

Running Head: Podcasting

Podcasting and Really Simple Syndication (RSS)

Anna C. McFadden, Ph.D.

The University of Alabama  
College of Human Environmental Sciences  
Institute for Interactive Technology

## **ABSTRACT**

The simple nature of podcasting and Really Simple Syndication (RSS) belies the power for change embodied in them, either singly or in tandem. On the surface, podcasting is merely the recording of an audio file in MP3 format for sharing on the Internet, an MP3 player or some other device; this chapter covers the history and technical aspects of that process. Podcasting and the RSS feeds that keep consumers of podcasting connected to the source are examined as part of a larger movement in computer-mediated collaboration that centers on mobility, immediacy, and interactivity. Podcasting, as a personal tool or an organizationally managed one is examined in terms of types of podcasts, their current applications and future trends that can be anticipated in their use.

## INTRODUCTION

The purpose of this chapter is to introduce the basic concepts of podcasting and Really Simple Syndication (RSS) and trace the development of these technologies as a significant influence on communication models. Both of these terms have only recently entered the lexicon for educators, trainers, managers, policy makers and other Internet users. Podcasting was recognized as the Word of the Year for 2005 by the editors of the New Oxford American Dictionary (Biema, 2005). The term was defined as "a digital recording of a radio broadcast or similar program, made available on the Internet for downloading to a personal audio player" (Wikipedia, n.d.).

“Podcasting” in this sense is a frequently heard term that peppers the speech of savvy Internet users. This generic sense was the result of the popularity of Apple Computer’s tiny handheld MP3 player, the iPod. Since it’s entry into the digital-music player market in 2001, the iPod has caught the attention of a broad audience. Biema (2005) reports that in late 2004, a Google search for “podcast” returned zero results; the same search conducted in 2005 generated a real contrast, over 77 million results. Podcasting literally burst into the lexicon of Internet jargon in 2005, evidence of the power of the metaphor as well as the ubiquity of the practice. Biema explains the etymology of the term:

The "pod" in "iPod" suggests Apple's device is small and compact but chock full of good contents, like a pea pod. The word "pod" began as "cod" in Old English, meaning "the husk or outer covering of any fruit or seed." The "pod" spelling isn't recorded until 1688, according to the Oxford English Dictionary. (2005, paragraph 8)

A posting at News for Nerds (Slashdot.org), (<http://slashdot.org/>), dated August 12, 2005, reviews *"Todd Cochrane's Podcasting: The Do-It-Yourself Guide,* (<http://books.slashdot.org/article.pl?sid=05/08/12/1650234&from=rss>). The reviewer for Slashdot.org notes that the simplest description of podcasting is someone producing audio files and syndicating them with a RSS feed; listeners use one of the many available applications to download audio files in MP3 format to an MP3 player, which may or may not be an actual Apple iPod. Whether creditable to ingenious marketing or a serendipitous choice of available descriptors, *podcasting* has become the preferred, synecdochic term for downloading audio files to the entire class of MP3 players, in much the same way that Coke® is used in some parts of the world to simply mean a carbonated beverage or Kleenex® is used to mean a facial tissue.

A podcast is an audio file in a specific file format, MP3, which is MPEG-1 Audio Layer 3, though it is almost always referred to as MP3. MP3 is a compression format, meaning that the file is compressed to a more manageable (smaller) size. There are other file formats, but MP3 is, at the time of this writing, the most common for the small devices, such as the digital music players (MP3 players). MP3 players, such as the iPod, have become extremely popular mobile devices. MP3 format is available on the Internet so that it can be listened to on a computer, MP3 player, Personal Digital Assistants (PDAs), and some cell phones.

Since podcasts and other Internet-based communication tools are very dynamic and may change more frequently than traditional print products, many podcast consumers and producers use a companion tool called RSS (Really Simple Syndication), though it is not absolutely necessary to have RSS in order to produce and use podcasts or blogs. There are RSS content-use programs,

sometimes called feed readers, to which the user subscribes in order for the user to automatically get notices that there is something new on that blog, web page or podcast. In essence, the reader to which the user has subscribed regularly reviews the list of subscriptions for that user and, if there is new content, sends a notice to the user. The syndication in Really Simple Syndication (RSS) comes from the web feed or the subscription service. RSS is really a collection of web feeds, just as the name suggests.

Web feeds typically deliver web pages or links to web pages, sometimes accompanied by a brief summary of what is on that page, depending on the sophistication of the web feed. For example, a university or company may provide RSS, and interested parties may subscribe. When there is new content on the particular page of the organization's web site or its index page, the subscribing party is notified, with a one or two line description of the new content. Users can subscribe to this type of service with CNN®, various professional organizations, schools, publications, podcasts, and other web sites.

Combining podcasting with RSS greatly increases information access, resulting in a more dynamic tool set. Those users who are developing and uploading podcasts to the Internet may want to include RSS as a feature in order to insure the connection to users is more immediate. In fact, podcasts are often very dynamic, with edits in the content as the situation or information unfolds, since it is easy to produce and publish a podcast, and they represent the immediacy of the Internet. Consumers of podcasts may want to subscribe if RSS is available in order to receive immediate notification when there is a new podcast available. RSS might be considered an energy booster for podcasting.

This chapter is a description of the technical characteristics of these two tool sets and their relationship in practice. Detailed information is included on the technology required as well as the procedures and organizational policies considered co-lateral to making the decision to use podcasting and RSS, with a diverse audience of readers in mind.

## **BACKGROUND**

A discussion of the history of podcasting must be considered *recent history* by any standard and, as some have suggested, to speak of history in reference to a popular surge of this type is somewhat amusing (Clique Communications, n.d.). A brief overview will help define the context for understanding podcasting as a computer-mediated communications tool. The preparation of a brief history of podcasting may not be as easy as it sounds. There are about as many stories about the origins of podcasting as there are podcasters. For example, the web log of Lucas Gonze (n.d.) fixes August, 2004 as the birth date of podcasting. Clique Communications (n.d.) identifies Adam Curry, a disc jockey by trade, as the true pioneer of podcasting. Curry joined efforts with Dave Winer, an experienced software developer and business man who developed RSS. The ‘dawn of podcasting’ included the demonstration of syncPod by Kevin Marks at BloggerCon in 2003 (Clique Communications, n.d.). According to Van Orden (2005), the word ‘podcast’ first appeared in an article written by Ben Hammersley for *The Guardian* on February 12, 2004, where “podcast” was used as a synonym for audioblogging or amateur Internet radio postings.

