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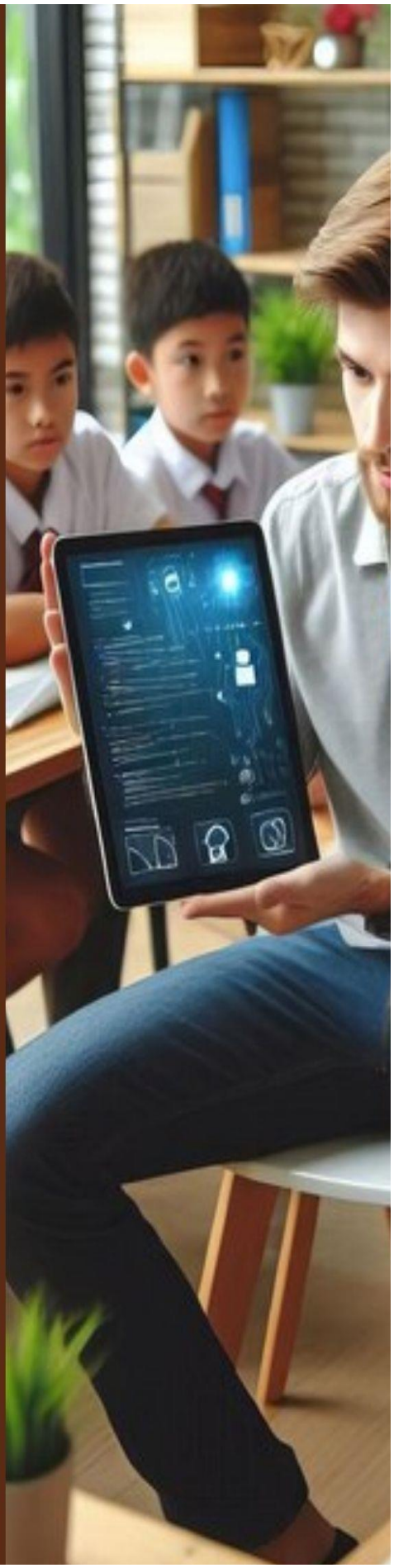

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Podcasting in higher education: What are the implications for teaching and learning?

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abstract

Any digital media file, or collection of files, that is shared online and made available for listening on computers and portable media devices is called a podcast. The purpose of this research was to examine how professors and students at a big Midwestern American university felt about podcasting and how often they listened to podcasts. Two online surveys were reviewed, with an emphasis on questions about education. Students mostly utilise audio resources to review previously covered information in their classes, according to the findings. Both teachers and students think that podcasts are a great tool for education, but students are less certain that they help teachers become better teachers. Podcasts, according to the authors, may assist teachers in shifting from more conventional, lecture-based methods of classroom education to more collaborative, student-centered, and project-based approaches.

1. Introduction

Students with pristine white earbud headphones are a common sight on the campus of any large institution or college in the modern day. According to recent research, over 80% of American college students have access to some kind of portable audio player, such as an iPod, that allows them to download and play music and sometimes even videos (Lum, 2006). Concerns over the potential effects of podcasting on education are growing as more and more universities use them in course curricula. Will students eventually quit attending in-person lecture sessions if they can just download them, and teachers will be left with no choice except to record their ideas into a microphone, or may podcasting be a technical tool that expands the "space" where learning occurs? As podcasting evolves from a form of audio and video pleasure to a possible tool for education, these concerns take on critical importance. Podcasts and a learning management system (LMS) augment conventional in-person classroom education at a big institution, and this research sought to understand how professors and students there feel about and make use of podcasts. One online poll focused on podcasting in particular, while the other was more general in nature and included questions on information technology and learning management systems (LMS), with an emphasis on questions about education.

Podcastinginhighereducationcontexts

Podcasting is a way to share digital media files online so that anyone with computers or portable media devices like iPods may listen to them (Lazzari, 2009). You may download each item separately or use the subscription feed and aggregator to automatically obtain the latest resources. Therefore, teachers who podcast their classes provide their students access to audio and video resources that are regularly and automatically available for download. Audio and video podcasts have the potential to "give students the chance to learn whenever it suits them" and to encourage them to "actively participate in what we're teaching" (Fisher & Baird, 2006, pp. 8, 22). The majority of today's students use a variety of internet resources to co-create a social reality and set participation standards. Their ability to operate and manage a wide variety of gadgets and media at once, including mobile phones, the Internet, and television, is evidence of their digital fluency (Hsi, 2007). Podcasting and other forms of digital media are making their way into universities as a result of students' growing proficiency with portable media players and video-sharing websites like YouTube. After Duke University distributed free iPods to all of its first-year students in the 2004–2005 school year, the idea of using podcasts and iPods in higher education became famous throughout the country. Duke discovered that 75% of freshmen questioned utilised the devices in at least one class, and that the iPods enabled students to repeat crucial parts from lectures on their own time—despite sceptics who thought it was a gimmick (Read, 2005). A large number of additional universities, including Yale, MIT,

