Radio Restated: Podcasting in Education

Michael Haworth & Stephanie Hopkins

The University of British Columbia

Abstract

Many years have passed since the dawn of the "golden age of radio", and the birth of

educational radio in North America. Educational radio programming in Canada and the

United States brought forth new pedagogical methodology while supporting text-based

education. Named "the new transistor radio" by Jon Udell, (Campbell, 2005, p. 38), and

"the next generation of radio" by Steven Jobs (as cited in Baker, Harrison & Yates, 2007,

p.31), podcasting now brings to the digital age what educational radio could not:

portability, convenience, and choice. While "audio has traditionally been neglected and

underused as a teaching and learning medium" (Chan, Lee & McLoughlin, 2006, p. 111),

this is beginning to change as educational institutions focus on the perceived

opportunities and benefits that podcasting offers. In both K-12 and post-secondary

sectors, podcasting is making an positive impact in literacy, the sciences, language arts,

second language education and more. Institutions are beginning to recognize the benefits

of podcasting, and universities such as Purdue, Duke, and Georgia College & State

University are now involving students in podcasting. George Siemens (2004) argues that

technology shapes learning. It is clear that the potential for learning through podcasting

in all levels of education is great; "[i]t's enormously motivating to watch learners learn

through dialogue – forming connections with learners and experts beyond the walls of a

classroom" (Siemens, 2009, para. 9).

Radio Restated: Podcasting in Education

"The iClassroom – wherever and whenever – is here" (Blaisdell, M., 2006, para. 2)

Introduction

The "golden age of radio" often evokes visions of people huddled close to the radio listening to programs being broadcast from near and far. That era, now over fifty years old, is looked upon with historical nostalgia, as a time long passed. However, the spirit of the radio format is now being recaptured with the mp3 file, portable mp3 player, and the Internet in the form of a "podcast". While the radio transmitter and receiver are no longer central to this form of broadcasting, these podcasts build upon the development of radio in their similar vast array of subject matter, from arts and crafts to zither playing. Similar to educational radio, the podcast also offers students, teachers, and the merely interested public another participatory media with which to connect and interact via the mutually shared goal of learning. To this end, the comparisons between educational radio and podcasting continue further. Both media have been pioneers in their respective eras, both have had successes and failures, and both have been used to supplement and complement existing, text-based educational programs. For effective podcasting to occur in education, the lessons of the past must be well considered with the new understandings of the present and future.

What is Podcasting?

Ractham and Zhang (2006) provide a general definition of podcasting as, "audio content available on the Internet that can be automatically delivered to your computer or MP3 player" (p. 314). In contrast, the website *Podcast Alley*, provides a more specific definition of podcasting: "created by former MTV VJ Adam Curry, [podcasting] is a term that was devised as a crisp way to describe the technology used to push audio content from websites down to consumers of that content, who typically listen to it on their iPod (hence the "pod") or other audio player that supports mp3 at their convenience" (McIntyre, 2009a, para 2.).

Although both quotations support a general overview of podcasting, to provide a more complete understanding of podcasting, this definition must be deconstructed into several different parts. As with many devices and services interconnected via the Internet, the time span between inception and the now for podcasting is extremely short. According to Wikipedia, Apple iPod was first marketed in 2001(iPod, 2009). While "iPod" is the root word for the term "podcasting", it is not necessary to have an iPod produce or listen to podcasts. However, the combination of both the iPod player and the Macintosh and Windows PC compatible Apple iTunes software has created an ecosystem that is simple to use.

Many podcasting history resources point to 2004 as being the year that direct development of podcasts and technologies supporting acquisition of podcasts occurred (Kothe, 2006, para. 1). Although journalist Ben Hammersley of The Guardian newspaper is often attributed with initially creating the term podcasting, better known is Adam Curry who initially developed podcasting support software and helped evangelize both the term and the act of "podcasting" (Kothe, 2006, para. 1).