(NOTE: If you want to see a podcast by and about Adam Curry, go to:

[http://weblogs.about.com/gi/dynamic/offsite.htm?zi=1/XJ/Ya&sdn=weblogs&cdn=comp&tm=18&gps=109\\_9\\_1020\\_620&f=00&tt=14&bt=0&bts=0&zu=http%3A//dailysourcecode.com/](http://weblogs.about.com/gi/dynamic/offsite.htm?zi=1/XJ/Ya&sdn=weblogs&cdn=comp&tm=18&gps=109_9_1020_620&f=00&tt=14&bt=0&bts=0&zu=http%3A//dailysourcecode.com/))

While some of the historical sources on podcasting differ with respect to names and dates, the consistent references to its connection to blogging are significant historically. Blogs have proliferated exponentially on the Internet from 2000 to the present and have provided, as some suggest, a bridge to podcasts. As of 2006, blogs were still more prevalent than podcasts, though demographics suggest podcasting will continue to grow rapidly because of the technology and the interest of youthful users (Meinardus, 2006). Meinardus avers that podcasting will continue to erode the listening audience for traditional radio, with podcasting accounting for at least 15% of radio's time-spent-listening by 2010, up from today's 6%. As Richardson (2006b) emphasizes, many of these tools (blogs, podcasts and wikis) are connected in their use, with their potential for impact sometimes heightened by the combination of tools.

Audio files on the web have existed for sometime. For example, a web site called Talking History (<http://talkinghistory.oah.org/>) began in 1997 to post audio files on the history of items and events, and it added podcasts in 2006. During the period since 2000, the Internet has evolved from its early role as an information source and has begun to grow in importance as the preferred forum for users to publish and disseminate their own thoughts and ideas (Richardson, 2005).

Podcasts are part of that evolution, made possible by the merging of new and refined technologies, in the form of high-speed Internet access, RSS and MP3 players. Podcasting may be characterized as a tapestry of loosely-knit, complimentary technologies employed opportunistically. When the pure oxygen of open communication channels came into contact with the spark of the generation that is always connected (Johnson, 2005), it is easy to understand how podcasts flared onto the wider screen of society, beyond the technologists and early pioneers.

While many of the current and early-adopting podcasters were from somewhat non-traditional backgrounds (disc jockeys, political activists, commentators, technologists), podcasting quickly began to move more into mainstream applications, such as K-12 classrooms, marketing, higher education, journalism and non-profit groups, as the tools became more user-friendly and MP3 players more common. Now mobilecasters, such as <http://www.melodeo.com/>, serve as portals to on-demand podcasts, radio and video for PC and mobile phones. Podcasting is moving into the mainstream at breakneck speed.

Podcasting has reached a certain level of maturity with respect to its use as an instructional tool (Richardson, 2005, 2006b). In 2002, Georgia State University was among the very first campuses in the United States of America (USA) to put together a pilot academic program using iPods (Blaisdell, 2007). In the fall of 2004, Duke University (North Carolina), in a widely publicized move, gave iPods to its 1,650 incoming freshman class as part of the Duke Digital Initiative (Duke University, (n.d.)). Today, there are active iPod programs on many other campuses around the USA, including those at Stanford University (California), Drexel University (Pennsylvania), University of Michigan, University of Dayton (Ohio), The University of Alabama, and Virginia Tech (Virginia). More universities and colleges are joining this list (Blaisdell, 2007; Galuszka, 2005). The use of podcasting in educational settings is driven in part by the explosion of iPod use in general (Stephens, 2005) and the *always-on* nature of the Internet and its users (Baird & Fisher, 2006; Johnson, 2005; Jukes, 2007). “Podcasting lectures merge students’ habits of reviewing course material with the current iPod frenzy” (Zhou, 2005, paragraph 7). Princeton University even has its own podcasting clearinghouse (<http://www.http://uc.princeton.edu/main/>), where users can find a podcast on the Electronic Frontier Foundation that includes discussions about podcasts.



K-12 schools have also begun adopting podcasting as an instructional tool (Balas, 2005; Johnson, 2005; Lucas, 2005; Richardson, 2006b). The George Lucas Foundation's magazine and website, *Edutopia.org* (<http://www.edutopia.org>), feature stories about K-12 schools' use of MP3 players, such as the iPod. In *Synching up with the iKid*, McHugh (2005) describes the use of social technologies (blogs, wikis, RSS) that allow students to shift from simply consuming media to actually creating it on their own tool set. The Kaiser Family Foundation Report (2005), entitled "Generation M: Media in the Lives of 8-18 Year-olds", includes scenarios from this age group that show youngsters multi-tasking, using multiple forms of media while engaging in homework and, in general, interacting with new technologies comfortably. In 2006 there were over 400 podcasts from K-12 classes listed on iTunes and over 900 education-related podcasts listed on Yahoo (Collins, 2006). Apple Computer Inc. introduced "iTunes U," a nationwide expansion of a service that puts course lectures and other educational materials online and on-the-go via Apple's iTunes software (CBS NEWS, January 28, 2006).

