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Using podcasts to support distance education for adult learners

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Abstract

Podcasting is one of several emerging Web 2.0 technologies that are becoming important to the future of distance education for adult learners. This investigation examines the influence of podcasting in support of distance education programming for adult students. An overview of student perspectives, instructional support systems, and technological trends is presented to readers interested in using podcasts to support adult learners enrolled in distance education programs.

The literature review provides information that will help readers understand the complexities of integrating podcast technology into adult distance education programs. This review of the literature concludes that an understanding of student perspectives, podcast technology, institutional support systems, and technological trends is essential in determining the applicability for adult learners.

USING PODCASTS TO SUPPORT
DISTANCE EDUCATION FOR ADULT LEARNERS

A Graduate Review
Submitted to the
Division of Instructional Technology
Department of Curriculum and Instruction
In Partial Fulfillment
Of the Requirements for the Degree
Master of Arts
UNIVERSITY OF NORTHERN IOWA

by
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April, 2009

ABSTRACT

Podcasting is one of several emerging Web 2.0 technologies that are becoming important to the future of distance education for adult learners. This investigation examines the influence of podcasting in support of distance education programming for adult students. An overview of student perspectives, instructional support systems, and technological trends is presented to readers interested in using podcasts to support adult learners enrolled in distance education programs. The literature review provides information that will help readers understand the complexities of integrating podcast technology into adult distance education programs. This review of the literature concludes that an understanding of student perspectives, podcast technology, institutional support systems, and technological trends is essential in determining the applicability for adult learners.

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INTRODUCTION

Non-traditional adult students returning to school are finding that classroom dynamics have changed as a result of an increasing use of emerging Web 2.0 technologies such as podcasting, vodcasting, and coursecasting. Many of these students feel alienated by the technology and are finding themselves unable to keep pace. The focus of this inquiry is to document the existing literature on podcast technologies that can be used in support of distance education programming for adult learners.

This review involved an analysis of current literature obtained from reliable and credible sources. Evidence was collected as a means to identify common issues of concern to adult students, instructors, and educational administrators. The literature review revealed several findings that might have an influence on how educational podcast materials are conveyed to adult students. However, questions remain on how non-traditional students can effectively use podcast technologies in pursuit of their educational aspirations and goals. An analysis of this issue will examine student perspectives, detail podcast capabilities, identify institutional support systems, and review technological trends that might influence how instructional podcasts can be integrated into adult distance education settings.

This review will examine the efficacy of using instructional podcasts in distance education settings and to determine if they can assist non-traditional students to achieve personal learning objectives. The following questions will provide a framework for this review:

- What factors influence the implementation of podcasts in distance education settings?
- How can podcast technology be used to support distance education for adult students?

This review began by conducting an extensive review of the literature relating to adult learning perspectives, podcast capabilities, institutional support systems, and current technological trends.

METHODOLOGY

The reviewer encountered several obstacles while conducting a data search for this topic. An initial search using the World Wide Web produced results that were not current, credible, or reliable for use in this inquiry. The lack of current and relevant data from credible sources created a problem that had to be addressed before the search process continued. These difficulties resulted in a search that involved the using several preliminary databases including Panther Prowler, EbscoHost, Eric Silver Platter, Wilson Web, InfoTrac, and Google Scholar. These databases enabled the researcher to conduct a comprehensive investigation of the proposed topic.

The reviewer preferred using EbscoHost and Google Scholar to identify source materials for this inquiry. These databases were selected for their ease of use, keyword variability, and advanced search features. These features enabled access to a variety of electronic books and full text journal articles that were relevant to the topic. Keywords and descriptive terms used for the data search included: podcasting, vodcasting, coursecasting, computer mediated communication, and adult education.

This search produced an array of books, journal articles, and periodicals dating from between 1998 to 2008 that were relevant to the research topic. An evaluation of the collected literature helped determine its currency, validity, and relevance to the proposed study. The reviewer evaluated each secondary source to verify its currency, credibility, and applicability to the topic. Authors were judged in terms of the quality and frequency of work they produced for peer reviewed books, journals, and periodicals. Materials that failed to meet scholarly standards were not used in this inquiry.

There are many terms used to describe the different elements of podcast technology. The following descriptions are included to facilitate an understanding of the terms.

Aggregator Software- is a program used to collect and read RSS feeds. An aggregator may also be known as a newsreader, news aggregator or RSS aggregator. Some readers exist as stand-alone programs and others operate as extensions of Web browsers or e-mail programs. (whatis.com, n.d., p.1)

AIFF (Audio Interchange File Format)- is one of the most-used audio file formats used in the Apple Macintosh operating system. (whatis.com, n.d., p.1)

Computer Mediated Communication- identifies all types of functions where computers are used to facilitate and support human communications activity. (Herring & Smaldino, 2005, p.77)

Coursecasting- allows students and the general public to download audio and video recordings of class lectures to their computers, iPods and other MP3 players. (UC-Berkley News, p.1).

