2006

Podcasting and MP3 Players: Emerging Education Technologies

Margaret M. Hansen EdD, MSN, RN
University of San Francisco, mhansen@usfca.edu

Podcasting and MP3 Players: Emerging Education Technologies

Maag, Margaret EdD, RN

Section Editor(s): Thede, Linda Q. PhD, RN, BC

Margaret Maag, EdD, RN, is an Assistant Professor at the University of San Francisco School of Nursing. Her area of research is in education technology and recent projects include the development of practical online learning tutorials and simulations.

Key Points:

* MP3 players have a role in education

* Podcasts facilitate education

* MP3 players find use in clinical areas

In order to educate the increasing number of nursing students enrolling in nursing schools and meet the needs of today's "Net Generation," faculty find themselves developing distance education courses and using technology that was not even dreamed about a decade ago. To fulfill these responsibilities and prepare nurses in a knowledge-driven era requires educators to look beyond traditional horizons of educational practices and consider new technologies.

BACKGROUND

One of the new technologies is the popular and easy-touse mobile MP3 audio players such as the Apple iPod. MPEG Audio Layer 3, or MP3, is a method of compressing audio files by a factor of about 10, so that a 40-MB track on a compact disc would become a 4-MB MP3 file. Although MP3 files can be played on any computer using free software such as iTunes, Quicktime, or Windows Media Player, mobile MP3 audio players are surfacing as high-tech teaching tools in institutions of higher learning. Veres [1,2] reports grant-funded Apple iPod research proposals becoming a reality at universities while students participating in iPod experiments receive the ever-present technology gadget free of charge. Critics question the educational purpose of MP3 technology and doubt if students will benefit from teachers' innovative uses of these powerful digital music players that can also function as a photo gallery. Skeptical educators fear students will use the versatile digital audio and video devices for entertainment purposes only. However, some administrators and teachers believe the popularity of the iPod will spur creative uses of this technology in learning environments and support experiential learning. [1,2]

EDUCATIONAL VALUE

Many innovative teachers and students have unearthed an assortment of educational uses for MP3 devices. Lomas and Reeves [3] encourage university students to simply "play" with the device in order to nurture a "do it yourself and sharing mentality," and believe there is educational value because of the simple transmission of information. Boylan [4] purports the investment in using technology in the classroom is paying off because it improves student learning and diminishes the attrition of underrepresented groups of students enrolled in school. Professors teaching linguistic courses have used one of these devices for uploading and delivering audio material in order to assist students with pronunciation of complex foreign words. In turn, students record foreign language diaries for instructors' assessment of their mastery of the language. These students may also download their assigned audio-listening exercises to any MP3 player, handheld device, or a computer, and complete their homework anywhere, anytime.[1] The instructor may record native speakers reading the required course materials for students to download.

There are, however, some glitches associated with the emerging use of this communication tool. Students may forget to recharge their devices, or to bring them to class. Additionally, students, who may see them only as a great way to catch some popular tunes while crossing campus, may need help in rethinking the use of these mobile devices from an entertainment to an educational tool. Lomas and Reeves [3] remind faculty that if these devices are adopted as part of instruction, they need to be committed to, and used, consistently.

One needs to be mindful of the cost of technological devices and students' budgets. Many students, however, may already own these devices. A class of nursing students (a hybrid of undergraduate and graduate) was casually asked if they owned MP3 players and 25% of the students responded "yes." All students (n = 44), however, were very interested in having the lectures posted on the Internet and the idea of using MP3 players for educational purposes. A professor at Duke University [1] reports approximately 40 of her 300 students record her lectures with MP3 devices. Having access to a lecture more than once assists nonnative-speaking students to understand complex material and can provide a good review for all students.

Librarians are storing audio books pulled from the Apple iTunes Music Store on "iPod shuffles" and then checking the devices out to library patrons. Library administrators indicate this practice is less expensive than lending out books on tape.[5] Perhaps in the future, publishers of college textbooks will provide students and instructors with a textbook stored within several MP3 files. This method of delivery might reduce the cost of textbooks

for students and enable them to listen to audio books anywhere at anytime, thus giving the "book on tape" a different delivery platform.

This emerging technology is rapidly advancing and being used among academicians and clinicians for educational and research purposes. Gehlert,6 an investigator at the University of Chicago, shares her breast cancer research findings via a "podcast" (see http://research.uchicago.edu/highlights/science/gehlert.shtml) as well as a conventional MP3 file. Podcasting is simply distributing MP3 files using a rich site summary (RSS) feed. According to Wikipedia,7 the term "podcast" is an amalgamation of the word "broadcasting" and "iPod," the brand name of Apple Computer's MP3 player. Nonetheless, an iPod is not required to listen to a podcast; many people listen to offline podcasts on other brand name MP3 players,8 or a computer.