Mainstream businesses are also beginning to examine and use podcasting as a tool (Radin, 2007). In 2005, a Data Memo for The Pew Internet & American Life Project (Raine & Madden, 2005) described the current status for iPod (MP3 players) and podcasting. Over 22 million adults in the USA own an iPod or some other MP3 player; this number represents 3% of the men and 9% of the women in the population. In the 18-28 year old market, 20% of the age group owns some kind of MP3 player. Twenty-nine percent of the people who own an MP3 player have downloaded a podcast, meaning over 6 million adults in the USA have downloaded a podcast, as of 2005, and this technology has not yet reached its maximum potential penetration in terms of adoption (Raine & Madden, 2005). As of April 2006, 20% of American adults and 26% of

Internet users reported that they owned an MP3 player and as of August 2006, twelve percent of Internet users say they had downloaded a podcast (Madden, 2006). According to Bluestreak (2006), of the 1000 consumers selected from over 1.5 million households for surveying, 100% of respondents use email, 88% use text messaging, 71% use message boards, 63% use blogs, 36% use podcasting and 28% use RSS.

It may be assumed that businesses, like educational institutions, are using or considering the use of podcasts as a communication medium, while exploring the potential of podcasts as a computer-mediated collaboration tool. Rincon (n.d.) suggests that businesses consider using podcasting to offer late-breaking industry news, in-depth information to niche customers, and access to information from industry experts via podcast interviews available on the web site. Gahrn (2004) lists applications for podcasting, including the following:

- interviews to supplement news coverage or commentary
- audio recaps of the top stories on a news site (as a way to draw traffic to the news site or provide an additional advertising channel)
- updates from advocacy organizations or their PR firms
- specialized industry news from professional or trade groups
- investor news
- sermons, speeches, or debates
- audio from conference sessions
- quick highlights from newly presented or published academic or scientific research papers (abstracts translated into plain language)

Podcasts for information sharing, marketing and training seem to be popular applications, with some podcasts being included on web sites simply as a means to drive traffic to the site itself. Gahran (2004) suggests allowing bands to release new music via a podcast on the business' web site as a marketing strategy. Dugan (2005) lists twenty creative ways to use podcasting. The content may be as varied as the developer wishes and still be tagged as a podcast. Activists and political groups are not only preparing podcasts for including on the blogs or web sites of their causes or candidates, they are entreating supporters of the candidate or cause to provide testimonials and other materials as podcasts; others are producing their own examples of podcasts for use by supporters. The battle of the media has expanded to include podcasts. The medium itself is an attractive product, and the message, when properly framed, will be consumed when the medium is engaged.

#### MAIN FOCUS OF THE CHAPTER

Podcasting is easily described in terms of the equipment required and the process used. How podcasting might generally be used in higher education, K-12 schools, governance, social policy design and businesses is becoming increasingly evident. However, there are other significant issues associated with the development and use of podcasting to examine in order to fully grasp the gestalt of podcasting as computer-mediated communication.

#### Equipment

##### Hardware

Podcasts can be recorded on a desktop computer, laptop, digital MP3 recorder, PDA, PocketPC/Handheld, cell phone with voice recording, and a professional digital recorder (Cochrane, 2005). A podcast is created on a desktop computer or laptop via its internal sound card and a microphone (mic). An analog headset/mic (boom microphone) plugs directly into the

motherboard sound card. Some writers state that this type of microphone has been found unsatisfactory for creating podcasts due to the electromagnetic interference in the computer, which causes noise on the analog line and affects the audio recording quality (This Week in Nuclear, n.d.); however, this approach is still widely used for non-commercial podcasts, including classrooms. The quality is acceptable and considered sufficient to be a useful podcast in non-commercial environments. Another common approach is to use a digital USB headset microphone that plugs into the USB port, bypassing the internal sound card on the computer, resulting in better sound quality (This Week in Nuclear, n.d.). Both types of headset microphones are inexpensive and can be found at most computer, office supply stores and discount stores.

In order to put music behind a podcast, it might be useful to acquire a mixer. A mixer has many functions, but most relevant here is its capacity to record music at a lower volume level while recording voice at a higher volume level for a podcast (Geoghegan & Klass, 2005). Additional features of a mixer for a podcaster are special effects, the ability to record telephone interviews and its professional sound quality (Cochrane, 2005).

A more mobile alternative to using the desktop or even laptop is to make a podcast using a digital MP3 recorder. These are especially useful for recording presentations, lectures or conversations because they are very small and compactly designed. Some digital recorders have a built-in microphone, which may produce unsatisfactory sound quality. Better sound quality can be produced with a digital MP3 recorder that has a line-in feature. This line-in feature allows the attachment of an external microphone. The type of microphone used depends on the setting in which the podcast is being recorded. If recording a lecture, a unidirectional microphone is best

because the microphone will pick up a clear sound wave from only one direction, but if recording more than 1 or 2 people at a time, an omnidirectional microphone is a better choice (Geoghegan & Klass, 2005). Once the podcasts have been recorded, they are typically transferred via a USB cable to a desktop or laptop computer for editing in a software program, such as Audacity or Sound Forge. Professional digital recorders can be used to make podcasts. These devices are designed to record very high quality audio files in either wav or MP3 format; the wav files must ultimately be converted to MP3 format (Cochrane, 2005). Most professional digital recorders have an internal hard drive or a SmartMedia card for storage. These devices are multichannel, and some models can function as both mixer and recorder. PDAs and Pocket PCs can also be used to record a podcast. Each device must have a built-in recorder. There are third-party software programs for Pocket PCs that will upload podcasts to a hosting service over a wireless Internet connection for immediate access by the public (Hardy, 2006).

A podcast can be recorded on a cell phone that has the voice recording feature. Magid (2006) writes, "Cell phones don't have the best microphones in the world, so don't expect sound like anything like professional broadcaster. But this isn't about professional broadcasting: it's about regular people getting their voices heard from wherever they happen to be" (paragraph 14).