MP3 (MPEG-1 Audio Layer-3)- is a standard technology and format for compressing a sound sequence into a very small file while preserving the original level of sound quality when it is played. (whatis.com, n.d., p.1)

Podcast- is an audio file published on the Internet with an RSS feed, allowing users to subscribe to automatic downloads of a series of such programs. Podcasts are a collection of files that are included in an RSS news feed as enclosures. (whatis.com, n.d., p.1)

RSS (Really Simple Syndication)- is a method of describing news or other Web content that is available for feeding (distribution or syndication) from an online publisher to Web users. (whatis.com, n.d., p.1)

RSS feed - is an XML file that provides content or summaries of content that a user can subscribe to using an RSS aggregator. (whatis.com, n.d., p.1)

Vodcast- is similar to podcasting, except that video files are published instead of MP3s into RSS feeds. (whatis.com, n.d., p.1)

Web 2.0- is the popular term for advanced Internet technology and applications including podcasts, vodcasts, blogs, wikis, RSS and social bookmarking.
(whatis.com, n.d., p.1)

XML (Extensible Markup Language)- is a flexible way to create common information formats and share both the format and the data on the World Wide Web, intranets and elsewhere. (whatis.com, n.d., p.1)

ANALYSIS AND DISCUSSION

The reviewer identified several common threads linking adult student demographics and learning perspectives to podcast instruction. Disparate factors such as age, gender, race, ethnicity, educational background, and employment status were examined to determine their influence on the use of podcast instruction in distance education settings.

Adult Student Demographics and Learning Perspectives

A comprehensive analysis of adult student demographics and learning perspectives is essential in understanding instructional podcast applications for distance education. Issues associated with adult student demographics and learning perspectives were of paramount concern to many researchers cited in this paper. Eastmond (1998); McLoughlin, Lee, and Chan (2007); Moore and Kearsley (2005); and Smaldino and Herring (2005) indicated that demographic characteristics play a significant role in defining instructional pathways for adult students enrolled in distance education programs. Merriam (1991) asserts, “variables such as education, experience, social background, cultural background, personality, physical conditions, roles, and relationships all contribute” (p. 192), to an individual’s learning ability. Expanding on these observations, Eastmond (1998) identifies adult learners as non-traditional students because they are “over twenty-five, part-time, working, and residing off campus” (p.33). This view is supported by data compiled in 2004-2005 by the National Center for Educational Statistics (NCES) that reports:

- 85.9% of all students enrolled in distance education courses were adults aged 25 years or older.
 - 55.6% of these students were female and 44.4% were male.
 - 71.2% of the students were Caucasian, 11.8% black, 10.4% Hispanic, 3.3% Asian, and 3.4% other ethnicities.
 - 35% of all students were employed in full time jobs, 29% were employed in part time jobs, and 36% were either unemployed or not in the labor force.
- (p.1)

The National Center for Educational Statistics (NCES) also examined student participation in terms of socioeconomic status, family status, and academic achievement.

The NCES data is congruent with Sikora (2002) who identified demographic characteristics such as age, gender, race, ethnic culture, marital status, education level, and employment as being significant factors in determining student participation in online distance education programs. Expanding on these observations O'Lawrence (2006) notes how, "most adult learners, at both the undergraduate and graduate levels, must balance work and family demands with part-time degree completion" (p.48).

Conrad and Donaldson acknowledge the importance of these issues by noting that, "adult learners bring a diverse set of experiences and perspectives with them to the learning environment" (2004, p. 19). Summarizing these findings Restauri (2004) felt it was necessary for distance education administrators and instructors to, "carefully review the demographics and needs of students" (p. 2) before deploying online course materials using computer-mediated communication technologies.

In an attempt to bridge the dichotomous relationship between student demographics and learner perspectives; Knowles, Holton, and Swanson (2005) presented a theory of adult education (Andragogy) that emphasizes knowledge acquisition from individualized learning experiences. This theoretical model identified six principles that characterized the transactional learning process. The Andragogy Model concludes that:

- Adults need to know why they need to learn something before learning it.
- The self-concept of adults is heavily dependent upon a move toward self-direction.
- A student's prior experience provides a rich resource for learning.
- Adults are ready to learn when they experience a need to cope with a life situation or perform a task.
- An adults orientation to learning is self-centered.
- The motivation for adult learners is internal rather than external

(Knowles, Holton, & Swanson, 2005). It is important to note that the Andragogy model is very broad-based and descriptive of most adults involved in the learning process.

