Beyond lecture capture: Student-generated podcasts in teacher education

Dianne Forbes

Faculty of Education

The University of Waikato

Abstract

Podcasting in higher education most often takes the form of lecture capture or "coursecasting" as instructors record and disseminate lectures (King & Gura, 2007, p. 181). Studies published within the past five years continue to prioritise podcasting of lectures for the student audience, and to test the effectiveness of such podcasts via traditional pencil and paper assessments covering the material delivered via podcast (Hodges, Stackpole-Hodges, & Cox, 2008). A premise of this article is that in order to enhance learning outcomes via podcasting, it is necessary to move beyond coursecasting, toward podcasting with and by students, and to value key competencies and dispositions as learning outcomes. This article reports on a pilot study undertaken with teacher education students in an online ICT class, where students investigated podcasting and created reflective podcasts. The pilot study aimed to engage students actively in generating podcasts, incorporating a wider view of assessment and learning outcomes. Student-generated podcasts were self-assessed, and shared online in order to invite formative feedback from peers. A range of positive outcomes are reported, whereby students learned about and through podcasting, engaging in reflection, problem solving and interactive formative assessment.

Keywords

Online, podcasting, teacher education, student voice, outcomes

Introduction

A podcast is a digital media file that plays sound, is accessed from a website, and can be opened and/or downloaded to play on a computer or portable player (Salmon, Mobbs, Edirisingha, & Dennett, 2008). While some commentators (e.g., Burt, 2008; Campbell, 2005) restrict the definition of podcasting to episodic and syndicated use, Edirisingha (2009) distinguishes between a technical definition of podcasting emphasising the means of delivery and access of digital media files; and educational adoption of podcasting where podcasting refers to how academics choose to offer digital audio content—even as downloadable files. While the use of audio recordings in education is not new,

and radio broadcasts have been used in New Zealand schools since 1927, podcasting offers new advances in convenience and flexibility due to the relative ease of recording, editing and uploading, as well as accessing and subscribing to podcasts. Tools are freely available (such as the open source software program Audacity, as used in this pilot), and despite the implication in the name, an iPod is not a necessary tool, as audio files can be accessed or subscribed to via any computer, rendering podcasting "one of the most accessible of the Web 2.0 technologies and one of the easiest to try out and adapt" (Harvey, 2008, p. xvii). Commentators consider podcasting promotes flexibility and learner control; learner motivation and engagement; cognition and learning; and novel opportunities for presenting and instructing (Salmon & Nie, 2008).

My interest in student-created podcasts stems from observing that teacher education students are often exposed to podcasts created by other speakers on the Web, and it is increasingly common for lecturers to transmit podcasts to students (Evans, 2008; Lonn & Teasley, 2009; Morisse & Ramm, 2007; Wagstaff, 2007). Lecturers use podcasts to transmit one-way introductory material to complement lectures, practical learning and field trips; to give audio feedback to students (France & Ribchester, 2008); and to complement online learning with news, overviews and explanations (Fothergill, 2008). However, it still seems relatively rare for students to generate their own podcasts in educational contexts at tertiary level (Beilke, Stuve, & Williams-Hawkins, 2008; Lazzari, 2009; Rothwell, 2008; Salmon & Nie, 2008). When tertiary students have generated their own podcasts, some early studies have reported the experience to be plagued by technical difficulties, requiring significant training and time for students to achieve a reasonable result (e.g., McLean & White, 2009). I am therefore interested in exploring opportunities for students to create podcasts simply and successfully, with appropriate technical support, using freely available software, in our local context. The intentions are that teacher education students would become creators of podcasts, rather than merely consumers, and thereby increase their confidence to encourage their own pupils to generate educational podcasts in future.

Educational podcasting: Trends and issues

A review of the literature on educational podcasting involved searching educational databases, selection and retrieval of approximately 50 articles published between 2006 and 2010, and key textbooks, notably King and Gura (2007) as well as Salmon and Edirisingha (2008). Recent international articles report on educational podcasting, particularly in the United Kingdom, United States, Germany, Italy, Australia and New Zealand. Podcasting in higher education emerged in the United States followed by the United Kingdom and Australia from about 2004, initially with lecturers podcasting lectures (i.e., coursecasting), and then with students producing limited podcasts. The uptake of podcasting in the school sector occurred simultaneously, with significant activity in the aforementioned countries, including New Zealand, characterised by more direct involvement of school-aged pupils from the outset (e.g., Burt, 2008).

