

Annotated bibliography of data collection methods used in evaluating students' experiences of podcasts.

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New and evolving technologies are being increasingly adopted by educators in higher education. Podcasting, although not a new technology, is widely used by academics as a complementary learning tool due to some of its inherent pedagogic advantages (Cebeci and Tekdal, 2006). Universities are investing significant resources and money to develop podcasts and embed them into their various courses (Walls et.al, 2009). Disciplines as diverse as nursing (Schlaret , 2009 ;Meade, Bowskill and Lymn, 2011), business and law (Tynan and Colbran,2007), English languages (Scutter et al.,2010) ,information management (Fernandez, Simo and Sallan,2008) and tourism (Dale, 2007),have reported successfully using podcasts to support teaching and learning.

The basic advantage of podcasting in education is its portability which makes it convenient to access audio learning resources anytime and anywhere without requiring extensive technical knowledge (Cebeci and Tekdal, 2006). This creative freedom allowed by podcasts have led educators to adopt podcasting as a means of providing students additional support for their learning (Abt and Barry, 2007).Educational uses of podcasts have been classified into four areas by Harris and and Park (2008) as teaching-driven, service-driven, marketing-driven and technology-driven. Donnelly and Berge (2006) have identified three academic uses of podcasts as disseminating course content, capturing live classroom material, and to enhance and support studying.

Numerous studies have examined the pedagogical effectiveness of podcasting in improving the student learning experience (Abdous, Betty and Yen,2011; Evans, 2008 ;Lee and Chan ,2007 and Morris,2010).Researchers have found that using podcasts had several benefits including flexibility and deeper learning but most importantly gave students greater control over their own learning (Meade, Bowskill and Lymn , 2011) and that podcasting altered study habits of learners, as confirmed by findings of increased engagement with primary materials and study guides (Tynan and Colbran,2007).In a study involving nurses, Schlaiter (2010) concludes that 'nurse educators can leverage students' positive attitudes and technologic skills with minimal investment of dollars and no impact on class attendance, building high-

quality podcasts that align with students' unique learning environments and goals'(pg 532).

Researchers evaluating students' experiences of using podcasts in learning use a variety of quantitative and qualitative methods to elicit student experience. This alphabetically arranged annotated bibliography is an attempt to represent elements of data collection methods in research papers on student experiences of using podcasts for their learning. The data collection method for each source is described followed by a brief summary of the findings for each of the source. The different methods reported include on-line questionnaires, structured and semi structured interviews, focus group interviews (online and face to face), analysis of examination results and tracking web server logs for podcast downloading details. Some of the studies cited are large scale studies with a sample size of over 1200 students (Tynan and Colbran) while others had a small sample size of about 7 learners (Meade, Bowskill, Lymn, 2011).The general trend seen in most studies reported in this work is that most researchers have conducted an initial survey which serve as the first instrument to gather general background information about the learners and the way they integrate technology into their learning, about the learner background, level of competence and experience with working with technology. In the second phase, the survey is focussed on learner experiences with podcast, perceived benefits, usage patterns, mode of access to podcast and purpose of access. Online surveys using questionnaires that collect quantitative data along with open ended questions requiring more in-depth answers seems to be the most widely method used of data collection. Some authors have reported developing questionnaires based on previously published work related to evaluation of technological tools in teaching and learning. For example Fernandez, Simo and Sallan (2009) has drawn on the work of Breen et al. (2001) who suggested an interesting proposal for evaluating technological tools in university learning environments, through a feature list of sixteen attributes of technology-based teaching whilst Schlairet (2009) used a 'Student Podcasting Survey' developed by Forbes and Hickey (2008). Few studies mentioned here used performances in assessments based on pre and post test as a quantitative study-but these were largely mock examinations or based on pre and post tests and not the main examinations (Morris, 2010; Abt and Barry, 2007).

This bibliography is not intended to be a comprehensive survey of methodological advances or impact of podcast on student experiences. Rather it is compiled to be an introductory guide for researchers and those engaged in evaluating the learners' experiences of using podcasts by providing them with a resource that helps them to choose the appropriate data collection methods to be used in studies which aim to collect learner experiences of using podcasts. Finally, the annotated bibliography is not intended to be an evaluation of materials listed or of particular approaches to data collection.

DATA COLLECTION METHODS USED IN EVALUATING STUDENTS' EXPERIENCES OF PODCASTS.