Advantages of Podcasting

One of the valuable tools of Web 2.0 is podcasting. A Nielsen NetRatings study cited by Carlson (2006) suggests that approximately 6.6 percent of the U.S. adult online population, or 9.2 million Web users, recently downloaded an audio podcast. Carlson reports that video podcasts are slightly less popular, with 4 percent, or 5.6 million Web users, downloading one within the past year. These figures are consistent with data reported by the Pew/ Internet and American Life Project. According to data compiled in 2006, approximately "12% of internet users say they have downloaded a podcast so they

can listen to it or view it at a later time” (Pew/Internet and American Life Project, 2006, p. 1). The Pew/ Internet report also indicates statistics specific to gender and age groups. The report suggests that, “men are more likely to report podcast downloading: 15% of online men say they have downloaded a podcast, compared with just 8% of online women”

(p. 1). From all indications the age of these individuals seemed to have little impact on whether or not they downloaded podcast materials. According to Pew/Internet survey results approximately 14% of the people in the 18 to 29 age group reported that they downloaded podcasts; 12% of the people in the 30 to 49 age group reported that they downloaded podcasts; and 12% of the people in the 50 to 64 age group reported that they downloaded podcasts. It should be noted that the Pew/Internet report did not disclose if the downloaded podcast materials contained audio or video-based content material. However, the report did illustrate an increased demand for the use of podcasts and vodcasts in educational settings.

According to Zhang, Zhao, Zhou, and Nunamaker, “the knowledge-based economy has exhibited a pervasive and ever-increasing demand for innovative ways of delivering education” (2004, p. 75). As a result online distance education initiatives are undergoing a transformational change away from traditional delivery systems to those that utilize computer-mediated communication tools. Conrad and Donaldson suggest that, “the challenge both educators and learners face is how to facilitate the transition between the mindset that was reinforced in the traditional lecture-based learning environment and the one required to be an engaged online community member” (2004, p. 13). Prensky notes how in the past decade we have witnessed “scores of new technologies that have

strong potential uses in education” (2007, p. 40). Prensky suggests that an “explosion of technological change has enormous implications [for education], and is already raising several issues” (2007, p. 40). Porter (2006) confirms that the technological metamorphosis has resulted in a proliferation of computer-based social networking tools involving blogs, wikis, podcasting, vodcasting, and coursecasting. According to Porter, “the current instructional technology context may provide the stimulus for a renaissance in practice for distance educators...that bring communities of learners together in new, positive, and cost effective ways” (2006, p. 9). Restauri confirms this assertion in reporting how students have benefited by the, “changes in technology that have allowed easier, faster, and less costly access to the Internet” (2004, p. 42).

It should be noted that many of the Web 2.0 tools are currently being implemented into academic settings serve as a means to help both traditional and non-traditional students achieve curriculum-based online learning objectives. In support of this position, Pallof and Pratt state reasons why “new approaches and skills need to be incorporated to create empowered learners who actively contribute to the learning process” (1999, p. 2). As a means to foster this effort Kearsley suggests that online instructors must assume new roles wherein they engage their students in meaningful activities, “to ensure a high degree of interactivity and interaction” (2000, p.78). In an effort to achieve these objectives Conrad and Donaldson note that “activities to help learners use the online tools and to promote the social development of the online community will need to be designed” (2004, p. 18).

In a white paper written for Apple Computer Corporation, McQuillan explains how, “schools have seen dramatic technological changes that hold the promise of more

effective teaching methods and strategies” (2006, p. 1). Lee and Chan report, “the use of audio is experiencing a renaissance fueled by the ubiquity of portable audio players, broadband internet, and software tools that allow the relatively easy creation and distribution of audio files” (2007, p. 88). This observation is supported by Carson who indicate that, “audio podcasting can enhance both face-to-face and virtual classroom learning by engaging students in the material and adding yet another modality of learning” (2006, p. 91). Smaldino, Russell, Heinich, and Molenda (2005) describe numerous advantages of using audio-based materials for instructional purposes. For instance:

- Audio resources are inexpensive and readily available.
- Audio-based materials are easy to produce and use.
- Audio materials can be repeated and reproduced.
- Audio recordings have the ability to stimulate listeners and to provide a verbal message for non-readers.

These advantages make audio-based programming a feasible alternative to other, more cost prohibitive instructional mediums.

Administrative and instructional staff members at several major universities in the United States have taken notice of this trend and are beginning to realize the importance of developing podcast-based educational materials for their students. According to Sikora (2000), an increasing number of academic institutions are using web-based technologies such as podcasts, vodcasts, and coursecasts as a means to deliver instructional materials to their adult distance education students. Articles written by Flanagan and Calandra (2005); Read (2005); and Skiba (2006) detail how podcasts, vodcasts, and coursecasts

can be used to support many academic disciplines in higher education. Several of these institutions are using podcast transmissions to deliver coursework in music, literature, foreign language, medicine, and the social sciences. Flanagan and Calandra (2005); Read (2005); and Skiba (2006) report that many colleges and universities in the United States are now distributing free Apple iPods to their incoming freshman students as a means to promote this type of instruction.