There is ample evidence of podcasting with children at primary school level for literacy development—especially book reviews (Burt, 2008), poetry (Dlott, 2007), and oral language (Kervin & Vardy, 2007; Nicholls, 2008). Small numbers of very recent studies also mention podcast use with school-aged pupils in music (Kerstetter, 2009), art (Buffington, 2010), and in science (Sawle, 2007). In turn, the teachers of these pupils are using podcasts for professional development (King & Gura, 2007; Schmit, 2007). Meanwhile in tertiary education, there are reports of lecturing staff producing podcasts, in some cases with students, across a wide range of disciplines. Published studies report that podcasting is used across disciplines: IT and computer science; medicine—including genetics and nursing education; exercise physiology; environmental science; language learning (e.g., the Mobile Assisted Language Learning (MALL) of Abdous, Camarena, & Facer, 2009); literature; journalism; marketing; law; tourism; and teacher education (e.g., Chan, Lee, & McLoughlin, 2006; Northcote, Marshall, Dobozy, Swan, & Mildenhall, 2007; Olney, Herrington, & Verenikina, 2008).

Whatever the field, there is an overwhelming tendency for podcasting in higher education to begin with what is sometimes referred to as "coursecasting" as instructors record and disseminate lectures (King & Gura, 2007, p. 181). Indeed, in many institutions around the world, this persists as the most widely promoted use of podcasting in higher education (French, 2006). Beyond recording of lectures, the next most common use is for providing supplementary course materials (Abdous et al., 2009; Hew, 2009; Walls et al., 2010). Most of these uses are transmissive, although there is evidence of other uses in tertiary contexts. For example, some authors emphasise the need to use podcasts to think creatively and constructively, rather than reproducing transmissive materials (Cane & Cashmore, 2008; Riddle, 2010).

A number of commentators are highly critical of the value of podcasted lectures, describing this use as "underwhelming" (King & Gura, 2007, p. 41), "low level" (Olney et al., 2008), and behaviourist (Herrington & Herrington, 2007). The sentiments are summed up, fairly harshly, by King and Gura (2007) who refer to coursecasting as the "artless use of technology" (p. 181). A more moderate stance promotes lecture podcasts as a constructive start to making learning more accessible. Nevertheless, while coursecasting has its place, it is desirable to move beyond lecturer transmission to students' closer involvement in producing podcasts.

To go to the next step, which is encouraging and enabling students to generate the podcasts (Chan et al., 2006; Dyson, Litchfield, Lawrence, Raban, & Leijdekkers, 2009), requires valuing student voice (Schmit, 2007). As Atkinson (2006) notes, "the emerging developmental and research direction seems to me to be learning through *creating* podcasts and similar, in contrast to learning *from* podcasts" (p. 2, emphasis in original). This direction corresponds with long-established work valuing student voice and the co-construction of learning (Beane, 1990; Dewey, 1916; Freire, 1970). Democratic pedagogies thus feature students being more active and participatory in their own learning (Davie & Galloway, 1996; Taylor, 2000). This is a fundamental underpinning character of New Zealand education, according to the Ministry of Education (2007).

Why podcast?

The literature suggests that podcasts are motivating (see, for example, Burt, 2008; Dale & Povey, 2009; Lee & Tynan, 2008; Lonn & Teasley, 2009; Riddle, 2010). In short, students enjoy podcasts for their novelty value and the break they represent from text-based study. When involved in actually creating the podcasts, students are motivated by the opportunity to express themselves for a genuine audience. They are motivated by being able to create their own podcasts, and get feedback on what they have to say (e.g., Burt, 2008; Dlott, 2007; King & Gura, 2007).

When students create podcasts, reflection is enhanced by the creation process (Campbell, 2005; Ng'ambi, 2008; Salmon & Nie, 2008). As Salmon and Nie (2008) point out, "Learner-developed podcasts encourage students to reflect on their own learning, improve on their performance during content creation as well as reconsider and modify their ideas" (p. 9). Thus, reflection has formative potential, and ongoing learning is generated. This is particularly powerful when podcasting is episodic, with reflection occurring at various points in the learning process (Schmit, 2007). Podcasts are credited with having a community-building potential, as shared experiences, whether they are created by groups, or shared within a class, generate feedback loops and common grounds for discussion. Podcasting seems to suit diverse students, catering for differentiated learning preferences, such as aural learners and those who need to move around (Beilke et al., 2008; Burt, 2008; Dale & Povey, 2009; Lum, 2006).