Voice Genesis offers a service that allows podcasts to be delivered to a cell phone but also permits the creation of podcasts. Creating podcasts with your mobile phone is called mobcasting (mobile podcasting) (Magid, 2006)

## Software

Recording/editing software is needed to record podcasts on desktop or laptop computers. The audio editing feature of such software is needed to edit audio files from a desktop, laptop,

PDA/PocketPC, cell phone, digital MP3 or professional digital recorder. There are a number of recording/editing software packages, but one of the most popular programs is Audacity, an Open Source software program for Windows and Mac platforms (Wikipedia, n.d.). The following are just a few of the particular features found to be key to producing and editing a podcast

(Podcasting News, n.d.):

- Record from microphone, line input, or other sources
- Export MP3s with the optional LAME encoder library
- Edit with cut, copy, paste, and delete
- Use unlimited undo (and redo) to go back any number of steps
- Rapidly edit large files
- Remove static, hiss, hum, or other constant background noises

### Applications

Applications, in the sense used here, refer to a review of the range and types of podcasts—often defined by their use or their development strategies—rather than a specific listing of examples. Havens (n.d.) describes *enhanced podcasts* as podcasts that feature a slide-show format for artwork or pictures that can be included in the podcast and provides an example. Havens (n.d.) also describes autocasting, which uses software that converts text-only sources into audio formats, such as creating MP3 files from RSS feeds. This means it is possible to use RSS feed to drag the blog text content into the autocasting software and listen to the newly created audio version. However, *enhanced podcasting* and *autocasting* are not really part of the mainstream use for podcasting. Havens uses the terms learncasts (i.e., educational podcasts) and

mobilecasting, meaning the use of podcasts on cellular phones. However, these distinctions are not fully part of the vernacular of podcasting.

More relevant here is a discussion of two types of podcasts: real-time (1:1) and synthesis. In real-time (1:1), the podcast is a direct recording, from beginning to end, of something, such as a demonstration, a speech, a discourse, a song, etc. Synthesis is an abstract, a summary or a portion of a larger whole. An example of this latter case would be an executive summary of a large document, an audio abstract of a speech, or an individual module (step) in a multi-part process. These two types, real time and synthesis, reflect a combination of content in that in both cases, the content guides the process by which the podcast is organized. Examining each category in more detail may help elucidate the distinctions of the two types.

In real-time podcasting, no attempt is made to abbreviate the content in any way, so the process is a direct recording, 1 minute to 1 minute. If the speech is sixty minutes in duration, then the podcast is sixty minutes long, recorded directly without editing. It can be a speech, a radio talk show, a policy presentation, a lesson on global warming, for example. This is currently the application model most frequently adopted in higher education and training (McFadden & Caldwell, 2007). Podcasting has been used primarily for disseminating recorded lectures and discussions (Flanagan & Calandra, 2005). At the most basic level, someone dons the recording equipment and, in real time, delivers the lectures. The MP3-format lectures or real-time files are then posted on the Internet for sharing via a MP3 player or other device (Warlick, 2005). These podcasts, considered the most basic, still require that the podcaster organize the equipment and content for the production. The more formal the product, the more planning is required. For

example, if each podcast is part of a series, and each podcast in the series must be 18-20 minutes in length, then the content must be carefully scripted and planned. The other way to produce such a podcast to a standard is to edit it after recording. If, on the other hand, someone simply wishes to podcast an introduction to an event, a lesson, or a product, planning requirements are less demanding, though quality and clarity concerns must still be addressed. These podcasts must be well done to carry the content properly (Campbell, 2005), including clearly organizing the purpose of the product, acknowledging its anticipated audience, adhering to any standards required, and mastering the technology required for sufficient quality. There are clearly many possible uses for podcasting for the classroom (Bull, 2005; McFadden & Price, 2007). Podcasts can be used to convey instructional information from the teacher or trainer, motivational stories, and auditory case studies. Podcasts can also be used by the learners as artifacts and evidence of the mastery process; for example, a student might prepare a brief podcast as a summary of a concept in lieu of writing an essay. Podcasts can also be used as a means of self-reflection on the learning processes or products (Price & McFadden, 2007). Just as with print, the context determines the appropriateness of the product and its use.

Flanagan and Calandra (2005) describe podcasting as having the potential to do more than merely record what they call “potentially drab” lectures! This potential is related to the second category listed here, synthesis. In a synthesized podcast, someone has intervened and *managed* the content of the podcast in some way. Isakson (2006) cites excellent resources for podcasts of this type, which are extremely attractive to students. The author has used this type of podcast as an assignment for students, asking them to listen to other podcasts and then produce their own original podcast summary. In the case of this latter type, synthesis, there is much more planning



required prior to producing the podcast. Alexander (2006) speculates about the impact on podcasting of Web 2.0, notable for its interactive potential, which may extend this category of podcasts and even result in the creation of newer, more interactive and collaborative versions.

Podcast directories are proliferating; for example, Podcast.net and Education Podcast Network illustrate the organization of podcasts by categories (McFadden & Price, 2007). These directories serve as repositories for podcasts in education, business, activism, and training, as well as entertainment; some users go to these directories searching for existing podcasts to use for various purposes. Therefore, the use of podcasts as learning enhancements or enriching media, used to bring the topic to life, is growing. For example, language, science and social studies teachers in K-12 settings use podcasts of news coverage, historically significant speeches, cultural events and official happenings as rich trappings for the teaching-learning process. Hearing Jacques Chirac's actual voice in French as he departs his position could be powerful for a French or political science class. Then listening to podcasts from French citizens as they discuss the matter could be so much more powerful for younger segments of digital natives (Price & McFadden, 2007) than reading a newspaper account—or at least equally so.

### Issues

There are some important issues associated with podcasting, whether in higher education, K-12, policy making or business applications, and, in fact, these issues extend into the realm of the personal podcast. The issues may be classified in two categories: attitudes and concerns for quality, as well as copyright and ethics.

Both developers and consumers of podcasts have various attitudes and concerns about podcasting, such as those related to individual freedom of speech, what constitutes quality, what is appropriate as content, and how to use podcasting. Discussions of quality sometimes relate to the technical quality (sound quality, organization of content), just as one might discuss proper development of an essay or a novel but in the context of technology and sound. Other discussions of quality mask concerns about what is appropriate content and how to use podcasting, meaning who is monitoring this activity. Authenticity comes into play when podcasts enter the world of policy making, politics and business; who is making the podcast and why takes on more significance in these cases than when the discussion is about podcasts teachers might make or use.