A password-protected service and iTunes U, a copy of Apple's iTunes Store, have been launched by Purdue, Stanford, and UC Berkeley to make audio and video courses accessible to students (Brown & Green, 2007). Whether or whether podcasts improve students' ability to learn has become an increasingly contentious topic in the research on the topic. Several studies have shown that, like other review resources, podcasting may improve students' learning (e.g., Copley, 2007). Research by Deal (2007) and Lazzari (2009) confirms that students' grades are unaffected by podcasting. Students could only get the most out of podcasts, according to research by McKinney, Dyck, and Luber (2009), if they followed the same habits they do in class, such as taking notes and listening many times. Podcasting, on the other hand, has been shown to be an efficient method of instruction in a number of studies. Students in the fields of dentistry (Brittain, Glowacki, Van Ittersum, & Johnson, 2006) and business (Evans, 2008) found that podcasts were more helpful than the textbook when it came to revising their notes. Because technology allows nursing education teachers "the option to take the learning to the learners when they have time to learn" (p. 57), podcasting is becoming more common, according to Stoten (2007). Podcasts allowed a history professor to devote more time to student participation and higher-level thinking in class, according to his own reflections on the subject (Vess, 2006). According to research by Lee and Chan (2007), podcasting may help alleviate anxiety caused by isolation and foster a feeling of belonging among learners when used for distant education in a range of subjects. Podcasting also allows teachers and students to feel more connected, which boosts motivation and accommodates individuals' individual learning styles (Fernandez, Simo, & Sallan, 2009). Discovering the types of podcasts, when they are delivered and accessed, and how and why they are utilised were the goals of this research, which examined podcasting use at a big institution. Furthermore, this research sought to determine whether podcasting was seen by both students and teachers as having a beneficial impact on education. This study compared the results of two online surveys to see whether there were any differences between podcasting users and those who use more generalised forms of technology in the classroom. The first survey asked instructors and students about their podcasting habits and how they felt about the technology's influence on education. The second survey was more general and asked about campus-wide IT and learning management systems, and it also included questions about how technology affected education.

2. Method

2.1. Setting

The participants in this study were instructors and students at themain campus of a large American Midwestern university. According tothe Carnegie Classification of Institutions of Higher Education (http://www.carnegiefoundation.org/classifications/),thisinstitutionisalarge, public, four-year research university with very high researchactivityandamajorityundergraduateenrollment.Theuniversityenrolls approximately 26000 undergraduate and 15000 graduate andprofessionalstudents.Approximately5700facultymembersareemployedbytheuniversity.

This study focused on the use of podcasting delivered via iTunes U,accessible at the university using the local LMS. Instructors who usediTunes U needed to make a request to the LMS support staff to have alink placed on their LMS course page. In order to produce the mediafor podcasts, instructors relied on a variety of software tools such asAppleQuickTime™andProfCast(http://www.profcast.com).Therewasnoformalinstitutionalsupportforinstructors'productionofpodcastmedia.

The LMS in use at this university is based on the Sakai community-sourcearchitecture(http://www.sakaiproject.org).ThisLMSiscomparabletootherpopularsystemssuchasBlackboard(http://www.blackboard.com)andMoodle(http://www.moodle.org).Approximately 85% of instructors and 99% of students use the LMSfor at least one course per school year (Lonn & Teasley, 2009). Thissystem has been in full production as the sole LMS for this campussince2004.

2.2. Datasources,participants,andprocedure

Thisstudyuseddatafromtwodatasources.Anonlinesurveyabout podcasting was administered to all instructors and studentswho used iTunes U in a single school year (fall and winter semesters).Participants were invited via email. The survey instrument consistedof 18 quantitative items and 3 qualitative short answer items thatasked participants about podcast media, reasons for podcasting, andgeneralopinionsaboutpodcastingtechnologyandtheiTunesUinterface. A total of 22 instructors (29% response rate) and 879 students(14%responserate)participatedinthesurvey.