Some critics, however, regard podcasting as time consuming (Burt, 2008; Huntsberger & Stavitsky, 2007; Lee & Tynan, 2008). Doubts about the ease with which lecturers and students can podcast are occasionally raised, with some authors warning of the need for high levels of technical support, time and training (Lonn & Teasley, 2009).

Whether or not sound recordings are effective for learning is also in doubt due to the limitations of aural processing of information (Campbell, 2005; Walls et al., 2010). Some authors raise the possibility that podcasting can amount to little more than content "spoon feeding", especially when used for transmission purposes (French, 2006; Herrington & Herrington, 2007; Lum, 2006), leading to the accusation that podcasting may be contrary to experiential learning (Dyson et al., 2009; French, 2006). Most of these criticisms, however, relate to podcasts generated by staff for a student audience, since student-generated podcasts are rarely considered. The main questions of relevance to student-podcasting are whether the technical challenges are realistic, and indeed whether the outcomes are worth the effort.

Assessment and outcomes

Most studies investigate outcomes based on teacher-generated podcasts. So, they ask what the outcomes are when students listen to podcasts produced by their lecturers in higher education. For example, Hodges et al. (2008) highlighted "possible factors that may affect academic achievement when instruction is delivered via podcast" (p. 139). Typically, the outcomes listed are student enjoyment/satisfaction, and course-related benefits. A wider view of outcomes is adopted in K-12 contexts, where students are more often the creators of the podcasts (e.g., Burt, 2008; Nicholls, 2008). It would seem that consideration of outcomes in tertiary contexts, in relation to student-generated podcasts, is fairly rare. This begs the question: What are the outcomes when students in tertiary education produce podcasts as part of their learning experiences?

A fundamental problem is that researchers and authors persist in focusing on "the amount that students learn" (Means, Toyama, Murphy, Bakia, & Jones, 2009, p. xvi), or "knowledge acquisition" (Vogt, Schaffner, Ribar, & Chavez, 2010, p. 38), and take a narrow view of examination results or test scores, with various attempts to compare with control groups (not exposed to podcasting), or to contrive quasi-experimental models (e.g., Lazzari, 2009). Instead, what is needed is a wider and deeper view of outcomes (Wright, 2010). In terms of looking wider, we need to consider affective outcomes as part and parcel of learning outcomes, and to consider habits of mind in the widest possible sense (Mitchell, Wylie, & Carr, 2008). In terms of looking deeper, we should look at the quality rather than the quantity of learning, and consider higher order thinking and deeper learning overall. In two recent literature reviews for the Ministry of Education, Mitchell et al. (2008) highlighted broad measures of learning dispositions and social-emotional outcomes in an early childhood context; while Wright (2010) also argued the need to interpret outcomes broadly so as to avoid a restrictive view at odds with lifelong learning. Student outcomes might therefore include metacognition, task completion, learning outside the classroom, social and cooperative skills, articulation of opinions, improved literacy and oral presentations, as well as quantitative improvement in tests (Wright, 2010).

In the few studies that do mention wider outcomes for student-generated podcasts, metacognition is highlighted, as students gained insight into learning processes and reflected on their thinking and progress (Burt, 2008; Chan et al., 2006; Nicholls, 2008). In addition, it is commonly acknowledged that students develop technical skills associated with the recording, editing and publishing of podcasts, and with problem-solving throughout this process (McLean & White, 2009). Students learn through generation and sharing of content, including research (McLean & White, 2009). Students learn communication and presentation skills (Burt, 2008; Downward, Livingstone, Lynch, & Mount, 2008; Nicholls, 2008). In relation to the latter, the use of voice is a key outcome on several levels. While students learn confidence and expression, in terms of basic vocal presentation of a podcast episode, at a deeper level podcasters also find their voice in terms of efficacy, democracy and empowerment (Beilke et al., 2008; King & Gura, 2007).

Studies adopting a wider view of outcomes include Burt's (2008) study of children's podcasting for literacy in which the reading habits, attitudes, fluency and ability were tracked. A multi-dimensional

approach to outcomes for different participants is also suggested in the study by Beilke (2008), involving youth and preservice teachers, as well as IT postgraduates. Also, Dale and Povey (2009) researched student-generated podcasts in the tourism field, where students were required to create podcasts about local heritage attractions. The authors reported outcomes such as deeper learning, and "creative, imaginative and practical skills" (p. 122). They surmised that these skills would assist in employability of graduates. Interestingly, articles in teacher education tend to look closely at outcomes for staff as well as students (e.g., Chan et al., 2006; Olney et al., 2008). This was also the case for the pilot study reported below, in which outcomes for staff are valued highly, alongside student learning outcomes.