At the outset of podcasting, there were a limited number of people involved. Godwin-Jones (2005) states that originally, "podcasting was of interest to a small audience of Mac enthusiasts, an esoteric activity by computer geeks for other computer geeks" (p. 10). This small group has since rapidly expanded to include a much larger audience. Although at the time of publication, sales statistics were not available from Apple, Inc., according to Wikipedia (2009), Apple has sold over 220 million iPod players (iPod, para. 2) and there are over 70,000 podcasts registered on the *Podcast Alley* website (McIntyre, 2009b). This exponential growth in both podcast-capable devices and the total number of podcasts points strongly towards podcasting now being a very broadly-based activity no longer limited to "computer geeks".

Podcasting: The New Radio

Chairman and Chief Executive Officer of Apple, Steven Jobs, has been quoted as calling podcasts, "the next generation of radio" (Baker, Harrison & Yates, 2007, p. 31), while Jon Udell further describes podcasts as, "the new transistor radio" (Campbell, 2005, p. 38). This comparison of podcasts to terrestrial radio is an interesting one as there are similarities but also differences between the two. The apparent ubiquity of the technological support systems such as mp3 players and software combined with the large number of available podcasts can be compared to the development of terrestrial radio broadcasting in the 1920's through to the 1950's, an era often described as the "golden age of radio" (Old-time Radio, para. 1). During this era there was a steady increase in the number of transmitters and receivers (Ackerman, 1945, p. 2).

Radio broadcasts have always been free of charge to receive, with no per-broadcast charges as anyone with a radio could receive the broadcast signal. Similarly, there have been significant increases in the number of the "receiving" mp3 players such as the Apple iPod, and with the number of available free "transmitting" podcasts. Further, by focusing primarily on audio output (some podcasts can include images), both radio and podcasts allow a high level of portability, and in addition, "unlike other media forms, audio liberates learners from the tyranny of the screen and 'frees eyes and hands'" to do other activities (Chan, Lee & McLoughlin, 2006, p. 112).

It is at this point where the differences between broadcasting and podcasting are most salient. Broadcasting tends to be an expensive, technical, exclusionary, geographically controlled, and government-regulated undertaking, which puts the power to broadcast into the hands of the few. Podcasting, on the other hand, is the exact antithesis. As discussed on Apple, Inc.'s *FAQs: For podcast fans* website, "the cost of distribution is limited to the cost of data transfer. The size of the channel is effectively unlimited therefore can't be dominated by any other publisher or broadcaster. There are thousands of podcasts available from all over the world, [and] new podcast episodes appear automatically and can be enjoyed anywhere, anytime (Apple, Inc., 2009, para. 3-4). These distinctions between broadcasting and podcasting are significant and will be further highlighted later in this essay.

Podcasting in Education

The trends, similarities, and differences exhibited with general radio and podcasting have been echoed in the field of educational radio and educational podcasting

as well. Post-secondary schools such as the Georgia College & State University began small iPod pilot projects with a few programs in 2002, while Duke University provided all incoming 2004 freshmen with an iPod and audio recording accessory (Blaisdell, 2006, para. 4). Many post-secondary educational institutions focused on the Apple iPod and related software because, "using a proven device such as the iPod enabled a standardized solution that alleviated the need to use software based audio players on personal computers that could vary in quality and compatibility" (Miller & Piller, 2005, para. 7). The development and release of "iTunes U" by Apple in 2007, further enhanced educational podcasting while concurrently entrenching Apple's position within the field. Within iTunes U, educational institutions can have both private and public podcasts made available to specific students or the general podcast listening public.

Podcasting has been able to go much further in providing a level of convenience and cohesiveness not possible in broadcasting. No longer bound by the broadcasting limitations of regulations, location, and time, podcasting offers a flexibility that goes beyond "e-learning" (electronic learning) and into the realm of "m-learning" (mobile learning) where anytime, anyplace learning can occur (Tyre, 2005, para 1; Evans, 2007, p. 491). Gardner Campell succinctly describes a scenario in which "Jenny" interacts with a podcast and her surrounding environment; "the [mp3 player] earbuds don't block out ambient sound – she can pause the playback and hold a conversation with a passing friend with little trouble – but they do allow her to start listening to that last podcast as she walks the five hundred yards to the cafeteria" (p. 34). This flexibility is enhanced by podcasts and iPods as it facilitates portability and "just-in-time" learning where free time

may become learning time due to the ubiquity of mp3 players amongst post-secondary students (Evans, 2007, p. 492).