Author/s & year of publication	Subject/ discipline of research	Sample size	DATA COLLECTION METHODS						
			Information derived from questionnaire based survey	Focus group interviews	Interviews	Server 'hits' log	Exams	Others	
Abt, G and Barry, T (2007)	Exercise physiology	50					Pre and post test in the form of mcq's		
Clark, S, Westcott, M & Taylor L (2007)	Management and Organisations	59	√		√				
Fernandez, V, Simo, P, Sallan, J(2008)	Information management System	60	√		√			Emails, discussion forums	
Gorra, A and Finlay, J. (2009)	Business Analysis and Practice.	177	Online +paper based survey	√				Additional comments on Survey	
Lee, M, J.W. & Chan, A. (2007).	Distance education in IT	18	Online					Two open ended questions included in the survey	
Meade, O., Bowskill, D and Lynn, J. (2011)	Pharmacology for nurses	7			Semi-structured				
Morris, N (2010)	research-led module on cognitive neuroscience	100	Online				Mock examination	Written comments to accompany the questionnaire	
Nathan, P. & Chan, A. (2007).	Business Strategy	23	√					Comments from participants on questionnaire	
Schlairet, M (2009)	Nursing	70	Online			√			
Scutter, S Stupans, I and Sawyer, T and King, S (2010)	Medical radiation programme	80	Online					Quotations from learners extracted from online survey	
Tynan, B and Colbran, S (2007)	Law	1244	Online					Four questions on the questionnaire seeking longer responses on main advantages and disadvantages of podcasting.	

The annotated bibliography

Abt, G. and Barry ,T. (2007) The quantitative effect of students using podcasts in a first year undergraduate Exercise Physiology module, *Bioscience Education E-journal*, 10-8 available at <http://www.bioscience.heacademy.ac.uk/journal/vol10/beej-10-8.aspx>

This research explored the quantitative effects of podcasting on student performances in exams .Student groups in an exercise physiology module were provided with supplementary study material in the form of six podcasts; the control group was provided with transcription of the all the podcasts . 50 students formed the sample. The study used a pre-post random allocation research design: students were given a pre-test and a post-test to examine the effects of supplementary material provided as transcripts and as audio podcasts. Those students involved in the study were initially tested using a formative multiple-choice exam. After six weeks, all students then repeated the assessment using the same questions and exam format as used for the pre-test. The authors found that both groups showed an improvement in the assessment.

The findings of the study indicate that there was an improvement in student learning when supplementary material is delivered either in the form of a podcast or written transcript. The findings also suggest that the use of podcasts as additional learning resource may not have significant improvement in student achievement over the use of supplementary text material in an undergraduate setting. The authors have suggested that individual academics must weigh this up against the time and resource commitment required to develop and support the use of podcasts for students.

Clark ,S., Westcott M. &Taylor,L. (2007) 'Using short podcasts to reinforce lectures', 2007 *National UniServe Conference*, The University of Sydney.

The paper presents findings from a study on the impact of podcasting short summaries of lectures that recapitulated the main themes and arguments covered in the lecture for postgraduate students in 'Management and Organisations' during the first semester. Qualitative and quantitative methods including surveys and written comments and interviews were used to gather data from students on their opinion of the learning resources and the use of technology enhanced learning tools. All students completed a pre-study questionnaire about their use of mobile devices and podcasts, which consisted of Yes/No, multiple choice and Likert style questions. At the end of the study, students from the trial group completed a questionnaire that collected data on student's experience with the use of podcast and technology in learning. Interviews were also carried out that was designed to encourage open-ended answers from the students, welcoming more depth on the same issues as the survey.

The authors found that students obtained learning benefits from the use of podcasts. The authors report that that students liked the fact they could be supported to learn

in their own time, supporting the 'anywhere, anytime, at any pace' dictum that is so frequently associated with podcasting .

Fernandez, V., Simo, P., Sallan , J. (2008) Podcasting: A new technological tool to facilitate good practice in higher education. *Computers & Education*, 53 (2009) 385–392

The study consisted of the creation and broadcast of 13 podcasts, distributed over four months in which sixty distance students on an Information Management System course took part. The authors evaluated the feelings, the perceptions, the reactions, and the suggestions of students and other teachers in relation to podcasts through a permanent forum of discussion, emails, interviews and two questionnaires. The two questionnaires sent to students at the beginning and at the end of the course were the main tools used to evaluate the usefulness of podcasting in the learning process and were developed by the authors drawing on a feature list of sixteen attributes of technology-based teaching by Breen et al. (2001). Some of the features in the questionnaires were efficiency, specificity, access, currency, serendipity, information quality, information overload etc.

The authors suggest some interesting issues about distance courses: podcasting is a powerful tool as complement to traditional course resources, the features of podcasting increase the feeling of permanent contact between students and teachers, increasing students' motivation.