The question of individual freedom of speech is especially relevant when the podcast is a personal statement of position, such as might be found in political podcasts, personal journal podcasts, and organizational podcasts to support a specific point of view. In these cases, who monitors the content of these podcasts? The answer is: No one. Certainly companies can monitor the podcasts on their web sites or company networks; schools and governmental groups can do the same. Even parents may be, to some degree, able to direct the content of their youngsters' podcasts. However, the medium of podcasting is subject to little oversight or vetting, when produced as an individual's activity, at least in most countries, though not all. In the United States, bills have been created to protect free speech and technology; these bills exclude Internet-based journalism and private online exchanges from the proposed limitations on oversight of Internet-based material (Rockwell, 2005). The Electronic Frontier Foundation (<http://www.eff.org/>) offers an excellent guide for bloggers that can also guide podcasters

(<http://www.eff.org/bloggers/>). The very nature of podcasts - - the beauty of the technology and the bane of those who would control its unfettered use – is its inherent anarchy, a characteristic that affirms decentralized control and individual expression.

The conjoined issues of copyright and ethics have attracted more attention in podcasting than attitude and concerns for quality of content. Copyright is really a major issue for most developers and users, especially in educational and business settings. Some copyright protections should be extended to podcasts. A Podcasting Legal Guide

([http://wiki.creativecommons.org/Podcasting\\_Legal\\_Guide](http://wiki.creativecommons.org/Podcasting_Legal_Guide)) was developed to outline both legal and practical issues that are specifically relevant for podcasters, such as using music and video in a podcast, though obviously some questions arise as to the usefulness of this in cultures that do not recognize intellectual property rights.

“Podcasters share similar concerns to bloggers in relation to defamation, privacy, reporter's privilege, media access, election and labor laws and adult materials.

Consequently, if the content your podcast is likely to involve one of these issues, you should check the corresponding section of the EFF Bloggers FAQ.

(<http://www.eff.org/bloggers/lg/>). (Creative Commons, Podcasting Legal Guide, n.d., paragraph 10)

The Creative Commons (CC) organization has developed six copyright licenses known as Creative Commons Licenses. Once the user selects one of the six licenses, Creative Commons provides the software tools and tutorials needed to add license information to the product. Each copyright license covers a different set of conditions of the copyright. Efforts to set standards for the Internet continue in the face of varying cultural standards as well as legal guidelines.

## FUTURE TRENDS

An obvious trend is video casting (sometimes called vidcast or vodcast). Vodcasting is basically the same as podcasting, but video clips are distributed through RSS 2.0 enclosures instead of audio clips. This technology allows students, teachers, and administrators to easily share video clips. Users will also need a player capable of viewing video files. This type of technology will require developers to edit video; the file size for these video clips can be as much as five times as large as a podcast file, so it may not spread quite as quickly as podcasting, but the potential for future popularity is certainly there (Flanagan & Calandra, 2005; McFadden and Caldwell, 2007). Good (2005b) posed the question whether or not videocasting (vidcasting or vodcasting) will replace podcasting in the near future. Though there are some technical limitations to overcome, Good sees vidcasting as the future state of all of those who currently embraced podcasting.

Another trend is toward increased mobility, which means constancy in Internet access, such as offered by growing wireless access in buildings and communities. An extreme of the ‘always on’ culture of the future is found in the concept of wired clothing that provides pockets for mobile devices and the accompanying wiring, whether trousers or windbreakers. There are ‘always on’ wired garments, such as those with special pockets for MP3 players, ear buds and wires. These wired garments might actually serve to heighten the use of podcasts for computer-mediated communications, whether the podcasts use MP3 players or other smaller, more multi-tasked devices. The immediacy and constancy of access offered by wireless communities and the wired garments of the generation Jukes (2007) calls “digital natives” has yet to be explored as a force in mainstream podcasting and other forms of computer-mediated communications.

Another of the future trends that, conceivably, could impact podcasting is Web 2.0. Those who embrace the idea of Web 2.0 as the ‘Social Internet’ (Richardson, 2005) and discuss the Internet in terms of conversation, commons, communications and collaboration (Levine, xxxx) cite some features that would relate to podcasting. One of those is the movement away from web sites as individual repositories of information (called information silos) to the operational concept of computing platforms that allow end users to actually ‘use’ the sites for their purposes. Also Web 2.0 reflects an approach and an attitude about distributing web content through open communications with users freely allowed, even encouraged, to use and re-use information (O’Reilly, n.d.). There are other features associated with Web 2.0, but these seem more clearly related to podcasting.

With an emphasis on distributing web content, especially content prepared collectively and collaboratively by users, the potential for richer offerings in podcasts is obvious. *The Economist* (March 17, 2007) describes how the candidates for President in the USA are racing to the Internet with blogs, video blogs and podcasts. This reflects a new kind of journalism that is collaborative in its investigations and productions; almost anyone can produce a podcast (or blog) and upload it for the world to hear (or see). Participatory journalism (NPR, March 21, 2007) is becoming more accepted as a legitimate journalistic category; information is reported, vetted, researched and evaluated by the audiences, not the traditional newsroom journalists, including the use of podcasts and other user-created media. Even the BBC, CNN and other news outlets now seek audience input in the form of emails, audio files (podcasts) and original video clips, which they share on their shows. In those cultures where news production and distribution may be restricted by a political policy, podcasts can become the ‘from the scenes reports’, with

no editor in between the ‘reporter’ and the audience on the Internet, as has been seen in parts of the world where civil unrest and even war are brought to the MP3 player nearest you, almost immediately upon the telling of the stories by those involved.

Europeans Janus Friis and Niklas Zennstrom are well known for their development of a range of important computer-mediated collaboration tools, such as SKYPE and Kazaa. Their latest project, Joost, is a video-sharing site on the order of YouTube but with social networking features (Sparks 2007). This dynamic activity emanating from the European Union (EU) underscores that the press toward media sharing is not limited to the US and, in fact, is a global activity, with podcasting as only one part of that tapestry of interactivity.