The Pilot Study: Student voice and choice

This pilot study was centred on using student-generated podcasts within a second year online paper with 35 initial teacher education undergraduates. Most were primary, but also included a small number of early childhood and secondary preservice teachers, a few inservice teachers upgrading qualifications, and a few other students taking the option in order to complete a social science degree.

The intentions were for students to learn through ICT, actively engaging in creating reflective podcasts, thus engaging in "podagogy", or podcasting for learning (Bell, 2008, p. 178). These podcasting exercises could provide insight into their educational uses in New Zealand classrooms. In brief, the students were asked to investigate podcasting, create a short podcast of their own, share this draft recording with peers online, self-assess their efforts, and invite feedback from peers. This feedback supported their revision of their draft podcast, before submission for formal assessment.

To initiate this, students first researched podcasts online, locating a definition, and finding an example of an educational podcast. Students were next required to evaluate available podcasts, and to generate ideas for using podcasts for learning purposes. The subsequent task was to listen to a lecturer-generated podcast. This was intended to model and foreshadow the next reflective podcasting activity. This three-minute lecturer-generated podcast explained my own reflections on learning through ICT, and outlined a self-assessment before sharing it with students via our Moodle forum.

Students had to create a podcast of their own, choosing one of the following options (University of Melbourne, 2009):

- Aha! I get it!—Create a podcast that offers an explanation of something you have learned in relation to ICT

- Huh? I don't get it—Create a podcast that expresses a difficulty related to learning through ICT

- IMHO. In My Humble Opinion—Create a podcast that offers a personal perspective related to learning through ICT

When selecting their topic, students were invited to reflect on any of the paper content in order to review, analyse and synthesise their learning to date, and to share their thinking with the group via podcast. Throughout the period of podcast creation, students had technical assistance from a guest e-learning designer from the Waikato Centre for e-learning (WCEL), who helped them use Audacity, giving instructions and demonstrating via YouTube videos how to install, record, edit and upload podcast files to Moodle. Individual support was also available via a Moodle help forum. The main challenge students had involved exporting their podcasts as MP3 files. After some joint problem solving through the help forum, the technical aspects of the task were manageable so that all students successfully recorded and uploaded their podcast to Moodle, ready for feedback and discussion. At this point, students explored the learning intentions of their podcasts, giving consideration to what they were aiming to achieve and an assessment of how successful they consider their podcast to be. They listened to and commented on the podcasts of peers, giving formative feedback.

Through this activity, students engaged in self- and peer-assessment, using concepts derived by Clarke, Timperley and Hattie (2003). At the end of the course, students were asked to appraise the podcasting activities, via an anonymous online questionnaire that had already gained ethics approval. Reflecting on the intentions and successful completion of this series of activities, combined with attention to student perspectives, yields a number of insights into outcomes, discussed below.

Outcomes—findings

Successful completion of the activities suggests that student outcomes included learning about podcasting; awareness of educational podcasts available online; creation of a reflective podcast; self-assessment using learning intentions and success criteria; and giving and receiving formative feedback.

In relation to the wider view of possible outcomes (Wright, 2010), it is apparent that the podcasting exercises encouraged students to engage in metacognitive reflection, partly because they had to problem solve in order to work through the task of recording and uploading their own podcast. They were thus engaged in learning how to learn. Students responded positively to the podcasting activity. For example, via personal communication, one student offered the following tale:

> I'm really glad that it ended up coming out as well as it did—my computer doesn't have a microphone and I don't have a webcam or anything. So I had used my son's eye toy device [that you plug into the play station for gaming] to record it, except it would record my voice at chipmunk speed!! I couldn't work out how to make it at normal speed. So, once I had recorded my 3 mins, I had to keep playing around with the speed and tempo until it sounded like my normal voice—it was lots of fun and only slightly frustrating!