SelecteddatafromageneralonlinesurveyaboutITandthecampusLMS (the general IT/LMS survey) conducted about two months beforethe podcasting survey were also used to compare the results of thepodcasting survey with a larger campus population. All instructionalfaculty and a random sample of 25% of university students (stratifiedby school/college) were invited to participate in this survey via email.This survey consisted of 27 items that asked participants their generalopinion about using IT for their courses and participants' perceptionsand opinions about the local LMS. Four of the general IT items wereusedinthisstudybasedontheirspecificrelationshiptoselecteditems in the podcasting survey. A total of 1481 instructors (20% responserate)and2281students(26%responserate)participatedinthegeneralIT/LMSsurvey.

3. Results

The analysis for this study began by using two general technologyquestionstohelpdescribepodcastingandiTunesUusers.Anexploration about what types of materials were used for podcastingand how often they were uploaded/downloaded followed. Then, theanalysis focused on how students listened/watched podcast materialsand investigated why students downloaded these resources. Finally,theanalysisexploredinstructorandstudentperceptionsofhowpodcastingimprovedteaching,learning,andachievement.

3.1. Respondentcharacteristics

To describe the users of podcasting and iTunes U, respondentswere asked two general technology questions replicated from thegeneralIT/LMSsurveyandthencomparedtheseresultstothegeneralsurvey responses. The first item asked respondents to rate theirexpertisewithcomputers(1= Novice,2= Intermediate,3=Advanced). Podcasting instructors rated their computer expertisesignificantly higher than students rated their own expertise with asmalleffectsize,($t(890)=3.103$,$p=.002$;Cohen's$d=.21$)(seeTable 1). On the general IT/LMS survey, instructors and studentrespondentswerenotsignificantlydifferentontheirself-reported

Table1
Instructorandstudentcomputerexpertise.

Podcasting survey			GeneralITandLMSsurvey		
Instructors (n=21)	Students (n=871)	Mean difference	Instructors (n=1479)	Students (n=2280)	Mean difference
2.52	2.18	.34*	2.27	2.24	.03

* p=.002.

Table2
Instructoruseofandstudentpreferenceforinformationtechnologyincourses.

Podcasting survey			General IT and LMS survey		
Instructors (*n*=22)	Students (*n*=867)	Mean difference	Instructors (*n*=1479)	Students (*n*=2280)	Mean difference
3.55	3.31	.24	2.92	3.32	.40*

* *p*=.001.

level of computer expertise. Instructors using podcasting rated themselveshigherforcomputerexpertisethantheinstructorswhore-sponded to the general IT/LMS survey,and podcasting instructorsratedthemselveshigherthantheirstudentsaswell.

The second item on the podcasting survey asked respondents torate their overall use (instructors) or preference for use (students) ofITintheircourses(1= none,2= limited,3= moderate,4=extensive, 5 = exclusive). Both instructors and students respondedthat most used/preferred an extensive level of IT in their courses (seeTable2).InthegeneralIT/LMSsurvey,therewasasignificantdifferencebetweeninstructorsandstudentswithamediumeffectsize: instructors reported using a moderate level of IT in their courseswhilestudents preferredan extensive level, (*t* (3755)=15.107,*p* b.001;Cohen's*d* =.49).Comparingthepodcastingsurveyresultswith the general survey showed that the podcasting instructors ratedtheir use of IT higher than the instructor respondents of the generalIT/LMSsurvey,althoughthepodcastingstudents'preferenceforIT usewasnearlyidenticaltothestudentsrespondingtothegeneralsurvey.

3.2. Podcastcontentsandwhentheywereuploaded/downloaded

Focusingon podcastinguse,thestudy examinedwhattypesofmaterialswereuploadedtoiTunesU(respondents couldselectmultiplematerialtypes),howofteninstructorsuploadedthosematerials,andhowoftenstudentsaccessedthem.Sixty-fourpercentofinstructorsrespondedthattheyuploadedaudio-onlylecturerecordings,themostpopulartypeofuploadedmaterial.Likewise,52% of students reported that they downloaded audio-only lecturerecordings.Videorecordingsoflectureandslideshowswithnarration(enhancedpodcasts)werealso popular types of materials (seeTable3).