Educational Pocasting: Friend or Foe?

As podcasting continues to evolve, both supporters and detractors of using it in education put forth their arguments. Both sides of the topic have put forth several arguments for their respective positions. Proponents of implementing podcasting in education argue that it has many positive aspects. First and foremost, the podcast allows for portability and convenience of educational material. Students can access the mp3 file format podcasts from any Internet-accessible computer at any time and in any place. When combined with the statistics that 75% of teenagers and 45% of adults in the United States own iPods or mp3 players, the portability argument gains momentum (Rainie, 2009, slide 14; Horrigan, 2009, para. 10). Walls et al. (2009) highlight the portability factor of podcasting; "No longer tethered to a computer in the library, lab, dorm room, or even a laptop, students can listen to and/or watch [if vidcasting] educational material anywhere (e.g. on the bus, in the car, at the gym, in route to campus) and at any time (e.g. they can choose the best time to listen, and can review the same material several times)" (p. 2). Put even more succinctly, the portability and convenience shifts "the site of learning from the desk to the pocket" (Blaisdell, 2006, p. 6).

This highlights another positive point of podcasting, that of availability. Using protocols such as RSS (Really Simple Syndication or Rich Site Summary), podcasts are easily located, aggregated, and downloaded not only by students within a specific course or institution, but due to distribution channels such as iTunes U, students can access

podcasts from other institutions from anywhere in the world. In addition, students can

also access publicly available podcasts, thus the learning community begins to stretch

well beyond the boundaries of a classroom. This free exchange of information helps "not

to give away intellectual property but to plant seeds of interest and to demonstrate the

lively and engaging intellectual community created by its faculty in each course"

(Campbell, 2005, p.34).

Another point that proponents of educational podcasting highlight is the

simplicity and ease with which podcasts are produced and disseminated. Chan, Lee and

McLoughlin (2006) state that, "digital audio is cheap and simple to produce and

manipulate" (p.112). Powerful no cost or low cost podcast creation software such as the

open-source Audacity or Apple GarageBand software, plus minimal hardware

requirements of a microphone connected to virtually any computer produced today,

places podcasting within the realm of possibility for nearly anyone. The relatively low

learning curve provides students and teachers with an excellent opportunity for ICT skill

development, and as Campbell (2005) declares, "[m]ost of us can and should learn the

potential uses and value of rich media authoring – in this case, the podcast" (p. 36).

Podcasting can create a direct link to the educator and the course materials. When the

teacher directly creates podcasts supporting the curriculum, and the student downloads

them, another learner community connection between student and teacher is created

outside of the classroom environment.

While many positive aspects are mentioned, detractors of podcasting have also

highlighted their hesitancy to adopt educational podcasting. One of the primary concerns

raised has been a potential to reduce student and teacher interaction, either by design if

the course is completely saturated with supporting podcasts, or by default as students

elect to skip classes as the necessary course material is available via podcast. Another

facet of concern with podcasts is the depth and breadth of course content understanding

via the medium. Podcasts by their frequently short duration of a few minutes, may not

provide learners with enough time to thoroughly investigate course curriculum and,

"despite the perceived benefits, some academics are concerned that content learning

decreases as students scroll between classroom lessons and rock hits" (Baker, Harrison &

Yates, 2007, p. 32). Extending this concern of lack of complete understanding is the

underlying portability of mp3 players and listening to podcasts in less than ideal

conditions in the car, at the gym and other locations. An individual in a lecture hall with

an instructor, for example, may have a longer, more in-depth, and challenging interaction

with the curriculum. As one professor, interviewed in 2005 by Newsweek journalist Peg

Tyre commented, "those kind of intellectual epiphanies, she says, rarely happen at the

Laundromat" (para. 4).

