. . .) “students learn more quickly.” Five instructors mentioned perceived feelings of connectedness. Individuals felt that podcasts “create a better connection with you as the instructor” or that it “is an absolutely phenomenal way to connect with your students.”

Six comments referred to the attributes of podcasts and their perceived benefits. The use of podcasts “personalizes your course.” Respondents felt the files are more complete and contextualized compared to other types of material, they can easily be used to demonstrate course material, and they can be reused. Other comments pertained to the files’ usefulness for busy learners who cannot participate in live chats, and that they “make a huge difference in your ability to teach and motivate students.”

Recommendations. Respondents shared several recommendations. Four of these recommendations were training or support specific. Here, instructors recommended taking advantage of available instructional design support services, arranging “work sessions” with a technology tutor in close range, and attending sessions during which instructors can share experiences.

Participants pointed out how time consuming the development of podcasts is but how, in their opinion, it was worth using them. Therefore, beginners should keep an open mind about the entire process. Before making the decision to adopt podcasts, instructors need to ensure that their computer equipment meets the minimum technical requirements necessary to develop the files. When individuals consider integrating podcasts, screencasts or vodcasts, they should begin “early and set aside dedicated time” for their development.

Instructors recommended setting aside time for revising and re-recording the files. Users should start small—start with audio podcasts before moving on to creating more time demanding file types such as video podcasts. “Lecture podcasts need to be as short and clear as possible,” and podcast use can save instructors who plan on reusing the files time. One person wrote, “informal podcasts are much better received by students [than formal files]. Mistakes and silly occurrences only increase their engagement.” Once the instructors have completed the integration process, they should ask students for feedback at mid-semester.

Discussion

Podcast Utilization

Podcasts, screencasts, and video podcasts were used for several different instructional purposes by online instructors. The findings imply that the types of instructional material offered through podcasts vary depending on instructional needs, learning objectives, and timing of instructional events. Therefore, it is not surprising that the number and frequency of podcasts included differed significantly among instructors.

It was disappointing that very few instructors used podcasts to engage students in collaborative activities and only one respondent required students to produce podcasts. Podcasts have the potential to increase student engagement and learning (Armstrong et al., 2009; Brown et al., 2009; Lee et al., 2008; Lee et al., 2009). However, the use of student-generated podcasts can introduce many challenges to both instructors and students due to required equipment and tools and the lack of technical skills.

The development of these files is very time consuming and the file size can be quite large (Carvalho et al., 2009; Parson et al., 2009); however, with the increase in availability of high speed bandwidth (Kay, 2012), it is not surprising that many instructors preferred the use of video podcasts over any other file type. One possible reason for this practice is that the attributes of vodcasts allow instructors to include multiple elements and to create multimedia presentations that can meet a variety of students' learning styles. When producing podcast files, the majority of instructors also preferred recording them in a conversational or informal style. Other researchers have found that using a conversational style helps students learn better and makes their learning experience more personal (Chanlin, 2009; Donnelly & Berge, 2006; Fernandez et al., 2009; Mayer, 2006, 2009; Mayer et al., 2004).

Surprisingly, many respondents required their students to utilize the podcasts. Several authors (Abdous, Facer, & Yen, 2012; Bolliger et al., 2010; Brown & Green, 2008; McGarr, 2009; O'Bannon et al., 2011) suggest podcasts should be used as supplemental material for several reasons. Some students may not have the skills, equipment or tools to use the podcasts. Some instructors in this study, however, provided links to the files in the CMS in addition to iTunesU or Web sites with RSS feeds. This finding is consistent with other studies (Jalali, Leddy, Gauthier, Sun, Hincke, & Carnegie, 2011; Santos & Ali, 2012). Otherwise, students may not be able to access and download the files because of software incompatibility issues.

Not surprisingly, most respondents recorded files that did not exceed 15 minutes. This practice is recommended by several authors for ease of use (Caladine, 2008; Edirisingha & Salmon, 2007; Lin et al., 2013; O'Bannon et al., 2011; Parson et al., 2009; Zanten et al., 2012). Shorter files are smaller in size and are more quickly downloaded compared to larger files. Additionally, shorter files of 15 minutes or less hold the learner's attention better than longer files (Bolliger et al., 2010; Carvalho et al., 2009; Kidd, 2012; Seo et al., 2010; Tam, 2012). However, when files are kept short, instructors may end up recording and managing a large number of files for their courses.

Participants mentioned that producing podcasts and acquiring production skills required more time than they anticipated. Many instructors or their students experienced some technical difficulties. Additionally, they found it difficult to keep the length of files relatively short while including all pertinent information for learners. These findings are consistent with the literature (Brown & Green, 2008; Jalali et al., 2011; Jarvis & Dickie, 2010; Liu, Liao, & Pratt, 2009; Seo et al., 2010; Sprague & Pixley, 2008; Tam, 2012).

Despite the fact that almost all respondents experienced challenges with the use of podcasts, many online instructors not only recommended their use but emphasized that it was well worth the effort even though it was a time consuming process. Some instructors may choose not to use podcasts because they may feel that their use involves an excessive process which could increase their workload (Carvalho et al., 2009; Fernandez et al., 2009; Lin et al., 2013).

Recommendations

Participants recommended that educators should consider the adoption of podcasts because the benefits clearly outweigh the drawbacks. Some benefits of podcasts pointed out by instructors included: they (a) build connection between students and instructors; (b) foster student motivation; (c) personalize the

learning environment; and (d) offer an alternative teaching and learning approach. These benefits have been acknowledged by other researchers (Bolliger et al., 2010; Brown et al., 2009; De Souza-Hart, 2011; Donnelly & Berge, 2006; Carvalho et al., 2009; Fernandez et al., 2009; Lazzari, 2009; Lee et al., 2009; Lonn & Teasley, 2009; Parson et al., 2009; Seo et al., 2010).