Gorra, A. and Finlay, J. (2009) Podcasting to Support Students Using a Business Simulation. *Electronic Journal of e-Learning*, 7 (3) December, pp.203-211

In this large study, the authors have presented preliminary findings of their research into the use of audio podcasts with visual media to support teaching and learning on business courses. Four members of the faculty conducted a role play in which they followed a semi-structured script to discuss some of key elements of the business simulation software; these were rolled out as podcasts. The surveys and interviews with different student cohorts were conducted. An eight question survey was distributed to the large student Business Analysis and Practice cohort of the second year via the virtual learning environment in the initial stages of the study and the same survey was handed out in paper-based format to 16 students studying at postgraduate level. A second paper-based survey eliciting student views on podcasts was handed out to 476 level 2 students in the last week of the academic year. 177 students responded. In addition, a focus group was conducted with 10 students who were non-native English speakers on an International Business course at level3.

Their study confirmed finding by others that podcasts provide enhanced motivation to study and are beneficial in terms of appealing to students with different learning preferences and providing. Contrary to what was always thought, the authors learned that learners are less interested in accessing podcasts 'on the move'. One other finding was that students consider that it may be helpful to integrate podcasts into face to face class activities, to allow more in-depth discussions within the group.

Lee, M.J.W. & Chan, A. (2007). Reducing the effects of isolation and promoting inclusivity for distance learners through podcasting. *Turkish Online Journal of Distance Education*, 8(1), 85- 104.

This article reports on the potential benefits of using podcast material in reducing the anxiety caused by isolation, and in promoting a sense of inclusivity amongst both undergraduate and postgraduate students in a distance education information technology course. Quantitative and qualitative data pertaining to views, experiences and perceived learning value of the podcasts from the student's perspective were solicited using a web-based survey. Email invitations were sent out to students to participate but participation was entirely voluntary. The survey was kept open to collect responses for 10 days. Out of 38 students enrolled on the course, 18 participated in the survey. Students were requested to respond regardless of whether they had downloaded or listened to any of the podcasts. The web based survey consisted of a mixture of close-ended (multiple choice and Likert rating scale) as well as open-ended items, and was administered using a web-based tool. The authors found that in addition to helping reduce isolation and improving inclusivity, podcasts also proved beneficial to in several ways that improved the learning in the distance learners. The authors believe that despite the presence of physical separation, students on distance learning programmes can be helped to socially and academically integrate into institutional life with the help of podcasting.

Meade, O., Bowskill, D and Lymn, J. (2011) Pharmacology podcasts: a qualitative study of non-medical prescribing students' use, perceptions and impact on learning. *BMC Medical Education*, 11:2. doi:10.1186/1472-6920-11-2

Meade et al carried out this small scale study to explore experiences of using pharmacological podcasts, of a group of seven nurses enrolled on a 6 month non medical prescribing course. A qualitative design was adopted, using semi-structured interviews. Low, medium and high users of the podcasts took part in the interviews in order to access a variety of student experiences. The topics in the interview focused on students' prior experience of using podcasts, their initial reactions to the introduction of pharmacology podcasts, reasons for use/non-use of podcasts, and perceived advantages and disadvantages of podcasting for their learning and barriers.

The authors found that using podcasts had several benefits including flexibility and deeper learning but most importantly gave students greater control over their own learning. The authors also state that the knowledge that lecture podcasts would be available to them allowed students to focus better on the lecture without being distracted by note taking and trying to understand simultaneously.

Morris, N. (2010) Podcasts and Mobile Assessment Enhance Student Learning Experience and Academic Performance, *Bioscience Education*, 16-1 available at <http://www.bioscience.heacademy.ac.uk/journal/vol16/beej-16-1.aspx>

This study highlights a method where podcasts of lectures, and formative assessment via SMS was employed to improve the learning experience and

educational outcome for a group of final year neuroscience students. Participating students were provided with extracts of lectures that contained important concepts of the lecture in the form of podcasts. Student's understanding of these concepts was assessed formatively by sending them narrated questions that had to be answered by mobile telephone. 100 students participated in the study. All participating students completed a pre-study questionnaire about their use of mobile devices and podcasts, which consisted of Yes/No, multiple choice and Likert style questions. The questionnaire was presented within the institution's virtual learning environment. A mock examination was administered to all students to collect quantitative data on the effectiveness of the podcasts.

It was found that students in the trial group who engaged with the podcasted formative assessments performed better. At the end of the study, students from the trial group completed a questionnaire that collected data on student's experience with the use of podcast and technology in learning. The results of this study provide quantitative statistically significant evidence that providing students with enhanced learning resources and opportunities to undertake mobile formative assessments improves their academic performance.