Because the technology provides student "ownership" of learning materials, learners may be more motivated to organize personal academic notes, lectures, and other digital learning artifacts. The potential of MP3 technology in educational circles includes the provision of continuing education learning materials, such as that offered by Nursing Spectrum 9 (see http://www.creekspace.net/nsdemo/), lecture review (see http://www.maagnursing.com/podcast), enhancing online courses, active student involvement, and a "conversational" voice that may enhance learning.3 Students want to be acknowledged as individuals and nurtured in learning environments. This technological device may assist with these affective aspects because students will be able to access faculty lectures for review and provide faculty voice in activities that include peers and instructors. Furthermore, there are other ideas for the use of this budding technology. "The CE route seemed to have the most appeal, but I also plan to try it [podcasting] with my undergraduate introduction to nursing informatics class at Wright State University in Dayton, OH. It may well find its way into some applications in the Staff Development Department at Kettering Medical Center" (B. Perry, personal communication, July 21, 2005).

Podcasting zealots share their enthusiasm for the new technology through the blogosphere 10 and envision an educational value because of the "easy transmission of information, the simple delivery process, and more use of MP3 players"3 as well as the ability to play MP3 files on a regular computer. The challenges these same educators foresee are students' adoption of the educational aspect of the device, technical support from university instructional technology departments (eg, server space, bandwidth, maintenance), and faculty member buy-in of the use of the technology. However, if educators have an understanding of the generation of students they are teaching, perhaps then it is clear that these ubiquitous devices and inexpensive software may assist learners and teachers to

share a voice and enhance communication.

HEALTHCARE

Healthcare educators may take advantage of MP3 technology to share images with students. A team of Swiss physicians developed a system, "OsiriX," for showcasing medical-related images that assist with diagnosing patients' conditions.[11] This open-source image-processing software allows healthcare providers to view Digital Imaging and Communications in Medicine (DICOM) files in various dimensions, and can display images taken by medical technicians using magnetic resonance imaging (MRI), computer tomography (CT), or Positron Emission Tomography (PET) scanning devices. The OsiriX system may be used in conjunction with the iPod. This simple delivery may assist physicians while conducting patient rounds with medical students, thereby providing a way to reach different styles of learning.

Healthcare educators, providers, patients, and students can implement many creative and effective uses for the iPod photo. Nurse educators may download anatomical images from the Internet or textbook compact disk (CD), with site author's and/or publisher's permission, and collect and organize them in Apple's iPhoto software as teaching aids. Educators may make succinct and interesting audio files that avoid cognitive overload and then create a podcast for students to listen to at their convenience. With patients' written permission and following institutional protocols, nurse faculty may upload digital photographs of the patient's condition (eg, wounds) onto the iPod and then share the images with students as learning objects during post-conference or -lecture discussions.

The MP3 player, as an audio recorder, is a convenient way to record voice prior to a lecture or presentation. Such recordings may assist novice lecturers to rehearse, or assist nurse researchers with the collection of qualitative data, such as focus group recordings or interviews. Another timely use of the MP3 recorder is making digital files about a specific topic such as becoming a nurse educator and then creating a simple audio blog for interested graduate students. With sufficient planning and time, attendees at national conferences may "capture the essence of a meeting by podcasting."[3] With permission from lecturers, recorded speaker presentations may be produced for an RSS feed and quickly delivered to those who are not able to attend.

The iPod may serve as a tool to record nurses' notes and/or devise audio nursing care plans at the point of care. These audio files may be uploaded to the patient's electronic medical record in an efficient and timely manner. Nurse experts employed in various specialty fields (eg, life-flight nurses) may record professional experiences or stories as a method to showcase their area of expertise for students. With the patient's permission and

following the appropriate protocols, community nurses may take digital photos of patients during the recovery period and then show clients their improvement as time progresses. An archive of digital photographs may assist patients who must come to terms with body image disturbances over a period of time.

Nursing students may wish to share appropriate (eg, nature-related) photos along with soothing music via an MP3 player for anxious patients awaiting surgery, or perhaps this technology may provide patients with a more aesthetic environment (eg, beautiful photographs) to promote healing, as is recommended by J. Watson (personal communication, January 15, 1997). Providing patients with the ability to listen to music or view photos of loved ones may provide distraction from periods of severe or chronic pain. Furthermore, hospitalized patients may view short video/audio clips produced by nurses/nursing students that teach patients specific aspects of their healthcare.

CREATING AND USING A PODCAST

Creating a podcast requires planning what you wish to say and preparing a written script. Next, record the audio file using a good quality microphone and a program, such as Audacity (a free open-source software for recording and editing sounds available at (http://audacity.sourceforge.net/). Once the audio file has been created and saved as an MP3 file, it is ready to be uploaded to a Web site. This is done by embedding the MP3 file into an HTML document or creating a "podcast" via RSS/XML (see EasyPodcast at http://www.easypodcast.com/features). A podcast may then be listed in a podcast directory, such as iPodder (http://ipodder.sourceforge.net/index.php), Doppler (http://www.dopplerradio.net), or Apple iTunes (http://www.apple.com/itunes/) for other users to download to their computers. These podcast directories can also be used to download preselected podcast subscriptions as well as MP3 files that are accessed from a Web site. A selected RSS/XML feed may be easily copied from the RSS/XML page's site and then pasted into a podcast directory for future listening use. For further instructions on how to create a podcast, visit iLounge at http://www.ilounge.com/index.php/articles/comments/beginners-guide-to-podcast-creation/).