WhenaskedhowoftentheyuploadedmaterialstoiTunesU,76%ofinstructors responded that they uploaded materials once a week ormorefrequently(seeTable4).Students,however,downloadedmaterials far less frequently with 67% of students responding thatthey downloaded materials only a few times a semester. Overall, therewas a significant difference in how instructors and students answeredthisquestion(X^2(4,*N*=892)=51.692,*p*b.001).

3.3. Howandwhystudentsusepodcasts

In order to better understand the context in which students wereengaging with podcast content, the podcasting survey asked studentshow they most often listened to/watched materials downloaded fromiTunesU.Overthree-quarters(76%)ofstudentsrespondedthatthey

Table3
Typesofpodcastmaterialsusedbyinstructorsandstudents.

	N	Audio-onlylecturerecordings (%)	Videolecturerecordings (%)	Slide showswithnarration (%)	Audiosummarieskeyl of ecture points(%)	Other (%)
Instructors (uploads)	22	64	27	23	0	27
Students (downloads)	879	52	44	33	3	6

Table4
Howoftenin structorsuploaded/studentsdownloadedmaterials.

	n	Fewtimesasemester(%)	Fewtimes a month(%)	Once a(% week)	Few timesaweek (%)	Daily (%)
Instructors	21	14	9	24	48	5
Students	871	67	16	8	8	1

mostoftenlistened/watchedcontentontheirlaptopcomputers,whereasonly9%respondedthattheyusedtheiriPodorotherportableaudiodevice.

The podcasting survey also asked instructors and students whattheybelievedwasthemostcommonreasonstudentsdownloadedpodcast materials (see Table 5). Nearly two-thirds of both instructorsand students responded that the most popular reason for students todownloadmaterialswastoreviewlecturematerialforaclasstheyhadalreadyattended.Therewerenosignificantdifferencesbetweeninstructorsandstudentsforthissurveyitem.

3.4. Doespodcastingimproveteaching,learning,andachievement?

Inordergaugerespondents'perceptionsofwhethertheuseofpodcasting and iTunes U improved teaching, learning, and course grades,instructors and students were asked to respond to three statements usinga5-pointLikertscalefrom1=Stronglydisagreeto5=Stronglyagree(seeTable6).Theseresultswerecomparedwiththosefromthegeneral IT/LMSsurveyitemsthataskedsimilarquestionsabouttheeffectsofglobal IT use. Podcasting instructors and students responded positively forall three statements and there were no significant differences betweentheseinstructorsandstudents.Instructorsagreedmorethanstudentsthatpodcastingimprovedinstruction,andstudentsagreedmorethaninstructorsthatpodcastingimprovedlearning.Theseteachingandlearningitemsfollowedasimilarpatternasitemsfromthegeneral IT/LMSsurvey(see Table7).Inthegeneralsurvey,instructorsagreedsignificantlymore than students thatIT improved instructors' teachingwithasmalleffectsize,(*t*(3673)=7.530,*p*b.001;Cohen's*d*=.25)and studentsagreedmorethaninstructorsthatITimprovedstudents'learning.The podcastingsurveyprovidedanopen-endedquestionforinstructorsandstudentstoexpresshowtheyfeltpodcastingandiTunesUcontributedtolearning.Aqualitativeanalysisoftheinstructorcomments(*n*=24)showedthatseveralinstructors(38%)recognized thatpodcastingprovidedamechanismforlecturestobeavailableforstudentstoreviewforexams.Forexample,oneinstructor responded:

> "(Podcasting)makeslecturematerialavailabletostudentstoclarifyquestionsandreinforceimportantmessages."

There was not, however, much evidence that instructors believedthat podcasting affected their own methods of instruction. Only oneinstructorstatedthattheirinstructionchangedasaresultofusingthistechnology:

> "(Podcasting) has made me focus more on articulate delivery ofmaterial,thecombinationofvisualandaudioinformationandinteractivity.Ithasalsohelpedmecutdownonrepetitioninlecturesandsocovermorematerial."

Table5
Mostcommon reason students downloadedpodcast materials.

	n	Reviewlecture materialafterattendingclass (%)	Substitutefor classattendance (%)	Interestinsupplementalmaterial(%)	Other (%)
Instructors	22	64	18	0	18
Students	853	63	22	7	8

Table6
Podcastingeffect on teaching, learning, and students'grades.