It is evident that students learned about podcasts, as "a different mode of communication" (TDU appraisal, student comment). In doing so, there was an apparent widening of their horizons as at least two students commented that they may not have experimented with podcasting had the paper not required them to do so. The reflective character of the student podcasts prompted metacognition and articulation of opinion (Wright, 2010). For example, one student reflected on her perceptions of the teacher's role when learning through ICT, recalling pertinent aspects of her journey as a distance student studying online. In doing so, she made links to learning through online discussions and relevant literature. She discussed her understanding of the *New Zealand Curriculum*, and her beliefs about teaching and learning, along with aspirations for her work in her own classroom. She reflected on learning from her own children; her initial resistance to learning from children; and her growing willingness to admit that she does not know everything. She reflected on her awareness of cybersafety issues, and articulated her philosophy relating to trust and empowering students.

> Keeping an open mind is important. As we discussed cybersafety and filtering … it came to my attention that we exhibit a lack of trust in our students by filtering websites. This seems to me to be at cross-purposes to the key competencies, especially managing self. Banning certain devices at school, iPods and mobile phones, could also show this.… We can use these tools to facilitate learning instead of making out that they inhibit it.… In summary, I guess I'm saying that I've come to understand that teaching ICT involves a much bigger picture than just showing students "how to". It certainly involves a lot of learning and reflection (Student podcast).

In relation to technical outcomes, students worked with Audacity software, downloading and installing it independently, plus recording, editing and uploading podcast files to Moodle. This involved perseverance and problem solving. In terms of community outcomes, students shared their podcasts

with others, and in turn commented constructively on peers' podcasts. This involved social skills, communication, tact and diplomacy, and practice in feedback and feedforward.

Two pieces of student feedback follow, relating to a single podcast by a peer:

> I liked your podcast as I felt that it was a balanced opinion of ICT usage within the education sector. Your statement about the benefits of ICT for "multi-faceted" use with regard to literacy extension was interesting and gave credence to ICT use as needing to be "contextual, meaningful and relevant". Your acknowledgement of both the teacher's role as well as ICT's role for 21st century learning was also valid. The mention of funding issues and professional development showed that you had considered both sides of the ICT debate. You spoke clearly and delivered your message in a way that was easy to understand, without bombarding the listener with too much information. Overall, well thought out and informative. Great job in successfully using an alternative software! Well done. (Student 1)

> Great use of personal voice which conveyed strongly your opinion of how ICT should be utilised in the classroom and the benefits ICT has in relation to students' learning. You demonstrated a great understanding of the demands that a 21st learner faces in which they require a more flexible, larger and knowledgeable literacy "tool kit" than before. I agree with you about the integration of ICT being contextual, meaningful and purposeful to the learner and how learning needs to be goal driven, in which students know … what and why they are learning… (Student 2)

A number of the students in this online paper indicated that they would consider getting their own pupils to make podcasts in their classrooms. One practising teacher in the class immediately took up this challenge. As she reported, via personal communication,

> … my class and I love podcasting. I bought a microphone for only $80 that converts our files to MP3 and holds 16 files. You can play back through the microphone. It is so cool! We use it for recording our reading group plays, downloading and playing it to the class, my Year 11 assessment was about a radio talkback show so we did a radio talkback show in our class using the mike and downloading it.

Additional comments from students within the formal course appraisal revealed further evidence of valuable learning outcomes. For example, students made links with other curriculum areas, including literacy "and multimodal forms in literacy learning", gained insight into pedagogical processes, and particularly valued the practical learning and elements of "formative assessment, [enabling them] to build on that learning" (TDU appraisal, student comments).

There were also outcomes for me as the teacher of this class. For example, my confidence improved, especially regarding my knowledge about e-learning practices and tools. I also developed a respectful relationship with technical staff, who enabled me to realise my pedagogical vision, and also to see new possibilities. I was also able to hear every student's voice, even though many of us had not met in person, and gained considerable personal insight into each individual's thinking and learning.

In summary, outcomes for students included learning about and through podcasting. Students engaged in reflection, problem solving and interactive formative assessment. They communicated an insight into the pedagogical, "podigogical" possibilities, and a desire to experiment with podcasting with their pupils. In turn, my outcomes as a teacher educator included insight into student learning, an invigoration of my teaching, and opened up directions for research.

Discussion

The project described above aimed to venture beyond coursecasting by involving students in the creation of podcasts. The intention was to value student voice, and to encourage learning through creating podcasts (Atkinson, 2006). In keeping with findings of previous research reviewed, students found the opportunity to podcast motivating and were inspired by the opportunity to express themselves for a genuine audience, receiving feedback in return (Burt, 2008; Dlott, 2007; King & Gura, 2007). As the literature suggests, the students engaged in "podcast-mediated reflective learning" (Ng'ambi, 2008, p. 133). Upon receiving formative feedback from peers, they were also able to reshape and re-record their podcasts prior to final submission if they chose to do so. In this case, however, the podcast was a single episode rather than a series of recordings, which could diminish the possibility of taking a longer view of learning (Schmit, 2007). This is a limitation of the study, and subsequent work carried out more recently incorporates multiple podcasting episodes.