An initiative launched by Apple Computer Corporation in May, 2007 offered free podcast hosting services to any academic institution willing to post lecture materials on the iTunes U website. Young indicated that Apple iTunes U was established for “any college or university to setup a customized portion of the iTunes store to distribute course content” (2006, p. 36). According to Young, “audio and video materials will be stored on servers run by Apple, but college administrators will have control over who can see the files”. Pasnik notes that, “iTunes U makes it easy to amass a library of resources that serves their [students] shifting informational needs”(2007, p. 10). Promotional materials released by Apple Computer Corporation (2007) suggest that many of the digital resources hosted on iTunes U are compatible with, and available through, several course management systems including Sakai, Moodle, Blackboard, and WebCT. The iTunes U initiative has provided educators with a unique opportunity to digitally reformat their instructional materials so that they can be posted, accessed, and downloaded to a variety of mobile devices such as iPods, portable MP3 players, cell phones, personal digital assistants (PDA), and wireless laptop computers. Kadel notes “the methods of distribution vary, but generally universities are setting up their own secure sites where students must log in to download lectures specific to their course schedules”

(2006, p. 48). Skiba (2006), and The Washington Post (2007), report that the Apple Computer Corporation has partnered with approximately twenty- eight academic institutions to deliver instructional programming to students via iTunes U. In recent years Apple Computer Corporation has formed partnerships with institutions such as the Massachusetts Institute of Technology (MIT), Duke University, Brown University, Stanford University, Penn State University, Vanderbilt University, Drexel University, Webster University, the University of Chicago, the University of Michigan, and the University of Wisconsin-Madison.

Zhang, Zhao, Zhao, and Nunamaker note how, “the advancement of computer and networking technologies are providing a diverse means to support learning in a more personalized, flexible, portable, and on-demand manner” (2004, p. 75). This assertion is supported by a posting on the Apple Computer Corporation website which discusses student expectations of, “ a campus environment that accommodates their digital lifestyle, adapts to their individual learning needs, and encourages collaboration” (2007, p. 1). The need for asynchronous access to informational resources has empowered university administrative officials to rethink the way they plan, sequence, and delivers instructional materials to adult learners enrolled in distance education courses. In a recent article, Pasnik suggests that, “content stored and delivered through iPod can provide limitless options in the timing, sequencing, and pacing” (2007, p. 8) of distance education instruction. Fortunately the portability and flexibility of audio/ video podcast technology has provided adult learners with an opportunity to take distance education classes at home, during work, while on vacation, or in settings where they can access the Internet.

Skiba notes how these tools provide “enhanced support for individualized learning preferences and needs” (2006, p. 55).

Institutional Support Systems

From all indications, academic institutions are cognizant of the fact that adult learners come to the virtual classroom with specific needs and expectations.

According to Oblinger, “learners bring unique learning styles, preconceptions, attitudes, and needs to the learning environment” (2005, p. 69). Conrad and Donaldson report that, “for many first time participants, their first few experiences in an online learning community can be overwhelming” (2004, p. 19). Confirming this position Moore and Kearsley note how, “most students have little experience learning at a distance” and are, “unfamiliar with it” (2005, p. 176). They suggest that, “this unfamiliarity is translated into resistance which must be overcome” (p. 176) in order to successfully complete their online courses.

Many academic institutions recognize that non-traditional students have limited experience using computer-based online tools and are self-described technophobes. In many instances these students have never participated in courses where emerging technologies such as podcasts, vodcasts, and coursecast delivery mediums are utilized. In order to ensure successful outcomes Conrad and Donaldson recognize these issues and assert that, “an online learner must quickly establish comfort with the technology, comfort with predominately text-based communications, and comfort with a higher level of self-direction than in a traditional classroom” (2004, p. 9-10). They feel that “one of the biggest challenges is making sure that all participants have the necessary skill with the communication tools that will be used during the course” (p. 37). This issue is

advanced by Restauri (2004), who reports how some institutions are requiring students to demonstrate competency by completing a technical skill level assessments before enrolling in an online course. In an effort to achieve this goal Conrad and Donaldson (2004) feel that instructors must first determine the skill levels of students, assess their previous experience with educational technology, and integrate skill building activities into the online curriculum. Eastmond explains many of these issues and discusses reasons why, “students must learn how to learn in these new instructional environments, and educators must learn how different aspects of technology influence different characteristics of adult learning” (1998, p. 34). Boulos, Maramba, and Wheeler suggest that, “in such situations students can feel pressured, unsupported, and socially isolated from tutors and peers” (2006, p. 3).

To combat these problems, academic institutions must develop organizational and technical support systems before considering the use of podcast technologies for instructional purposes. Providing non-traditional adult learners with administrative, operational, and technical assistance in the use of podcast technology is essential in assuring successful instructional outcomes in their distance education courses. Rinear states reasons why, “services to the distance learner would consist of a technical support system, online library services, online administrative support, and instructional support” (2003, p. 3). In support of this position Dempsey and Van Eck noted that, “the quality of the educational infrastructure and help desk are critical to the success of an online learning system” (2007, p. 296). Many university officials support these efforts, but feel that other steps are needed to successfully implement instructional technology into their curriculum. Kember, “outlines how distance institutions can facilitate integration [of

instructional technology] by providing stronger course design, teaching, counseling, orientation, and administrative support services” (1995, p. 39). To clarify the issue, Restauri (2004) makes several distinctions between the various types of institutional, instructional, and technical support systems that are required to help adult students achieve successful online learning outcomes. Restauri suggests that the success of these initiatives can be attributed to a team-based approach that emphasizes collaboration between distance education administrators, instructors, support staff members, and online students.