Item	Instructors		Students		Mean difference
	n	Mean	*n*	Mean	
Podcastingimprovedinstructors'teaching	22	3.82	823	3.45	.37
Podcastingimprovedstudents'learning	22	3.73	831	3.90	.17
Podcasting hada positiveeffectonstudents' grades	21	3.67	818	3.70	.03

For student responses (n = 675), many confirmed that podcastshelped them review lectures they attended (61%), catch up if theymissedalecture(19%),orreviewpointsthatwereconfusing(4%).For example, one student explained how they used lecture combined withpodcastmaterials:

> "When I have had a question about specific material presented inlecture, and have been afraid to ask the professor to clarify theinformation, I first listen to my iTunes recording to make see if Icanbetterunderstandthematerialmyself.... Iwouldsaythatpodcastinghascontributedtomylearningbygiving me thechancetore-clarifyandbetterunderstandpointsdiscussed."

4. Discussion

The analyses conducted in this study indicate that students usepodcast material largely for reviewing concepts and issues presentedin lecturesthat they have previously attended, replicating findingsfromseveralotherstudiesinvestigatingtheuseofpodcastinginhigher education (e.g.,Brittain etal., 2006; Evans, 2008; McKinneyet al., 2009). These findings are contrary to earlier studies that havereportedinstructors'concernsthatstudentswillstopattendinglecture*enmasse*whenrecordingsarereadilyavailableonline(Campbell, 2005; Fernandez, 2007). While instructors appear to bediligentaboutputtinguplecturematerialsweekly,studentsdownloadthese materials only a few times during the semester, typically justbeforequizzesandexams.

Studentsreportlisteningtopodcastingmaterialsfarmorefrequentlyontheirdesktoporlaptopcomputersthanonmobileaudio/videodevices.The"near-ubiquitoususeofiPods" doesnotappeartoincludestudents'useforformaleducation;studentsmaynotlisten/viewtoacademicpodcastsinthesamewaythattheyconsumeotheraudio/videomediausingportabletechnologies(Brown & Green, 2007). These data are consistent with findings in arecent study showing that students' tendency to listen to podcasts ontheircomputerandnottheirmobiledeviceisanartifactofpre-established habits in the way that students use and access web-basedinformation (Lee, Miller, & Newnham, 2009). Over time, the locationforstudents'consumptionofpodcasteducationalmaterialsmaychange as mobile digital devices become a more popular method foraccessingtheInternet.

Inthisstudy,instructorsandstudentsagreedthatpodcastshelp students learn, but students were less sure that podcasting improvedtheir instructors' teaching. One possible explanation for this finding isthat instructors are simply capturing their typical lecture content andnot modifying in-class instruction. Contrary to assertions from otherresearchersineducation(e.g.,Campbell,2005;Cebeci&Tekdal,2006), these data suggest that to date most instructors are not findingwaysforpodcastingtochangetheirteachingstyle.Onlyoneinstructorin this study indicated that their instruction has changed as a result ofusing podcasts in their courses (see quote above). By contrast, severalinstructors commented that students would soon expect this type of"service"juststastheyexpectcopiesofPowerPointslidestobeavailableonline.Ifstudentscurrentlyviewalecturepodcastasonlyanotherreferenceresource,willmoreinstructorsbemotivatedtochangetheirin-classpracticeandbegintouseface-to-facesessionsformoreinnovativeandinteractiveactivities?Roschelle(2003)statesthat:

> "Every new generation of learning technology brings with it a newdeepconceptualissuethatlearningtechnologistsmustuntangleinordertounlockthelearningvalueofrawtechnologicalpotential"(p.260-261).

As the quote above suggests, before any real value for learning canbedemonstratedwiththistechnology,theresearchoneducationaluse of podcasting needs to address the conceptual issue of whetherthis technology is simply a mechanism for student review or a valuablemethodforstudentstoconstructknowledge.

Aseducationalleadersgrapplewithissuesofwhatcontenttopodcast and how or if to have students create their own podcasts inhigher education, institutions must also address how to support the"average" instructoraspodcastingbecomesmoremainstreamandexpectedbystudents.Asthesurveyresultsdemonstrate,theinstructorswhocurrentlyusepodcastingseethemselvesasmoretechnically advanced and report a higher level of use of informationtechnologies than do their colleagues,although theeffect sizesforthese differences were relatively small (Cohen, 1988). While instruc-tional multimedia supplements like podcasts are intuitively attractiveand can be received with great enthusiasm by students, their use mustbeweighedagainstthecostofproduction(Ellis&Cohen,2001).Producing a podcast, particularly video media, remains an endeavorperhapsdifficultformostaveragehighereducationinstructors(Brown & Green, 2007). If widespread use of podcasting for studentlearning is to become a reality, practical concerns about productionmust be adequately addressed, such as providing a level of institutionalsupportconsistentwiththesupportforgeneralLMSuse.Furtherresearchshouldalsoinvestigatefundamentalissuesaboutcontentandauthorshipinordertospurmoreinnovativeusesofpodcastingtechnology.