Although the research literature indicated concerns about the technical difficulty of podcasting, and the time involved in doing so, these issues were not a factor in the pilot study. Technical support was in place so that students had access to clear instructions and a help forum, and time was not mentioned in any informal or formal evaluations of the experience. Students did mention that they found the task challenging, but regarded this challenge as worthwhile and time well spent. An issue of note here, however, is the sustainability of the technical support since it may not be possible for an e-learning designer to actively contribute to every online class by answering student queries directly, and student teachers can certainly not expect this level of technical support in their own schools and classrooms. An alternative support model, connecting students to wider online support networks, could be explored in future.

Portable devices were not a feature in this podcasting work, as students tended to record and play podcasts via their laptops or desktop computers. Again, this is in keeping with previous research findings (Atkinson, 2006; Fothergill, 2008; France & Ribchester, 2008; Hew, 2009; Lee & Tynan, 2008; Lonn & Teasley, 2009; Northcote et al., 2007; Rothwell, 2008; Walls et al., 2010).

Conclusion

This pilot study involved teacher education students in successfully creating their own podcasts as part of their online paper. Students could record, edit, upload and share podcasts with peers, and gave and received formative feedback. Overall, a wide range of outcomes resulted, including learning about and through podcasting; reflective problem solving; exchange of formative feedback; and insights into new possibilities for learning and teaching. On this basis, podcasting by students has wide potential beyond the transmission of information, and led to the successful attainment of diverse learning outcomes.

References

Abdous, M., Camarena, M. M., & Facer, B. R. (2009). MALL Technology: Use of academic podcasting in the foreign language classroom. *ReCALL, 21*(1), 76–95. doi:10.1017/S0958344009000020

Atkinson, R. (2006). Podcasting: Do you really need to know? *HERDSA News, 28*(3). Retrieved from http://www.roger-atkinson.id.au/pubs/herdsa-news/28-3.html

Beane, J. A. (1990). *Affect in the curriculum: Toward democracy, dignity, and diversity*. New York, NY: Teachers College Press.

Beilke, J., Stuve, M., & Williams-Hawkins, M. (2008). "Clubcasting": Educational uses of podcasting in multicultural settings. *Multicultural Education & Technology Journal, 2*(2), 107–117. doi:10.1108/17504970810883379

Bell, D. (2008). The university in your pocket. In G. Salmon & P. Edirisingha (Eds.), *Podcasting for learning in universities* (pp. 178–179). New York, NY: Open University Press.

Buffington, M. L. (2010). Podcasting possibilities for art education. *Art Education, 63*(1), 11–16.

Burt, D. (2008). The lure of podcasting. *Computers in New Zealand schools, 20*(1), 19–25.

Campbell, G. (2005). There's something in the air: Podcasting in education. *EDUCAUSE Review, 40*(6), 32–47.

Cane, C., & Cashmore, A. (2008). Students' podcasts as learning tools. In G. Salmon & P. Edirisingha (Eds.), *Podcasting for learning in universities* (pp. 146–152). New York, NY: Open University Press.

Chan, A., Lee, M., & McLoughlin, C. (2006). Everyone's learning with podcasting: A Charles Sturt University experience. In L. Markauskaite, P. Goodyear, & P. Reimann (Eds.), *Who's learning? Whose technology? Proceedings of the 23rd Annual Ascilite Conference* (pp. 111–121). Figtree, NSW, Australia: Sydney University Press. Retrieved from http://www.ascilite.org.au

Clarke, S., Timperley, H., & Hattie, J. (2003). *Unlocking formative assessment: Practical strategies for enhancing students' learning in the primary and intermediate classroom*. Auckland, New Zealand: Hodder Moa Beckett.

Dale, C., & Povey, G. (2009). An evaluation of learner-generated content and podcasting. *Journal of Hospitality, Leisure, Sports and Tourism Education, 8*(1), 117–123.

Davie, R., & Galloway, D. (Eds). (1996). *Listening to children in education.* London, England: David Fulton Publishers.

Dewey, J. (1916). Democracy and education: An introduction to the philosophy of education. New York, NY: The Macmillan Company.