   Technical support issues may also exist with podcasting. Beyond the potentially

high server and file storage capabilities required to support educational podcasting,

human support systems to provide both teachers and students the tools and knowledge to

produce and access the podcasts must also be in place (Flanagan & Calandra, 2005, p.22;

Blaisdell, 2006, p. 4). Copyright and student privacy issues also have been raised

regarding podcasting. As with other forms of transmission, materials provided within a

podcast must be carefully considered both for their ethical and legal implications. In

addition to copyright issues there is also concern of personal privacy with student-created

podcasts and their availability to the general public, should these materials be made

available to a "wired world" (Campbell, 2005, p. 38; Flanagan & Calandra, 2005, p. 22)?

A final point of concern raised is the question "is podcasting just a "tech

gimmick" designed to attract students"? If there is not a sound pedagogical reason and

implementation of podcasts, "it'll make it worse if you're not ready for it. You can be a

whiz technologically but shallow academically" (Blaisdell, 2006, p. 4). This could make

parents who are often assisting in funding students attending post-secondary institutions

question the value of the education received if based heavily on the use of podcasts, "I

mean, what is your degree really worth," says Ruben [parent of student], "if you got it by

listening to your iPod?" (Tyre, 2005, para. 6).

Theories of Learning and Podcasting

Many of the aforementioned concerns regarding podcasting in education can be

rectified through examination of current learning theory and practice. As technology has

advanced since the heyday of educational radio, so has educational theory and practice.

As was the case during the "golden age of radio", students are no longer seen merely as

"empty vessels waiting to be filled, but rather active organisms seeking meaning"

(Driscoll, 2005, p. 387). Building on the Deweyan notions of experiential learning that

helped make a strong case for terrestrial radio in education, constructivist theorists go

further by embracing such notions as individualized learning, problem-solving, and

critical thinking to facilitate the construction of knowledge (Driscoll, 2005), while

connectivists argue that "informal learning is a significant aspect of our learning

experience. Formal education no longer comprises the majority of our learning. Learning

now occurs in a variety of ways" (Siemens, 2004, para. 3). By the same token, educators are now expected to offer a differentiated curriculum, catering to the individual learning needs of each student, whilst maintaining a pulse on curricular standards and emerging trends and technologies in education (see Siemens, 2009).

Under constructivist learning theory, and congruent with related sub-theories of learning, both multiple perspectives and multiple modes of representation are favored (Driscoll, 2005, p. 398). It is for this reason that "many constructivist theorists have turned to emerging technologies as the most promising means by which to implement essential learning conditions" (Driscoll, 2005, p.399). Podcasting, by nature, appeals to the aural sense, which, when presented together with other modes of representation in a flexible learning environment, allows the learner to engage with the material in ways that were impossible before. A podcast can be replayed and remixed, allowing for learners to interact with and take control of the information, thereby controlling learning. As Perkins (1991) noted, "[students] are not likely to become autonomous thinkers and learners if they lack an opportunity to manage their own learning" (as cited in Driscoll, 2005, p.399). Contrary to the opposing position that podcasting will not allow for depth and breadth of understanding of course content, but rather, as Walls et al. (2009) found, "could provide enrichment to students beyond what a typical course and instructor can bring" (p.6).

Similarly, the criticism that podcasting in education is likely to reduce student-teacher interaction can be argued from the standpoint that in the age of information, and arguably earlier according to constructivist theory, the student-teacher paradigm has shifted (Siemens, 2009). Students are managers of their own learning, while educators are

there to "serve as coach and resource, sharing in the learning process rather than

controlling it" (Driscoll, 2005, p. 400). Digital technology has changed the face of

education, and as will be discussed in the following paragraphs, new theories of learning

are evolving out of constructivist ideals; theories in which the learner becomes the

fulcrum. The argument that podcasting would be responsible for reducing teacher-

student interaction is a null point: technology and civilization have facilitated the shift in

theoretical standpoint, from one of teacher-centered to student-centered, diversified

learning.