Nathan, P. & Chan, A. (2007). Engaging undergraduates with podcasting in a business subject. In *ICT: Providing choices for learners and learning*. Proceedings ascilite Singapore 2007 <http://www.ascilite.org.au/conferences/singapore07/procs/nathan.pdf> accessed 4th October, 2011

In this small scale study, the authors experimented with developing radio-style talkback podcasts in the form of discussions between the subject matter expert and a student on various issues in the subject of Business Strategy. These podcasts were designed to maximise interest and appeal among students rather than offer a mechanism to replace face-to face lectures and tutorials. Student views on educational value of the podcasts, the manner in which they listened to them, and the technology used were collated using a questionnaire with 16 questions incorporating a 7-point Likert scale that measured the extent to which the students agreed or disagreed. Finally, general comments on the exercise were also solicited from the students.

The authors have concluded that talkback style podcasts can become a complementary and an integral learning tool. Most students found podcasts a useful learning tool with a minority indicating that they did not have time for using podcasts and expressing concerns that universities were eventually going to replace face to face teaching with podcasts

Schlairet, M. (2009) Efficacy of podcasting: use in undergraduate and graduate programs in a college of nursing *J Nurs Educ* 49:529-33. 2010

In this study, the author evaluated the effect of podcasting lectures from selected courses in an undergraduate nursing fundamentals course, and second degree and graduate students on a nursing research programme in Georgia. Data collection consisted of two main sources: information derived from the online survey and data gathered through tracking downloads of podcasts on the web server. Prior to the study, students completed a Demographic Information Sheet and the Opinionnaire: Computerizing in Nursing (Q-CN) (Thomas, 2001). The Q-CN uses a 5-point Likert

scale to measure attitudes of nursing students toward the use of computers in nursing. At the end of the semester, students were required to complete the Q-CN once again to assess patterns of students' podcast use. Students also completed a Student Podcasting Survey developed by Forbes and Hickey (2008). In addition, university server logs were reviewed to gauge the frequency with which students' downloaded podcasts.

The findings suggest that majority of the students found podcasts beneficial but maximum usage was during examination periods, suggesting that this was a form of virtual student-faculty interaction during examination period. This also tied up with the finding from the study that no student expressed interest in using a podcast in lieu of attending class.

Scutter, S., Stupans, I., Sawyer, T. and King, S. (2010). How do students use podcasts to support learning? *Australasian Journal of Educational Technology*, 2010, 26(2) <http://www.ascilite.org.au/ajet/ajet26/scutter.pdf>

This study was undertaken to provide information to academic staff about how students use podcast lectures. The authors report on the various ways that students in a medical radiation programme used podcasts of lectures in their learning. The student evaluation component of the study used a questionnaire that requested details concerning if, and when, students listened to podcasts, whether it impacted upon their attendance at lectures, and whether they had any difficulties using the podcasts. Likert scales were used for the students and the questionnaire also allowed students to respond with text comments. The questionnaire was made available through the University's online survey tool, and was distributed to 160 students in the medical radiation Program. The data was entered into *Excel* for analysis and reporting. Free text comments were read and themes extracted.

The authors report that students found that podcasts were a good way of clarifying issues from lectures and used it as an examination revision tool. The authors also highlighted that although students indicated that they liked the flexibility of having lectures podcast, this flexibility is with respect to time rather than situation. This research also examined effects on attendance of lectures which were also available as podcasts and concluded that that some students were more likely to "skip" lectures where podcasts were provided if they knew they were going to be podcast, however their number was not large.

Tynan, B. and Colbran, S. (2007). Podcasting, student learning and expectations. In L. Markauskaite, P. Goodyear, & P. Reimann (Eds.) *Proceedings of the 23rd Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education: Who's Learning? Whose Technology?* (pp. 256–265). Sydney: Sydney University Press

In this large-scale study, the authors explore the main advantages and disadvantages of podcasting and the impact of podcasts on study habits of learners as revealed by Law and Business student users. The discussion has been carried out in the theoretical context of digital natives engaged in mobile learning. This is a qualitative study that was designed to use a mixed-methods approach for collecting and analysing data. In the first phase of the study, presented in this paper, data was

collected by an exploratory survey. Notices related to the survey were placed on the unit WebCT sites and the sample was self-selected by those students who responded to the notices. The survey consisted of 39 questions categorised as demographic information, podcast experience, study habits of learners, podcast delivery method and conclusions. In the last section, participants detailed longer responses about the main advantages and disadvantages of podcasting.