It is likely that podcasts will become part of larger pieces of work, interrelated by content and use, perhaps as Joost, political websites and academic portals. This will also allow more dialogue among podcast developers, with the ability to use parts and pieces of others’ work. With an emphasis on open communications and participatory journalism, the value of a podcast extends beyond the original developer and target users and becomes part of a larger universe of knowledge that can be reorganized at any time without the need for the intervention of specialized technical support. Alexander (2006) describes Web 2.0 as opening up an opportunity for the enhancement of current pedagogy. De Waele (2006) lists trends for the mobile web, including that more consumer-produced content will be available, including podcasts.

Obviously, there are concerns that Web 2.0 elicits from developers of podcasts, especially in higher education where ‘ownership’ and authenticity of knowledge are underlying themes of discussion. Gonze’s (n.d.) view of the history of podcasting, informed by a vision for the future,

centers on the open nature of podcasting and how this might aid the proliferation of podcasting as well as the potential for growing sophistication of the content. Good (2005a) lists some questions arising from discussions in higher education about the use of Web 2.0 and its associated tools, including podcasting. These questions are:

- How does podcasting or vodcasting challenge the current instructional model (lectures) used on most college campuses? If all of the lectures are available as podcasts or video casts, will students still come to class and will they still need to come?
- Who owns the content in the electronically captured materials, such as a podcast of a specific lecture? Can the professor use the materials in other situations outside of the university? How is it protected?
- Who is going to edit the materials, especially if the professor worked with a faculty support group to produce the original product?
- How is the copyright managed? Are copyrighted materials verified? (Good, 2005a)

These questions speak to more than the question of the educational utility of podcasts; they really address the broader transformation in the social understanding of what constitutes authority, knowledge, learning, and schooling. When students are expected to learn in a fixed place at a fixed time, or when the professor or trainer expounds on material following a clear, linear path (master-to-unformed apprentice), control over processes is easier. Attendance can be taken. Time spent in class can be measured and qualified. The pattern is centuries old. However, as technology has eroded the boundaries between teachers and learners, students and trainees have assumed greater autonomy in the determination of the path and pace of learning. It may be that the most significant future trend - - reflected in the proliferation of new and polymorphous technologies like podcasting - - will be the decentralization of authoritative hierarchies and the

realignment of traditional structures of power and access, changing the pathways of communication and information sharing, whether in a classroom or in the seats of government.

### CONCLUSION

The emergence of podcasting and related technologies is a qualitatively significant event in the social transformation engendered by the increasing influence of the digital age on daily lives.

One can easily imagine a not-too-distant future when it will be said that the technology discussed here was “sophisticated for its time.” Notwithstanding, history must be lived and the future anticipated; the obverse of the statement yields no practical path. What has been described in this chapter is the powerful convergence of discrete technologies, generally qualifying for the appellations “podcasting” and “RSS.”

Due to the relevant infancy of podcasting in instruction and training, there is not yet a critical mass of research studies sufficient to definitively describe the impact or results of podcasting in instruction. However, Flanagan & Calandra (2005) reported there was no significant difference in outcomes between auditory instructional technology and in-class instruction, which can be construed as a positive effect in that the outcomes remained at least as good, which is all that is required if the preference for the medium is considered as part of the evaluation. In a technology survey (Arizona State University, n.d.) of Arizona State University’s fall 2006 student population, sixty-two percent of the students responding indicated they wanted podcasts of and/or related to their courses. Students were asked what services they would like to have enabled through a technology fee, and 58.84 percent of those responding indicated that they wanted automatic creation of podcasts of all lectures. Anecdotal data collected from college students enrolled in a biology class using podcasts as lecture summaries available on the Internet



indicated the students liked using their MP3 players for this purpose, found they often had more time to listen than time to read, and preferred those sections of the course that used this media enhancement (McFadden & Caldwell, 2007).

According to McCloskey (2007), students in two sections of Jim Foley's advanced computer science class at Georgia Technological University were exposed to identical in-class lectures, homework and examinations; however, for one section, pre-class podcasts of lectures were provided. McCloskey reported that the podcast group scored approximately 10 percent better than the students in the class-lecture only section. Given the preferences of these students for technologies, it is reasonable to assume that the body of research related to the use of these devices for instructional purposes will grow. Descriptions of iKids (McHugh, 2005) or "digital natives" (Jukes, 2007) and their proclivity for technology, constant connectivity and mobility would lead one to anticipate that the use of podcasting for more than entertainment will proliferate, with or without in-depth efficacy studies. Research efforts might be better focused on content preparation, using comparative studies to determine more precisely how and where to use podcasting.

Podcasting in its current permutation may be a very cost-effective way to deliver class instruction without compromising a student's learning effectiveness. However, this observation may be beside the point. The hierarchy has been flattened, and authority is now a function of quality access. Young learners are riding an empowering social wave in a deep sea of technology, and they have the skills set necessary for it. Some educators and trainers as well as policy makers will no doubt find the new dispensation disconcerting, even threatening. There

will be those who will decry it on pedagogical grounds, but then, their pedagogy was developed for a different age. Others in positions of authority will lament the lack of an official filtering system to guarantee 'quality' if podcasts are from the users. The technology described here is in flux. It cannot be assumed that present practices are stable when judged by antique standards. However, podcasting, RSS, and related technological developments are now requisite, if temporary and transitional, pedagogical and communication tools. Educators who are lifelong learners will adopt them with the objective of enriching the educational process and realigning their methodology with the historical moment. Policy makers and organizational leaders who are in tune with democratic principles and demographics of a connected society will understand and use their power accordingly. Larger questions to be answered in future research would include those related to the implications of technical or policy-based restrictions on access (bandwidth) for populations around the world and how these define and delineate digital differences.