The importance of offering training to educators interested in using emerging technologies for distance education programming cannot be understated. Prensky suggests that, “teachers must learn what these technologies are and can do, and understand them, but without necessarily becoming proficient in their use” (2007, p. 42). In order to accomplish this task instructors need to be capable of managing online resources in addition to providing assistance for technically challenged adult students. According to Porter, “keeping pace with rapid technological change and the variety of instructional possibilities means that educators need to monitor multiple online information resources” (2006, p. 4). Course instructors must be resourceful in the design, development, utilization, management, and evaluation of instructional technologies used for online distribution. According to Restauri, “success as a distance education instructor, or as a traditional instructor using technology to augment a course, depends upon gaining the skills necessary to meet the students technological level and needs... faculty must have technical skills needed for the moderation of a distance education course”

(2004, p. 34). Many academic institutions have responded by providing faculty-training seminars that provide course management advice and technological instruction. As a result instructors are receiving more training and technical support in their administration of online coursework using podcast technologies. It is imperative that academic institutions constantly train their instructors to keep up with current technological trends. Issues regarding implementation and institutionalization must also be considered when implementing podcast delivery of course-related materials for distance education students.

Implementation and Institutionalization

It should be understood that the level of institutional support for emerging educational technologies such as podcasting and vodcasting could vary considerably from campus to campus. In an effort to determine the extent of its commitment university administrators, instructors, and support staff members must assess the viability of implementing podcast technology into the curriculum. An academic institution's administrative, technical, and operational commitment to podcasting may range from limited to full-service support. Several issues need to be considered in order for implementation of emerging instructional technologies to occur. Zhang, Zhao, Zhou, and Nunamaker offer several reasons why, "an educational institution must understand the e-learning phenomenon and make strategic decisions on how to adopt e-learning techniques in their unique environments" (2004, p. 75). Expanding on this view Segal describes how, "a complex web of social, economic, technical, organizational, and individual factors interact to determine which technologies are adopted" (1994, p. 105).

In an effort to understand how these factors interact in distance education settings, Surry and Ely report how “many innovative technologies and practices have failed to be fully utilized” (2007, p. 105). According to Restauri these problems occur because, “many institutions new to distance education attempt to implement a full-scale program without the creation or funding of additional resource personnel positions” (p. 33), and how the lack of a comprehensive support systems leaves instructors “to fend for themselves in the virtual world” (2004, p. 33). Restauri advises taking a “team development approach” whereby distance education administrators, “offer faculty a great deal more support for the development of their courses” (2004, p. 33). Expanding on this viewpoint Herring and Smaldino list reasons why, “faculty members must reconfigure their [distance education] courses to take into account the interface between user(s) and technology, and between the content and those participating in the course” (2005, p. 75). Flanagan and Calandra contend that, “the training required to teach teachers how to podcast requires an educational institution to have an available and dedicated staff to help facilitate” (2005, p. 22) the implementation process. Dempsey and Van Eck stressed, “that organizational policies address these infrastructure issues in a systematic fashion” (2007, p. 296).

In terms of the institutionalization of innovations many factors need to be addressed by distance education administrators before innovative technologies are assimilated into an academic setting. Rogers’ Innovation - Decision Process model identifies a five - step process involved in the adoption of innovative technologies:

- *Knowledge*- where an individual discovers an emerging technology and its application for use in a learning environment

- *Persuasion*- where an individual assesses an emerging technology and forms an opinion of it
- *Decision*- where an opinion is made to accept or reject the emerging technology
- *Implementation*- when the emerging technology is actually used in a learning environment
- *Confirmation*- where an evaluation of the emerging technology is made to ascertain its usefulness (Rogers, 2003).

The five-step adoption process is advanced by Surry and Ely who advise making a comprehensive assessment of innovative technologies to determine, “its relative advantage (when compared to the current status), compatibility with the values of the organization, its complexity (or simplicity), trialability before wholesale adoption, and observability by other professionals or the public” (2007, p. 108). Miles, Eckholm, and Vandenburghe (1987) confirm this process by suggesting that institutionalization occurs when an emerging technology is adopted for widespread use within an organization.

Despite its convenience, audio podcasting is an emerging technology that has not been extensively implemented for use in courses at the University of Northern Iowa. Herring and Smaldino (2005) note that privacy concerns, security issues, fair use/ copyright restrictions, intellectual property rights, and other legal considerations have shaped institutional policies regulating the use of emerging technologies such as podcasting. The Iowa Board of Regents in their policy manual address many of these issues.