Instructors offered several valuable recommendations to individuals who consider integrating podcasts in their courses. In summary, they advised to:

- Explore available training opportunities, instructional design support, and technical user support for instructors and students when you consider the inclusion of podcasts. These recommendations are consistent with writings by Palloff and Pratt (2010) and Seo et al. (2010).
- Look into computer requirements, tools, and other equipment needs before committing to the use of podcasts.
- Create reusable learning objects in order to save time and reduce workload in the preparation of future courses. Researchers (Armstrong et al., 2009; Jarvis & Dickie, 2010; Reiser & Dempsey, 2007) suggest that educators may create a library of podcasts that can be reused or repurposed multiple times.
- Be aware of the time commitment required from start to finish as other researchers also point out the importance of this issue (Carvalho et al., 2009; Kennedy et al., 2011; O'Bannon et al., 2011, Lin et al., 2013).
- Create audio only files before creating other types of files that require more advanced technical skills and time.
- Solicit feedback about the value of podcasts from students before the semester end.

Conclusion

It was the aim of this study to explore how instructors use podcasts in fully online courses, investigate challenges they experienced with the use of podcasts, and provide readers with a set of practical recommendations in order to utilize podcasts in online courses successfully. Respondents utilized podcasts for different purposes and applied a variety of approaches in their development and distribution. Instructors pointed out several benefits to using podcasts in their teaching. However, the use of podcasts presented almost all instructors with new issues and challenges. Producing podcasts requires a new skill set for many instructors and can be very time consuming. All participants, regardless of the challenges they faced, highly recommended the use of podcasts to other educators.

The study has a few limitations. The study was conducted at only one university; therefore, the geographical area was limited. Second, the study included instructors who use podcasts in fully online courses at the university setting only. Third, the sample size was small because a limited number of educators use podcasts in online courses. Last, the researchers had no control over the quality of podcasts and how each instructor developed and distributed them.

In the future, other researchers may include multiple sites at different geographical locations in order to increase the sample size. Future research could focus on instructors' perception of the use of video podcasts, motivation of instructors for including podcasts, and student perceptions of the value of podcasts. Important issues that could be examined are the relationship between the quality of podcasts and their length, and how well podcast files of different length hold the attention of students. Additionally, follow-up interviews could be conducted with instructors about why they required students to use the podcast files or included them as supplements.

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Appendix

Instructional Use of Podcasts Survey (IUPS)

Please note: The word “Podcasts” used in this survey refers to any of the following three types of podcasts: audio podcast files, audio with slides or images, and video podcast files.

When answering questions, please consider only teaching methods you have used in the course you have identified in question 1.

Please answer the following questions.

1. Please specify the prefix and course number of your online course in which you have used podcasts this semester.
Prefix and Course number _____
2. Please estimate how many podcasts you supply in your course this semester.
Please specify _____ podcasts
3. What kinds of instructional materials (e.g., lectures, summary of key concepts, etc.) do you include in your podcasts in this course this semester? Please mark all that apply.
Please mark all that apply.

	Audio Podcasts	Audio with slides/ images	Video Podcasts
A welcome message			
Syllabus explanation			
Giving a tour of the class shell			
Lectures			
Introduction of unit or subject			
Introducing a topic			
Review of content			

Demonstration of how to complete a task

Providing key concepts

Assignment explanation

Assessment explanation

Instructional guidelines for class activities

Clarifying misconceptions

Feedbacks

Interview

Guest speakers

If you provide other instructional materials using podcasts, please specify _____

4. When do you supply podcasts in your online course?
- Only at the beginning of the course
 - One podcast per unit or section
 - 2 - 4 podcasts per unit or section
 - More than 4 podcasts per unit or section
 - Other, please specify _____
5. How long is the average podcast you supply?
- 1 - 5 minutes
 - 6 - 15 minutes
 - More than 15 minutes
6. How do you distribute podcasts in your class? (Mark all that apply)
- Uploaded to iTunes U site
 - A website containing RSS feed
 - Other tools, please specify _____
7. Are podcasts you supply in this course required or supplemental?
- Required
 - Supplemental
 - Combination
8. What kinds of activities or assignments do you require using podcasts? (Mark all that apply)
- Collaboration in class project(s)
 - Individual podcasts production assignment(s)
 - Group podcasts production assignment(s)
 - Other tools, please specify _____
 - Not Applicable
9. What kind of instructions/ guidelines for using the podcasts do you provide your students? (Mark all that apply)
- Text-based instructions to access podcasts
 - Text-based instructions to create podcasts
 - Interactive tutorials to access podcasts
 - Interactive tutorials to produce podcasts
 - Other, please specify _____

10. What approaches do you use when you develop podcasts? (Mark all that apply)

- Record using my own voice
- Record a voice of a guest speaker
- Record live lectures
- Use a variety of tones as cues when recording my voice
- Present a verbal explanation in conversational or informal style
- Display my picture or an image of the speaker
- Present corresponding words and pictures/ moving pictures concurrently
- Other, please specify _____

11. What are challenges have you encountered when producing podcasts?

12. What recommendations do you have for other educators who are considering the integration of podcasts in their online course(s)?

Please provide information about you.

13. How many semesters have you integrated podcasts in your online courses?

___ Semesters



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