## REFERENCES

- Alexander, B. (2006). Web 2.0: A new wave of innovation for teaching and learning? *EDUCAUSE Review*, 41(2) 033-34, 36, 38, 40, 42, 44.
- Arizona State University Student Technology Survey (n.d.). Retrieved March 17, 2007 from <http://altri.asu.edu/node/87>.
- Baird, D., & Fisher, M. (2006). Neomillennial user experience design strategies: Utilizing social networking media to support “always on” learning styles. *Journal of Educational Technology Systems*, 34(1), 5-32.
- Balas, J. (2005). Blogging is so last year--Now podcasting is hot. *Computers in Libraries*, 25(10), 29-32.
- BestStuff.com. (n.d.). High tech pants. Retrieved December 20, 2006, from <http://www.beststuff.com/computers/businesspro/high-tech-pants.html>
- Biema, N. (2005, December 28). “Podcast” is lexicon’s word of the year. *On Language, Chicago Tribune*. Retrieved January 2, 2007, from <http://www.nbierma.com/language/column/file/051228.htm>.
- Blaisdell, M. (2007). Special double feature: Academic MP3s>>Is it time yet? Campus Technology. Retrieved January 5, 2007, from <http://campustechnology.com/article.asp?id=18001>.
- Bluestreak Digital Marking Innovation. (2006). Press release: Bluestreak releases consumer research on emerging digital channels. Retrieved December 29, 2006, from <http://www.bluestreak.com/happenings/Press%20Releases/2006-1031.html>
- Bull, G. (2005). Podcasting and the long tail. *Learning and Leading with Technology*, 33(3), 24-25.
- Campbell, G. (2005). There’s something in the air: Podcasting in education. *EDUCAUSE Review*, 40(6), 33-34, 36, 38, 40, 42, 44, 46.
- CBS News. (January 28, 2006). iTunes goes to school. Retrieved December 2, 2006, from <http://www.cbsnews.com/stories/2006/01/28/tech/main1248970.shtml>.
- Clique Communications. (n.d.) Retrieved December 12, 2006, from <http://www.cliquecomm.com/blog/2006/09/24/introduction-to-podcasts-part-2/>.
- Cochrane, T. (2005). *Podcasting: The do-it-yourself guide*. Indianapolis, IN:Wiley Publishing.
- Collins, K. (2006). NSTA WebNews analysis: Podcasts in the classroom. Retrieved December 7, 2006, from [http://nsta.org/main/news/stories/education\\_story.php?news\\_story\\_ID=51662](http://nsta.org/main/news/stories/education_story.php?news_story_ID=51662).

- De Waele, R. (2006). 2007 predictions. Read/Write Web. Retrieved December 28, 2006, from [http://www.readwriteweb.com/archives/2007\\_web\\_predictions.php](http://www.readwriteweb.com/archives/2007_web_predictions.php).
- Dugan, K. (2005). 20 creative uses for podcasts. Strategic public relations. Retrieved December 8, 2006, from [http://prblog.typepad.com/strategic\\_public\\_relation/2005/09/20\\_creative\\_use.html](http://prblog.typepad.com/strategic_public_relation/2005/09/20_creative_use.html).
- Duke University. (n.d.) Duke digital initiative. Retrieved December 8, 2006, from <http://www.duke.edu/ddi/>.
- Flanagan, B., & Calandra, B. (2005). Podcasting in the classroom. *Learning and Leading with Technology*, 33(3), 20-23.
- Gahran, A. (2004). What is podcasting and why should you care? About.com. Retrieved December 18, 2006, from <http://weblogs.about.com/gi/dynamic/offsite.htm?zi=1/XJ&sdn=weblogs&zu=http%3A%2F%2Fblog.contentious.com%2Farchives%2F2004%2F10%2F29%2Fwhat-is-podcasting-and-why-should-you-care>.
- Galuszka, P. (2005). Technology's latest wave: Colleges and universities are increasingly exploring the academic use of digital mobile devices--but lack of money sometimes stands in the way. *Black Issues in Higher Education*, 22(2), 24.
- Geogegan, M., & Klass, D. (2005). *Podcast solutions: The complete guide to podcasting*. New York, NY: Friends of Designer To Designer asn Apress Company.
- Good, R. (2005a). Podcasting and vodcasting in higher education: How disruptive will they be? Retrieved December 2, 2006, from [http://www.masternewmedia.org/news/2005/04/16/podcasting\\_and\\_vodcasting\\_in\\_higher.htm](http://www.masternewmedia.org/news/2005/04/16/podcasting_and_vodcasting_in_higher.htm).
- Good, R. (2005b). Is video casting the next big thing? Move over podcasting. Retrieved December 2, 2006, from [http://www.masternewmedia.org/news/2005/02/18/is\\_videocasting\\_the\\_next\\_big.htm](http://www.masternewmedia.org/news/2005/02/18/is_videocasting_the_next_big.htm).
- Gonze, L. (n.d.) Weblog. Retrieved January 6, 2007, from <http://gonze.com/weblog/index.cgi/histcast.ongoing>.
- Hardy, E. (2006). Create podcasts with a pocket pc. Retrieved December 28, 2006, from <http://www.brighthand.com/default.asp?newsID=8865>.
- Havens, J. (n.d.). Q: What's an enhanced podcast? About: Podcasting. Retrieved December 28, 2006, from <http://podcasting.about.com/od/enhancedpodcasts/f/enhancedpodcast.htm>.
- Isakson, C. (2006). Caught on the web. *Education Digest: Essential Readings Condensed for Quick Review*, 71(8), 79-80.