For instance, Telecommunications Policy 6.21 (68L IAC 9.5 (262)) provides the following guidelines:

- each institution shall encourage its colleges and departments to consider appropriate uses of instructional applications of telecommunications and related technology as well as encourage its faculty, staff, and administration to consider telecommunications for the distribution and perception of educational communication. each institutions policies and procedure governing the planning and offering of courses shall apply to the utilization of delivery systems available through statewide and other telecommunication networks. Each institution, colleges, and departments shall retain all prescribed autonomy in the choice of subject matter content, faculty, credit, and student requirements. (Iowa Board of Regents, 2009, p. 1)

Although policies at the University of Northern Iowa do not specifically address issues associated with telecommunications, it does regulate educational materials posted on departmental websites including Blackboard/ WebCT. According to UNI Web Policy 9.58:

- each administrative unit is responsible for the content and accuracy of information posted on websites.
- all material on these sites is the copyright domain of the university, not the employee or unit that created it.
- the web shall be used as an additional, if not the primary means of communication.
- institutional offices are responsible for maintaining accurate and timely information on their site. (University of Northern Iowa Operations Manual, 2009, p. 1)

Obstacles to Podcasting

Several administrative, technical, and socialization issues that prevent podcasts as a primary delivery modality offset many of the advantages of using podcasts to support adult learners enrolled in distance education programs. The literature reviewed indicates that distance education administrators interested in delivering podcast instruction need to consider a multitude of factors before engaging in the implementation process. Of

paramount concern to Read (2005) were issues relating to intellectual property rights and ownership of podcast transmissions. To help clarify the matter, Seels and Richey (1994) describe many issues that can be resolved by institutional policies, which regulate the use of innovative technologies in educational environments. Seels and Richey further explain how, “state policy and regulations affect the use of technology in the curriculum” (1994, p. 45). Galusha expands on this by noting that, “the newest of the technological challenges lies in complying with governmental regulations “ (1997, p. 9). Although administrative rules vary from state to state, it should be understood that federal copyright laws often supercede many of these policies and regulations.

In an effort to explain how these issues affect the distribution of instructional materials, Herring and Smaldino (2005) provide an abridged description of policy provisions included in the United States Copyright Act. They describe numerous reasons why commercial entities, educational institutions, and other non-profit entities are entitled to use instructional materials that conform to provisions outlined in the United States Copyright Act. Robson explains how copyright laws are, “used to protect the interests of authors, publishers, and distributors who receive money for the sale of content” (2007, p. 303). Many researchers including Herring and Smaldino (2005); Flanagan and Calandra (2005); and Robson (2007) investigate this matter by raising several issues relating to intellectual property rights, copyright infringement, and fair use provisions. According to Herring and Smaldino, the United States Copyright Act represent a definitive set of laws that all citizens must adhere to and, “only the courts can decide whether a particular use of a copyrighted work falls within the fair use exemption” (2005, p. 88). Herring and Smaldino imply that interpretations of the Fair Use provision

of the United States Copyright Act can be very nebulous and subject to vigorous debate. Regardless of their interpretation, Fair Use provisions of the United States Copyright Act are very important in providing a legal framework for the governance of instructional media used in distance education applications.

Without question, many other administrative issues need to be addressed because of the fact that they represent significant challenges to the implementation of podcast technology for instructional purposes. In many instances academic institutions are slow to adopt innovative emerging technologies because they do not have the financial, administrative, or technical resources needed for implementation. Skiba (2006) details several reasons why podcast technology has not been widely adopted for use by the online academic community. One obstacle discussed by Skiba involves the complexity of integrating podcast technology between the existing computer hardware, software, and software infrastructure at an academic institution. This viewpoint is shared by Lais who notes that within an academic institution, “there can be compatibility issues between different types of hardware and software” (2007, p. 1). Dale acknowledges these concerns and suggests that the implementation process can be expedited by procuring, “both the necessary [hardware] equipment and the software to be able to produce and publish the podcasts” (2007, p. 55).

Several researchers report many other technical obstacles that prevent the implementation of podcast instruction for distance learners. One obstacle reported by Chan, Lee, and McLoughlin (2006) recognizes the fact that podcast productions can be expensive and time consuming to develop. Flanagan and Calandra reach similar conclusions by adding that, “podcasts can be technically challenging to produce”

(2005, p. 27). Expanding on this issue, Dale expresses his concern over whether instructional podcast material “is of sufficient [technical] quality so as not to impede the learning experience of listeners” (2007, p. 55). Unquestionably the technological infrastructure utilized in the dissemination of instructional material to distant learners must be functional, reliable, integrated, and user-friendly. Skiba (2006) raises other non-technical questions regarding the lack of scholarly content contained within many so-called instructional podcasts. Flanagan and Calandra (2005) qualify this issue by describing issues of pedagogical soundness that may or may not prevent the use of instructional podcasts in distance education settings. Fortunately many of the technical and non-technical issues can be resolved through the intervention of program administrators, instructional designers, and other support staff members.