Dlott, A. (2007). A (pod)cast of thousands. *Educational Leadership, 64*(7), 80–82.

Downward, S., Livingstone, D., Lynch, K., & Mount, N. (2008). Podcasts and locations. In G. Salmon & P. Edirisingha (Eds.), *Podcasting for learning in universities* (pp. 57–69). New York, NY: Open University Press.

Dyson, L. E., Litchfield, A., Lawrence, E., Raban, R., & Leijdekkers, P. (2009). Advancing the m-learning research agenda for active, experiential learning: Four case studies. *Australian Journal of Educational Technology, 25*(2), 250–267.

Edirisingha, P. (2009). Podcasting as a listening culture: Implications for learning. In S. Wheeler (Ed.), *Connected minds, emerging cultures: Cybercultures in online learning* (pp. 29–42). Charlotte, NC: Information Age Publishing.

Evans, C. (2008). The effectiveness of m-learning in the form of podcast revision lectures in higher education. *Computers & Education, 50*, 491–498. doi:10.1016/j.compedu.2007.09.016

Fothergill, J. (2008). Podcasts and online learning. In G. Salmon & P. Edirisingha (Eds.), *Podcasting for learning in universities* (pp. 80–91). New York, NY: Open University Press.

France, D., & Ribchester, C. (2008). Podcasts and feedback. In G. Salmon & P. Edirisingha (Eds.), *Podcasting for learning in universities* (pp. 70–79). New York, NY: Open University Press.

Freire, P. (1970). *Pedagogy of the oppressed.* London, England: The Continuum Publishing Company.

French, D. P. (2006). iPods: Informative or invasive? *Journal of College Science Teaching, 36*(1), 58–59.

Harvey, L. (2008). Foreword. In G. Salmon & P. Edirisingha (Eds.), *Podcasting for learning in universities* (p. xvii). New York, NY: Open University Press.

Herrington, A., & Herrington, J. (2007, November). Authentic mobile learning in higher education. Paper presented at the Australian Association for Research in Education Conference. Retrieved from http://www.aare.edu.au/07pap/her07131.pdf

Hew, K. F. (2009). Use of audio podcast in K-12 and higher education: A review of research topics and methodologies. *Educational Technology Research and Development, 57,* 333–357. doi:10.1007/s11423-008-9108-3

Hodges, C. B., Stackpole-Hodges, C. L., & Cox, K. M. (2008). Self-efficacy, self-regulation, and cognitive style as predictors of achievement with podcast instruction. *Journal of Educational Computing Research, 38*(2), 139–153.

Huntsberger, M., & Stavitsky, A. (2007). The new "podagogy": Incorporating podcasting in to journalism education. *Journalism & Mass Communication Educator, 61*(4), 397–410.

Kerstetter, K. (2009). Educational applications of podcasting in the music classroom. *Music Educators Journal, 95*(4), 23–27.

Kervin L., & Vardy J. (2007). Look who's talking: Incorporating iPods in the classroom. *Screen Education, 48,* 58–64.

King, K., & Gura, M. (2007). *Podcasting for teachers: Using a new technology to revolutionize teaching and learning*. Charlotte, NC: Information Age Publishing

Lazzari, M. (2009). Creative uses of podcasting in higher education and its effect on competitive agency. *Computers & Education, 52,* 27–34. doi:10.1016/j.compedu.2008.06.002

Lee, M. J. W., & Tynan, B. (2008). Podcasts and distance learning. In G. Salmon & P. Edirisingha (Eds.), *Podcasting for learning in universities* (pp. 92–102). New York, NY: Open University Press.

Lonn, S., & Teasley, S. (2009). Podcasting in higher education: What are the implications for teaching and learning? *Internet and Higher Education, 12,* 88–92. doi:10.1016/j.heduc.2009.06.002

Lum, L. (2006). The power of podcasting. *Diverse: Issues in Higher Education.* Fairfax, VA: Diverse Education. Retrieved from http://diverseeducation.com/article/5583/

McLean, D., & White, E. (2009). Two approaches to podcasting in the classroom. *Merlot Journal of Online Learning and Teaching, 5*(2), 1–14.

Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2009). *Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies.* Washington, DC: United States of America Department of Education

Ministry of Education. (2007). *The New Zealand Curriculum.* Wellington, New Zealand: Learning Media.

Mitchell, L., Wylie, C., & Carr, M. (2008). *Outcomes of early childhood education: Literature review* (Report to the Ministry of Education). Wellington, NZ: New Zealand Council for Educational Research.