The authors report that vast majority of students perceived podcasting as having excellent value, particularly for lectures and to a lesser extent, in tutorials, with the ability to replay lectures being perceived a strong benefit. The authors also found that students were prepared to accept longer podcasts for improved quality.

References:

Abdous, M., Betty F. and Yen, C. (2011) Academic effectiveness of podcasting: A comparative study of integrated versus supplemental use of podcasting in second language classes, *Computers & Education* Volume 58 (1), 43-52

Abt, G. and Barry, T. (2007) The quantitative effect of students using podcasts in a first year undergraduate Exercise Physiology module, *Bioscience Education E-journal*, 10-8 available at <http://www.bioscience.heacademy.ac.uk/journal/vol10/beej-10.8.aspx>

Breen, R., Lindsay, R., Jenkins, A. & Smith, P. (2001). The role of information and communication technologies in a university learning environment. *Studies in Higher Education*, 26(1), 95–114.

Cebeci, Z. and Tekdal, M. (2006) Using Podcasts as Audio Learning Objects, *Interdisciplinary Journal of Knowledge and Learning Objects*, Vol 2, 7-57.

Clark, S., Westcott, M. & Taylor, L. (2007) 'Using short podcasts to reinforce lectures', 2007 *National UniServe Conference*, The University of Sydney.

Dale, C. (2007). Strategies for Using Podcasting to Support Student Learning *Journal of Hospitality, Leisure, Sport and Tourism Education*, 6(1), 49-57. Retrieved Oct 20, 2011, at <http://www.hlst.ltsn.ac.uk/johlste/vol6no1/practice/50155.html>

Donnelly, K., & Berge, Z. (2006). Podcasting: Co-opting MP3 Players for Education and Training Purposes *Online Journal of Distance Learning Administration*, 9(3).

Forbes, M.O., & Hickey, M.T. (2008). Podcasting: Implementation and evaluation in an undergraduate nursing program. *Nurse Educator*, 33, 224-227.

Gorra, A. and Finlay, J. (2009) Podcasting to Support Students Using a Business Simulation. *Electronic Journal of e-Learning*, 7 (3) December, (pp257 - 264), available online at www.ejel.org

Harris, H., & Park, S. (2008). Educational usages of podcasting. *British Journal of Educational Technology*, 39(3), 548–551. doi:10.1111/j.1467-8535.2007.00788.x

Lee, M.J.W. & Chan, A. (2007). Reducing the effects of isolation and promoting inclusivity for distance learners through podcasting. *Turkish Online Journal of Distance Education*, 8(1), 85- 104.

Meade, O., Bowskill, D and Lymn, L. (2011) Pharmacology podcasts: a qualitative study of non-medical prescribing students' use, perceptions and impact on learning. *BMC Medical Education*, 11:2. doi:10.1186/1472-6920-11-2

Morris, N (2010) Podcasts and Mobile Assessment Enhance Student Learning Experience and Academic Performance, *Bioscience Education*, 16-1 available at <http://www.bioscience.heacademy.ac.uk/journal/vol16/beej-16-1.aspx>

Nathan, P. & Chan, A. (2007). Engaging undergraduates with podcasting in a business subject. In ICT: Providing choices for learners and learning. Proceedings ascilite Singapore 2007 <http://www.ascilite.org.au/conferences/singapore07/procs/nathan.pdf> accessed 4th October, 2011

Schlairet, M. (2009) Efficacy of podcasting: use in undergraduate and graduate programs in a college of nursing *J Nurs Educ* 49:529-33. 2010

Scutter, S Stupans, I and Sawyer, T and King, S (2010). How do students use podcasts to support learning? *Australasian Journal of Educational Technology*, 2010, 26(2) <http://www.ascilite.org.au/ajet/ajet26/scutter.pdf>

Thomas, B.S. (2001). Opinionnaire: Computing in nursing. In C.F. Waltz & L.S. Jenkins (Eds.), *Measurement of nursing outcomes* (2nd ed.) as cited in Schlairet (2009).

Tynan, B and Colbran, S (2007). Podcasting, student learning and expectations In L. Markauskaite, P. Goodyear, & P. Reimann (Eds.) *Proceedings of the 23rd Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education: Who's Learning? Whose Technology?* (pp. 256–265). Sydney: Sydney University Press

Walls, S. M., Kucsera, J. V., Walker, J. D., Acee, T. W., McVaugh, N. K., & Robinson, D. H. (2010). Podcasting in education: are students as ready and eager as we think they are? *Computers & Education*, 54(2), 371–378

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