5. Conclusion

Podcasting in higher education is still a relatively new enterprise,although its use is increasing across higher education. As the podcastingsurveyinthisstudyshows,thistechnologyisbeingusedprimarilybytechnologicallyadvancedfacultywhocapturetheirlectures via audio or video and post them on a near-weekly basis.Contrary to the instructors' commonly held expectation, students donotreportthattheyskipclassasaresultoftheavailablelecturerecordings. Instead, students treat these podcasts as review materialsastheyprepareforquizzesandexams.Afundamentalquestionremains,however,astowhetherpodcastingissimplyanothermechanism forthereview of course material, or if this technologycan help transform what happens in the classroom where instructorsand students meet face-to-face. If the instructors use class time simplyto bea "talking head," then apodcastisjustanothertoolthat in-structors can employ to help their students learn at their own pace,like reviewing PowerPoint slides. However, the authors of this studybelievethattoday'shighereducationcoursesarecomprisedofa*combination*ofmaterials,resources,andtheinteractionbetween

Table7
GeneralIT/LMSsurveyitemsaboutinformationtechnology'seffectonteachingandlearning.

Item	Instructors		Students		Meandifference
	n	Mean	*n*	Mean	
ITimprovesinstructors'teaching	1425	3.94	2250	3.71	.23*
ITimprovesstudents'learning	1415	3.96	2254	4.02	.06

* p=.001.

teachers and students, of which podcasts are one possible resource. Inorder for podcasting to become more than an archive of past lectures,instructors in higher education need to adopt this view and includelearning opportunities for students other than note taking during theclassroomsession.

While no technology can be a silver bullet to solve all instructionalissues, technology like podcasting *at least* offers no more threat tostandard teaching practices than coursepacks and *at best* offers newopportunitiestorestructureclassroomfacetime.Podcastingcanallow an instructor to capture fundamental topics for review while devotingface-to-facetimeformorediscussion,student-ledinstruction,andotherinnovativeactivities.Ifpodcastingistoactasacatalysttochange instruction in higher education, instructors must be willing toadjusttheirteachingstylesandnotmerelylecture,butcreateenvironments that provide a variety of learning opportunities. Futureresearch should focus on exemplars from specific disciplines in whichtheinstructorsusingpodcastshavebeenabletotransformthetraditionallectureformatintonewstudentlearningopportunities(e.g., McKinney et al., 2009). Future researchers will then be able tofindcommonalitiesacrossdisciplinesthatwillenablepodcastinginnovationstoscaleupthroughouthighereducation.

References

Brittain, S., Glowacki, P., Van Ittersum, J., & Johnson, L. (2006). Podcasting lectures.*EducauseQuarterly*,*29*(3),24-31Available:http://www.educause.edu/ir/library/pdf/eqm0634.pdf.

Brown,A.,&Green,T.D.(2007).Videopodcastinginperspective:Thehistory,technology,aesthetics,andinstructionalusesofanewmedium.*JournalofEducationalTechnologySystems*,*36*(1),3-17Available:http://baywood.metapress.com/link.asp?id=65863822629x6421.

Campbell, G. (2005). There's something in the air: Podcasting in education. *EducauseReview*,*40*(6),32-47Available:http://connect.educause.edu/library/abstract/TheresSomethingintheair/40587.

Cebeci, Z., &Tekdal, M. (2006). Using podcasts as audio learning objects.*InterdisciplinaryJournal of Knowledge and Learning Objects*, *2*, 47-57 Available: http://ijklo.org/Volume2/v2p047-057Cebeci.pdf.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*, 2nd ed. Hillsdale,NJ:LawrenceErlbaumAssociates.

Copley,J.(2007).Audioandvideopodcastsoflecturesforcampus-basedstudents:Production and evaluation of student use. *Innovations in Education and TeachingInternational*,*44*(4),387-399.doi:10.1080/14703290701602805.