- Johnson, D. (2005). A vision for the net generation media center: Media matters. *Learning and Leading with Technology*, 33(2), 25-26.
- Jukes, I. (2007). Our children are not the students our schools were designed for: Understanding digital kids. Keynote address: 2007 EARCOS Teachers' Conference, Bangkok, Thailand, March 30, 2007.
- Kaiser Family Foundation Report. (2005). Generation M: Media in the lives of 8-18 year-olds. Retrieved December 4, 2006, from <http://www.kff.org/entmedia/entmedia030905pkg.cfm>.
- Levine, J. (xxxx)
- Lucas, C. (2005). Pod people. *Edutopia*, The George Lucas Educational Foundation. Retrieved December 7, 2006, from <http://www.edutopia.org>.
- Madden, M. (2006). Pew internet project data memo re: Podcast downloading. Retrieved December 28, 2006, from [http://www.pewinternet.org/pdfs/PIP\\_Podcasting.pdf](http://www.pewinternet.org/pdfs/PIP_Podcasting.pdf).
- Magid, L. N. (July 20, 2006) New tricks for your cell phone. Retrieved December 29, 2006, from <http://www.cbsnews.com/stories/2006/07/20/scitech/pcanswer/main1819789.shtml>
- McCloskey, P. (2007). GT prof: Students learn better via iPod versus lecture. *Campus Technology*, Retrieved March 13, 2007, from <http://www.campustechnology/article.aspx?aid=45383>
- McFadden, A. & Caldwell, K. (2007). A case study: Using podcasting in large classes. An Unpublished Report, The University of Alabama, Office of the Provost, Tuscaloosa, Alabama.
- McFadden, A. & Price, B. (2007). MP3s and podcasts go to school! Paper presented to 2007 EARCOS Teachers' Conference, Bangkok, Thailand, March 28-31, 2007.
- McHugh, J. (2005). Synching up with the ikid. *Edutopia*, The George Lucas Educational Foundation. Retrieved November 8, 2006, from <http://www.edutopia.org>.
- Meinardus, R. (2006, April 18). *Need name of paper—put in italics*. Paper presented at The Second Philippine Blogging Summit on the University of the Philippines, College of Law, Diliman Campus, Quezon City. Retrieved January 2, 2007, from ).
- NPR (March 21, 2007) xxxx
- O'Reilly, T. (xxxx)
- Podcasting News. (n.d.). Producing a podcast with the gear you own today. Retrieved December 18, 2006, from [http://www.podcastingnews.com/articles/Producing\\_Podcast\\_Gear\\_Yo.html](http://www.podcastingnews.com/articles/Producing_Podcast_Gear_Yo.html).

- Price, B. & McFadden, A. (2007). Computer-mediated collaboration: Tools and applications. Paper presented at 2007 EARCOS Teachers' Conference, Bangkok, Thailand, March 28-31, 2007.
- Raine, L., & Madden, M. (2005). Data memo: Podcasting. Internet & American Life Project. Retrieved December 15, 2006, from [http://www.pewinternet.org/pdfs/PIP\\_podcasting2005.pdf](http://www.pewinternet.org/pdfs/PIP_podcasting2005.pdf).
- Radin, D. (2007). Connected: RSS, podcasts will change the way you do business. Post-Gazette.com, Business News, January 06, 2007. Retrieved January 6, 2007, from <http://www.post-gazette.com/pg/07006/751684-96.stm>.
- Richardson, W. (2005). Blog revolution: Expanding classroom horizons with web logs. *Technology & Learning*, 26(3), 48.
- Richardson, W. (2006a). The educator's guide to the read/write web. *Educational Leadership*, 63(4), 24-27.
- Richardson, W. (2006b). *Blogs, wikis, podcasts, and other powerful web tools for classrooms*. Thousand Oaks, CA: Corwin Press, A Sage Publications Company.
- Rincon, A. (n.d.) Podcasting for business. About: Online business / hosting. Retrieved January 5, 2007, from <http://onlinebusiness.about.com/od/marketing/a/podcasting.htm>.
- Rockwell, C. (2005). A down payment on political blogging. The War Room. Salon.com Retrieved December 4, 2006, from [http://www.salon.com/politics/war\\_room/2005/04/14/pol\\_blogging/index.html](http://www.salon.com/politics/war_room/2005/04/14/pol_blogging/index.html).
- Sparks, J. (March 27, 2007). The best of Europe. *Newsweek*,
- Slashdot.org., (n.d.). Book review: Podcasting. Retrieved January 5, 2007, from <http://books.slashdot.org/article.pl?sid=05/08/12/1650234&from=rss>.
- Stephens, M. (2005). The iPod experiments: Michael Stephens investigates ways that librarians are using this popular consumer device. *Library Journal*, 130(7), S22.
- The Economist, (March 17-23, 2007). Of slips and video clips, 32-33.
- This Week in Nuclear. (n.d.). Podcasting 101: Hardware, software, & more. Retrieved January 01. 2007, from <http://thisweekinnuclear.com/podcasting.html#pc>
- Van Orden, J. (2005). How to podcast tutorial. Retrieved December 12, 2006, from <http://www.how-to-podcast-tutorial.com/history-of-podcasting.htm>.
- Warlick, D. (2005). Podcasting. *Technology & Learning*, 26(2), 70.
- Wikipedia.org, (n.d.). Retrieved December 15, 2006, from <http://en.wikipedia.org/wiki/Audacity>.

*Wikipedia.org* , (n.d.) Retrieved January 5, 2007, from <http://en.wikipedia.org/wiki/Podcasting>.

Zhou, L. (2005, November 21). Harvard offers course via iPod. *The Harvard Crimson*. Retrieved December 10, 2006, from <http://www.thecrimson.com/article.aspx?ref=510065>.

## KEY TERMS

---

Bandwidth - It is the amount of data that can be passed along a communications line any given period of time.

Creative Commons – A nonprofit organization that has developed six copyright licenses, known as Creative Commons Licenses, for authors, scientists, artists, and educators to copyright their creative work. Each copyright license covers a different set of conditions of the copyright from "All Rights Reserved" to "Some Rights Reserved."

Mobilecast – Podcasting to mobile phone that has voice recording capability.

---

MP3 - An audio file that uses an MPEG standard used especially for digitally transmitting music over the Internet.

Podcast - An audio file that has been converted to an MP3 file for playback in a MP3 player, PDA/PocketPC, Cell Phone, or computer.

RSS – Abbreviation for Really Simple Syndication (or Rich Site Summary) RSS is a syndication format that aggregates updates to blogs, news sites, and podcasts.

Vodcast/VideoCasting – A process similar to podcasting, but video clips are distributed through RSS 2.0 enclosures instead of audio clips.



Wav – The native audio file format for Window. Wav files are often the format standard for professional recording and are very large files so they are not practical for use on the Internet, which is why podcasts are converted to MP3s before being uploaded/published to the Internet.