Some instructors create lecture podcasts by using a portable audio player (eg, iPod), a microphone (eg, iTalk) that attaches to the MP3 player, and a lapel microphone (eg, Griffin brand) that attaches to the main microphone. The saved WAVEform (WAV) audio file created on the digital audio player may then be uploaded and saved to a computer. The WAV sound file may be converted to an MP3 file with a conversion support system such as Sound Grinder 2 (http://www.monkey-tools.com/pages/products/sgmain.htm-

$39) for the Mac or Audio Utilities (http://www.audioutilities.com/mp3-to-wav/convert-mp3-file-to-wav-files.htm-$19.95) for the PC. Once the original audio file is in MP3 format, the files can be uploaded to a shared server for student access (eg, Lecture Podcasts at http://www.maagnursing.com/podcast/).

Critics might consider providing lectures in a podcast as "spoon feeding" students or anticipate class attendance to diminish. Faculty, however, need to remember that students pay to have their learning facilitated; how they learn is up to them (http://www.ilounge.com/index.php/articles/comments/beginners-guide-to-podcast-creation/). Educators should not confuse podcasting with uploading audio files to an electronic course management system, such as Blackboard, for students to pull from. Today's generation of students have voiced dissatisfaction with taking "too many steps" to pull online information. If too many steps are involved, without an assigned grade, the student will not easily participate. Podcasting may seamlessly deliver educational content into students' computers via an RSS feed.3

VODCASTS

Professional video presentations can be delivered by using "vodcasts" (video-on-demand casting).3 A video camera, equipped with an audio capturing system, is required in order to create this visual and auditory presentation. Verdi,12 author of "Freevlog.blogspot.com," explains in a detailed stepwise fashion how to set up a free videoblog in order to produce a vodcast http://www.freevlog.org/). There are other sites available, such as http://digitalbicycle.org/ and http://videoaddon.com/, that provide detailed instructions on how to begin making vodcasts. Similar to podcast technology, videos may be pulled from an RSS aggregator and automatically downloaded to your desktop. Vodcasts provide instructors with more online teaching opportunities, especially in distance education, and add a different dimension to face-to-face classes. Vodcasts can be used by students for creative delivery of group presentations in the classroom or for clinically related inservices. The equipment needed often can be borrowed from the college information technology department; students and faculty can learn to produce vodcasts easily.

CONCLUSION

Myriad innovative technological approaches are surfacing in today's "knowledge-driven" era. The use of technical tools may allow for enhanced learning for healthcare students, providers, or clients. The number of qualified students who are turned away from schools of nursing increases each year due to the limited number of teachers. Therefore, it is an educator's responsibility to look at all potential methods of education that may assist with the preparation of nurses to quench the nursing shortage in this country. Using audiovisual and computer technology could provide better learning opportunities to more students as well as foster a sense of creativity and fun. Its use in the clinical area could improve communication as well as the accuracy of data collected.

Back to Top

REFERENCES

1. Veres S. I-Pod experiment. February 28, 2005. Available at: http://www.chronicle.duke.edu/vnews/display.v/ART/2005/02/28/42230159a01ba. Accessed February 28, 2005.

2. Veres S. Drexel gives out iPods to education students. March 3, 2005. Available at: http://www.chronicle.duke.edu/vnews/display.v/ART/2005/03/03/4226fb4ed875b. Accessed March 3, 2005.

3. Lomas C, Reeves J. Podcasting possibilities. March 4, 2005. Available at: http://www.educause.edu/LIVE055. Accessed March 4, 2005. [Context Link]

4. Boylan M. What have we learned from 15 years of supporting the development of innovative teaching technology? Sci Comp Rev. 2004;22(4):405-426. [Context Link]

5. Farivar C. Library shuffles its collection. March 3, 2005. Available at: http://www.wired.com/news/mac/0,2125,66756,00.html?tw=wn_tophead_4. Accessed March 3, 2005.

6. Gehlert S. An interview with Sarah Gehlert. July 20, 2005. Available at: http://research.uchicago.edu/highlights/science/gehlert.shtml. Accessed July 20, 2005. [Context Link]

7. Wikipedia. Podcasting. August 10, 2005. Available at: http://en.wikipedia.org/wiki/Podcaster. Accessed July 20, 2005.

8. Meng T. What is podcasting? 2005. Available at: http://journalism.missouri.edu/podcast/. Accessed March 4, 2005.

9. Ashton KC. Nurses, women, and heart disease. 2005. Available at: http://creekspace.net/nsdemo/index.htm. Accessed July 21, 2005. [Context Link]

10. Maag M. The potential use of "blogs" in nursing education. Comput Inform Nurs. 2005;23(1):16-24.

11. Wu D. The iPod photo goes medical. December 4, 2004. Available at: http://www.engadget.com/entry/1234000713024391/. Accessed March 7, 2005. [Context Link]

12. Verdi M. Freevlog. Available at: http://freevlog.blogspot.com/. Accessed March 7, 2005.