Deal,A.(2007).Podcasting:AteachingwithtechnologywhitepaperCarnegieMellonUniversityAvailable:http://www.cmu.edu/teaching/resources/PublicationsArchives/StudiesWhitepapers/Podcasting_Jun07.pdf.

Ellis,T.,&Cohen,M.(2001).Integratingmultimediaintoadistancelearningenvironment:Is the game worth the candle? *British Journal of Educational Technology*, *32*(4),495-497.doi:10.1111/1467-8535.00218.

Evans, C., & Evans, C. (2008). The effectiveness of m-learning in the form of podcastrevisionlecturesinhighereducation.*Computers&Education*,*50*(2),491-498.

Fernandez, L.(2007).Iuploadaudio,thereforeIteach. *TheChronicle ofHigherEducation*, *53*(18),B.27.

Fernandez, V., Simo, P., & Sallan, J. M. (2009). Podcasting: A new technological tool tofacilitategoodpracticeinhighereducation.*Computers&Education.*.*53*(2),385-392.

Fisher, M., & Baird, D. E. (2006). Making mlearning work: Utilizing mobile technologyfor active exploration, collaboration, assessment, and reflection in higher educa-tion. *Journal of Educational Technology Systems*, *35*(1), 3-30 Available: http://baywood.metapress.com/link.asp?id=4t10rx04113n8858.

Hsi,S.(2007).Conceptualizinglearningfromtheeverydayactivitiesofdigitalkids.*InternationalJournalofScienceEducation*,*29*(12),1509-1529.doi:10.1080/09500690701494076.

Lazzari,M.(2009).Creativeuseofpodcastinginhighereducationanditseffectoncompetitiveagency.*Computers&Education*,*52*(1),27-34.doi:10.1016/j.compedu.2008.06.002.

Lee,M. J.W., & Chan, A. (2007). Reducing the effectsof isolation and promotinginclusivity for distance learners through podcasting. *Turkish Online Journal ofDistance Education*, *8*(1), 85-104 Available: http://tojde.anadolu.edu.tr/tojde25/pdf/article_7.pdf.

Lee, M. J. W., Miller, C., & Newnham, L. (2009). Podcasting syndication services anduniversitystudents:Whydon'ttheysubscribe?*TheInternetandHigherEducation*, *12*(1),53-59.doi:10.1016/j.iheduc.2008.10.001.

Lonn, S., & Teasley, S. D. (2009). Saving time or innovating practice: Investigatingperceptionsandusesoflearningmanagementsystems.*Computers&Education.*,*53*(3),686-694.

Lum, L. (2006). The power of podcasting. *Diverse Issues in Higher Education*, *23*(2),32-35.

McKinney,D.,Dyck,J.L.,&Luber,E.S.(2009).iTunesuniversityandtheclassroom:Canpodcasts replace professors? *Computers & Education*, *52*(3), 617-623. doi:10.1016/j.compedu.2008.11.004.

Read, B. (2005). Duke U assesses iPod experiment and finds it worked — In somecourses.*TheChronicleofHigherEducation*,*51*(43),A.28.

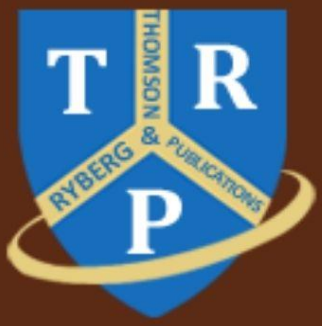
Roschelle, J. (2003). Keynote paper: Unlocking the learning value of wireless mobiledevices. *Journal of Computer Assisted Learning*, *19*(3), 260-272. doi:10.1046/j.0266-4909.2003.00028.x.

Schneider, R. (2006). The attack of the pod people. *The Chronicle of Higher Education*, *53*(16),B5.

Stoten, S. (2007). Teaching tips: Using podcasts for nursing education. *The Journal ofContinuing Education in Nursing*, *38*(2), 56-57 Available: http://www.jcenonline.com/showPdf.asp?rID=21216.

Vess, D. L. (2006). History to go: Why iTeach with iPods. *The History Teacher*, *39*(4),479-492Available:http://www.historycooperative.org/journals/ht/39.4/vess.html.

Zukowski,A.A.(2007).iPodsoffergatewaysfornewlearningexperiences.*Momentum*,*38*(1),102-103.



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