Yet another concern, the idea that the inherent portability of podcasts will lead to

listening in environments that are non-conducive to learning, can be diffused with an

argument grounded in George Siemens' connectivism theory:

The draw of blogs, wikis, podcasting, video logging, social bookmarking, and

other social tools for educators arises from direct observation of what happens

when learners are given choice. It's enormously motivating to watch learners

learn through dialogue – forming connections with learners and experts beyond

the walls of a classroom (or LMS)…seeing passion replace routine, engagement

replace passivity" (Siemens, 2009, para. 9).

As Driscoll (2005) emphasized the pertinence of choice and ownership in learning, so

does Siemens (2004), arguing further that the decision-making process itself is a learning

process. "Choosing what to learn and the meaning of incoming information is seen

through the lens of a shifting reality" (par. 23). With podcasting, students are involved in

the learning process. They are able to take ownership of the material by downloading at

their leisure and studying in various environments, whether conducive to learning or not.

Siemens would likely argue that making connections between various topics, ideas and concepts is paramount, and that despite the apparent non-conducive learning environment the student may be listening to a podcast in, he or she is taking ownership of learning, and navigating the ever-shifting 21st century information environment.

In addition, students interact with the curriculum via a different modality that supplements and supports the in-class, in-person activities. Evans (2008) notes that, "through giving learners more control in the learning process, podcasts can encourage the development of an active relationship with the material. By contrast, textbooks and lectures can encourage a passive relationship in which the learner takes the role of a simple recipient of information" (p. 496). Evans (2008) further explains that podcasts are an efficient way for students to revise (review) course content as compared to textbook studying (p. 496). Finally, learning effectiveness and student satisfaction with online courses that use podcasts appears to be enhanced when compared with courses that do not use podcasts. This is due to students feeling, "more confident in their learning because they had access to additional tools to improve and verify their understanding" (Lakhal, Khechine & Pascot, 2007, para. 32).

Both constructivist and connectivist theories support literacy in several ways. Social constructivists, for example, suggest that students must engage in authentic, meaningful literacy activities rather than contrived activities meant for practice (Au, 1998, p. 300), and that language and writing are seen as cultural tools. For information age scholars George Siemens and Michael Wesch, literacy in the age of information has become digital literacy or multiliteracies:

We almost have to move away from information as a thing; it becomes a whole

process and an environment in which we exist all the time, therefore teaching

students is not about giving them information, it's about learning the whole

process of engaging with this information environment (Siemens & Wesch in

Bayne, 2008).

Text-based literacy now involves the ability to manipulate technology and cultural

tools for the purpose of seeking information, rather than simply the ability to represent

information through reading and writing (Stevens, 2005). Current theory questions the

purpose of literacy for knowledge, proposing that "[o]ur ability to learn what we need for

tomorrow is more important than what we know today" (Siemens, 2004, par. 31).

Accordingly, podcasting, along with other digital networking technologies, can, in

theory, make a positive impact on current, shifting educational environments while

continuing to support text-based education.

Pedagogy: In Favour of Educational Podcasting

In order to truly see the advantages that podcasting offers to education, it is

necessary to examine not only current theories of learning, but also solid educational

strategies and pedagogy that are relevant to the digital age. Research has shown that for a

variety of reasons, the use of podcasting technology does promote learning in a number

of distinct environments, when used complementary to other media and modes of

presentation, and when consideration is paid to 21st century learning theory. While much

of the research that has been conducted on the theme of podcasting in education has been

done at the post-secondary level, results from the two studies from the K-12 sector that follow demonstrate a similar positivity toward podcasting in education.

Ducate and Lomicka (2009) studied the effect of podcasting on second-year French and German students' pronunciation and extemporaneous speech. During the study period, the students created and posted a number of podcasts, some scripted, some impromptu, and were required to listen to and comment on their colleagues' work as well. Ducate and Lomicka found that in the case of the French students, there was improvement in comprehensibility between the first and second scripted podcasts (p. 73). Considering the fact that this was only a 16 week study, this is significant. Ducate and Lomicka suggest, however, that longer-term future studies be conducted with beginning language learners to determine what effect this extra oral practice might have on their comprehensibility due to the fact that the intermediate focus is more on grammar than pronunciation.