Morisse, K., & Ramm, M. (2007). Teaching via podcasting: One year of experience with workflows, tools and usage in higher education. In *Proceedings of ED-MEDIA 2007* (pp. 2081–2088). Retrieved from http://www.aace.org/conf/edmedia/

Ng'ambi, D. (2008). Podcasts for reflective learning. In G. Salmon & P. Edirisingha (Eds.), *Podcasting for learning in universities* (pp. 132–145). New York, NY: Open University Press.

Nicholls, J. (2008). Podcasting and oral language. *Computers in New Zealand Schools, 20*(1), 11–18.

Northcote, M., Marshall, L., Dobozy, E., Swan, P., & Mildenhall, P. (2007). Tuning into podcasts: Collaborative research into the value-adding nature of podcasts in teacher education. In J. Kiggins, L. Kervin, & J. Mantei (Eds.), *Quality in teacher education: Considering different perspectives and agendas: Proceedings of the 2007 Australian Teacher Education Association Conference* (pp. 415–428). Wollongong, NSW, Australia: University of Wollongong. Retrieved from http://atea.edu.au/index.php?option=com_jdownloads&Itemid=132&task=view.download&cid=126

Olney, I., Herrington, J., & Verenikina, I. (2008). iPods in early childhood: Mobile technologies and story telling. In *Proceedings Ascilite Melbourne 2008* (pp. 696–700). Figtree, NSW, Australia: Ascilite. Retrieved from http://www.ascilite.org.au/conferences/melbourne08/procs//

Riddle, J. (2010). Podcasting in the classroom: A sound success. *MultiMedia & Internet@Schools, 17*(1). Retrieved from http://www.internetatschools.com/Articles/Column/The-Tech-Effect/THE-TECH-EFFECT-Podcasting-in-the-Classroom--A-Sound-Success-60444.aspx

Rothwell, L. (2008). Podcasts and collaborative learning. In G. Salmon & P. Edirisingha (Eds.), *Podcasting for learning in universities* (pp. 121–131). New York, NY: Open University Press.

Salmon, G., & Edirisingha, P. (Eds.). (2008). *Podcasting for learning in universities*. New York, NY: Open University Press.

Salmon, G., Mobbs, R., Edirisingha, P., Dennett, C. (2008). Podcasting technology. In G. Salmon & P. Edirisingha (Eds.), *Podcasting for learning in universities* (pp. 20–32). New York, NY: Open University Press.

Salmon, G., & Nie, M. (2008). Doubling the life of iPods. In G. Salmon & P. Edirisingha (Eds.). *Podcasting for learning in universities* (pp. 1–11). New York, NY: Open University Press.

Sawle, G. (2007). Podcasting: Teaching tool or distraction? *Scan, 26*(3), 34–36.

Schmit, D. (2007). Creating a broadcasting empire … From the corner of your classroom! *MultiMedia & Internet@Schools, 14*(1). Retrieved from http://www.mmischools.com

Taylor, A. S. (2000). The UN Convention on the rights of the child: Giving children a voice. In A. Lewis & G. Lindsay (Eds.), *Researching children's perspectives* (pp. 21–33). Buckingham, England: Open University Press.

University of Melbourne. (2009). *Educating the net generation: A handbook of findings for practice and policy.* Melbourne, VIC, Australia: Author. Retrieved from www.netgen.unimelb.edu.au

Vogt, M., Schaffner, B., Ribar, A., & Chavez, R. (2010). The impact of podcasting on the learning and satisfaction of undergraduate nursing students. *Nurse Education in Practice, 10*(1), 38–42. doi:10.1016/j.nepr.2009.03.006

Wagstaff, P. (2007). Educational podcasting: Fad or future? In M. Thyne, K. Deans, & J. Gnoth (Eds.), *Proceedings of the ANZMAC Conference* (pp. 3189–3195). Melbourne, VIC, Australia: ANZMAC

Walls, S., Kucsera, J., Walker, J., Acee, T., McVaugh, N., & Robinson, D. (2010). Podcasting in education: Are students as ready and eager as we think they are? *Computers & Education, 54*(2), 371-378. doi:10.1016/j.compedu.2009.08.018

Wright, N. (2010). *e-Learning and implications for New Zealand schools: A literature review.* Wellington, New Zealand: Ministry of Education. Retrieved from http://www.educationcounts.govt.nz.ezproxy.waikato.ac.nz/publications/ict/77614