In an attempt to characterize these problems, Restauri reports how “certain administrative issues outside the direct realm of the teaching and learning environment may have a considerable influence on the success of the online program” (2004, p. 37). Galusha notes that “an area of concern for distance students is the lack of [institutional] support services” (1997, p. 9). In support of this position, Eastmond states numerous reasons why distance education programs need to “provide a broad range of academic and administrative support if it is to establish and sustain successful adult learning” (1998, p. 40). Eastmond notes that institutional support services are important components of distance education programming because they, “help create a sense of integration for adult learners” (1998, p. 39). Expanding on this observation, Herring and Smaldino emphasize the need for online students to be able to access these services and “navigate through the learning experience without frustration and confusion”

(2005, p. 30). Similarly Zhang, Zhao, Zhou, and Nunamaker suggest that for online students, “inadequately equipped e-learning systems can result in frustration, confusion, and reduced interaction” (2004, p. 76).

In an attempt to understand the nature of these problems Galusha (1997); Lee and Chan (2007); and Rinear (2003) provide details why student frustration, confusion, and reduced interaction contribute to unfavorable learning outcomes in distance education settings. This issue is addressed by Lee and Chan (2007) who acknowledge that inadequate online support systems can leave inexperienced students disillusioned with their coursework, disengaged from the learning process, alienated from their colleagues, and isolated in the virtual learning environment. Galusha explains that, “distance learning takes away much of the social interactions that would be present in traditional learning environments” (1997, p. 10). Many of these views are shared by Lee and Chan (2007) who reason that the physical separation inherent in distance education programming contribute to student feelings of isolation from their peers. Keegan reports that, “the separation of students and teacher remove a vital link of communication” (1996, p. 86) which must be re-established before meaningful learning can take place in an online setting.

According to Conrad and Donaldson, “new media [such as podcasting] offer a wealth of opportunities for interaction, yet many times are employed in a non-interactive mode that tends to focus on creating an online lecture” (2004, p. 6). Conrad and Donaldson advocate the benefits of lecture as an effective method of knowledge transfer, but warn of its use as a primary strategy in an online learning environment. They qualify

this viewpoint by explaining how a lecture-based curriculum could turn an online course into, “a digital correspondence course with potential problems of learner isolation” (Conrad and Donaldson, 2004, p. 6). In response, McLoughlin, Lee, and Chan present reasons why “technologies that enhance connectivity and mobility [such as podcasting] can improve socio-emotional engagement in the learning process” (2007, p. 3). Lee and Chan express their belief that, “podcasting can form part of a practical solution to counteract the negative implications that result from distance students’ physical separation from their lecturer, peers, and the university” (2007, p. 98). In an effort to provide a prescriptive remedy, Lee and Chan describe several methods that can be used in online environments to mitigate potential problems caused by the detrimental effects of student isolation and alienation. O’Lawrence addresses the problem of student isolation and alienation by asserting that there are, “a wide variety of opinions concerning the appropriateness of distance learning, especially among non-traditional students” (2006, p. 47). O’Lawrence raises numerous questions about adult online instruction as a means to, “develop an understanding of the dynamics and influence of distance learning” (p. 48). O’Lawrence summarizes his position by suggesting that, “distance learning is not for everyone” (2006, p. 47).

CONCLUSIONS AND RECOMMENDATIONS

Can Podcasts be used to Support Distance Education for Adult Learners? This compilation of evidence provides documentation that podcast technology is an effective means to support distance education initiatives designed for non-traditional adult students. It is this author's belief that many educators have radically altered course delivery methods by utilizing a milieu of emerging technologies to support distance education programming for adult students. Prensky notes how in the past decade we have witnessed "scores of new technologies that have strong potential uses in education" (2007, p. 40). This evidence seems to suggest that emerging technologies such as podcasting, vodcasting, and coursecasting have become important tools in providing instructional assistance to all students involved in distance education programs.

In an attempt to meet the needs of online students many educators have used podcast technology as a means to enhance instruction and foster cognitive development. In addressing this issue Pallof and Pratt stated several reasons why "new approaches and skills need to be incorporated [in education] to create empowered learners who actively contribute to the learning process" (1999, p. 2). Strategies for accomplishing this task vary, but the fact of the matter is that many podcast-based delivery systems are attractive alternatives to existing educational technologies because they are inexpensive, reliable, mobile, asynchronous, interactive, and user-friendly.

Over the past five years distance education administrators have witnessed the rapid evolutionary development of computer-mediated communication systems that have changed the dynamics of online instruction. Many computer-mediated communication systems have fast connectivity speeds, are capable of being linked to IP networks with

greater bandwidth, carry more types of audio/visual data, and can be reconfigured for future network expansion. As a result of this technological metamorphosis many students equipped with cell phones, iPods, Blackberries, and wireless laptop computers are fully capable of receiving audio/video data transmission streams from a variety of Internet sources. The evolving nature of these electronic devices has enabled users to download podcasts containing audio, video, text, graphics, photos, and software programs from web-based file servers. The seemingly unlimited potential of emerging technologies has provided an opportunity for educators to deliver enhanced instruction to both novice and tech savvy students. The evidence indicates that computer mediated communication systems are an important factor in the facilitation of podcast instruction for online learners. Many of the computer-mediated communication tools have provided an opportunity for educators to convey course-related materials to students in an asynchronous virtual learning environment. Students have benefited from improvements in computer-mediated communications technology by gaining anywhere/anytime access to instructional materials and having the opportunity to time-shift their studies around other activities.