In another language learning study, this time in a middle school setting, Craig, Paraiso & Patten (2007) compiled the data from three action research projects involving iPod use and podcast listening in literacy activities. In the studies, various discussions and writing activities took place alongside ESL students listening to audio versions of literature, in addition to reading aloud and silently. Positive results after listening to iPods included students being less reluctant to engage in English reading activities, students' feelings of success when using the technology, and in one study, student pass rate on Accelerated Reader tests increased from 60% to 90%. Although Craig, Paraiso & Patten (2007) note that based on their studies, they cannot be completely sure that iPod use was the only cause of the positive results; they do mention that because these learners

were new to American society, by using iPod technology, they would be gaining cultural

competence that would benefit their future studies (p. 7).

Another use of podcasting in an educational setting is in the area of Language

Arts. Davis & McGrail (2009) propose an effective way to use podcasting to improve

proof-reading and revising skills, thereby improving literacy skills among elementary-

aged students; they call this process "proof-revising" (p. 522). As part of the writing

process, students recorded podcasts of their writing and posted them to a blog. After

posting, various stages of listening took place; the teacher, the student and other students

would listen to the work. As they became more engaged with the technology and their

writing, "students began developing self-monitoring habits" (Davis & McGrail, p. 526),

recognizing how important the revising process is to their writing. One student said, "I

thought I had no errors until I heard the podcast which said the mistakes" (Davis &

McGrail, p. 526). In the end, students came up with advice to help each other edit their

work. Worthwhile suggestions such as, "you shouldn't use the same word over and over

again", and "you should change your words and make them more interesting to the

reader" were elicited from the students themselves after using podcasting to engage in

their writing.

While so-called "enhanced podcasts" such as vidcasts or narrated powerpoint

presentations provide a multi-modal approach, they detract from the intent of podcasting

as a portable audio tool similar to the intent of radio. Once audio and video are

combined, we have a different tool, one that requires more technology to view and does

not provide the flexibility and portability that podcasting does. Furthermore, educational

stakeholders are beginning to realize the importance of aural and oral literacy across the

curriculum. For example, in British Columbia, the Ministry of Education now requires

that students of English Language Arts, Foreign Languages, and Social Studies

demonstrate oral proficiency in various prescribed learning outcomes (British Columbia

Ministry of Education, 2009). As demonstrated by theory and research, podcasting can

be an effective tool with which to demonstrate oral proficiency among post-secondary

and K-12 students alike.

Conclusion: Moving Toward the Future

Ractham and Zhang (2006) conclude that, "[podcasting] represents an ongoing

social phenomenal and new learning paradigm". Although a case can be made for the

innovative nature of the technology behind podcasting, educational podcasting is, after

all, simply a method of promoting oral and aural literacy in conjunction with text-based

curriculum. At its outset, educational radio was exactly this; an innovative technology

that when used effectively in educational environments would enhance and complement

the text-based learning in traditional settings. Podcasting is not a new paradigm; it is

simply radio, "restated" for the 21st century. Educational radio truly paved the way for

podcasting in education. The similarities between the two media in innovation and

practice have solidified the power of the oral/aural mode of input and output. Although

terrestrial radio programming did not live up to its full potential due to timing and

regulatory obstacles and a lack of infrastructure, in the digital age, podcasting has

become the new radio: podcasting is relatively inexpensive, portable, and perhaps most

importantly, available anytime, from anywhere.

Podcasting encourages learners to transcend the boundaries of the traditional classroom by allowing students and teachers to present lectures or supplementary material in a convenient manner. When students engage with a podcast, prior textual knowledge is solidified. Looking to Bolter's (2001) ideas about remediation, podcasting remediated radio as the new digital form of oral/aural literacy. As for the future of podcasting, Udell (2005) notes, the "distinction between streaming and downloading of media content has begun to blur…People can now have the experience of streaming while enjoying the simplicity…of downloading" (as cited in Campbell, 2005, p.38). Only time will tell what the intricacies of this digital marriage of text-based and oral media will bring, but it seems certain that positive strides in learning and literacy will continue to be made.

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