For a myriad of reasons podcast technology has proven to be an important tool for school administrators, course instructors, and adult students enrolled in distance education programs. Zhang, Zhao, Zhao, and Nunamaker noted how, “the advancement of computer and networking technologies are providing a diverse means to support learning in a more personalized, flexible, portable, and on-demand manner” (2004, p. 75). Podcast technologies have proven to be reliable and cost efficient alternatives to many of the traditional course delivery modalities used in distance education. As a result, many

higher education institutions have begun to realize the advantages of using podcast technologies to support distance education for adult learners. In May 2007, the Apple Computer Corporation collaborated with approximately twenty- eight academic institutions to deliver instructional programming to students via iTunes U. Apple Computer Corporation established this service for “any college or university to setup a customized portion of the iTunes store to distribute course content” (Young, 2006, p. 36). Several researchers cited in this report indicated that Apple Computer Corporation had formed partnerships with institutions such as the Massachusetts Institute of Technology (MIT), Duke University, Brown University, Stanford University, Penn State University, Vanderbilt University, Drexel University, Webster University, The University of Chicago, The University of Michigan, The University of Missouri, and The University of Wisconsin-Madison. This collaborative initiative has been leveraged by distance education administrators as a means of providing their students with a safe and secure online learning environment. Without question podcasting represents an exciting delivery modality with seemingly unlimited potential.

It is this reviewer’s opinion that podcast technologies are becoming more important in assisting adult learners to continue their educations. Adult students enrolled in distance education programs are quickly embracing the new course delivery technologies despite having limited experience using computer-based online tools. The portable and flexible nature of podcast technologies have provided adult learners with an opportunity to take courses at home, during work, on vacation, or in other settings where they have access to Internet connections. As a result, these user-friendly devices have enabled non-traditional adult students to compete with their younger peers in the virtual

classroom. Expanded institutional support for podcast technology has created an environment wherein adult students have greater access to administrative, instructional, and technical support services. However, several drawbacks in using podcast technology were identified that prevent widespread usage in academic settings. Factors such as cost, minimal support systems, technological failure, and student discipline were considered to be significant in determining whether or not to use the supplemental podcasts as an instructional tool for adult learners. Herring and Smaldino emphasized the need for online students to be able to access these services and “navigate through the learning experience without frustration and confusion” (2005, p. 30). This issue was addressed by Lee and Chan (2007) who acknowledge that inadequate online support systems can leave inexperienced students disillusioned with their coursework, disengaged from the learning process, alienated from their colleagues, and isolated in the virtual learning environment. Despite these challenges the future appears bright for podcast-based course delivery systems.

Can Podcasts be used to Support Educational Programming for Adult Students?

Based on the literature reviewed, this author was able to detect a common thread that encouraged the instructional use of podcasts in distance education settings. Several methods for implementing podcast instruction were discussed by researchers such as Flanagan and Calandra; Zhang, Zhao, Zhou, and Nunamaker; Porter; Read; and Skiba, Several of these researchers offered many disparate explanations why podcasts, vodcasts, and coursecasts are an effective medium in distance education programming. However, in this reviewer’s opinion, it is too early to tell if podcast delivery systems have been effective in disseminating course materials to adult learners. An absence of quantitative

and qualitative data has left many people scratching their heads about the use of podcast technology in adult education. There is no doubt that podcasting, vodcasting, coursecasting, and other emerging Web 2.0 technologies represent a new era in delivering course-related materials for adult learners. Surprisingly, many educators question whether innovative emerging technologies like podcasting can be an effective means to achieve curriculum objectives and foster students' intellectual development. Conrad and Donaldson acknowledge the important role of instructional technology, but feel that "activities to help learners use the online tools and to promote the social development of the online community will need to be designed" (2004, p. 18). This literature review seemed to suggest that a coordinated *team-based approach* involving an organized development of curriculum-based instructional materials, problem-based learning activities, and collaborative exercises are needed to help students scaffold their knowledge base. From all indications future research in this area would be important to help educators develop student-centric instructional materials. This type of research would be beneficial to educators who are interested in advancing their understanding of instructional podcasting.

Without question more research will have to be conducted before podcast-based instruction is fully implemented to support distance education for adult learners. An extensive knowledge base must be developed in an effort to understand the fundamentals of instructional podcasting. This undertaking will require researchers to carefully examine learner characteristics, assess students' pre-existing skills, analyze the learning context(s), formulate age-appropriate learning objectives, design instructional lesson materials, and conduct a series of formative evaluations. Although podcasting for

educational purposes is a time-consuming and labor-intensive endeavor the benefits outweigh the risks.

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