Podcasting: A Preliminary Classroom Study

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Abstract/Resumen

Podcasting is a term introduced through the use of Apple Computer, Inc.'s iPod, a term which denotes how a portable audio player can be used to download audio files, mostly MP3s, and be heard at the user's convenience. Initially such an operation was intended for entertainment; however, it has proven itself to be an important tool in the field of education as well. The research at hand constitutes a preliminary study for exploring the educational potential of podcasting and for presenting the basic technical and pedagogical skills needed for its implementation. This qualitative research uses as its instruments direct observation and informal interviews of students. The project was carried out with 25 students who were looking at a chemistry unit on aromatic compounds and it included the use of four podcasts. Even though the current study is taken from a science class, the applications of this technology can be useful in other subjects, particularly languages and social sciences.

Podcasting es un término presentado por el iPod de la compañía Computadores Apple, para describir cómo un sistema de sonido portátil puede ser utilizado para descargar archivos de audio, usualmente los MP3, y ser escuchado por un usuario a su diposición. Inicialmente esta tecnología fue diseñada para el entretenimiento, sin embargo, también

se ha mostrado como una herramienta importante en el campo de la educación. La investigación presentada constituye un estudio preliminar para explorar el potencial educativo del *podcasting* y para presentar las habilidades y técnicas básicas que se requieren para su implementación. Esta investigación cualitativa maneja la observación directa y las entrevistas informales como sus instrumentos de recolección de datos. El proyecto se desarrolló con 25 estudiantes quienes estaban indagando sobre una unidad de química sobre compuestos aromáticos e hizo uso de cuatro *podcasts*. Aunque el estudio presente fue tomado de una clase de ciencias, las aplicaciones de ésta tecnología pueden ser útiles en otras materias, particularmente en idiomas y las ciencias sociales.

Keywords/Palabras claves: podcasting, MP3 player, technology, learning, auditory learners; podcasting, reproductor de MP3, tecnología, aprendizaje, aprendizaje auditivo

Introduction

A high school science class will be taking an important test in 2 weeks. They have been working in class using exercises, worksheets and reviews of the most important concepts. However, will these means be enough in order to prepare them to recall the vast amounts of information that will be seen on the test? Is there any other way their instructor can help them to prepare?

Presently, most educators undoubtedly have noticed that many young people are daily connected to their iPods or MP3/MP4 players. A teacher will also notice that apparently, listening to these devices does not have much negative impact on a student's concentration. If their level of productivity is affected, it's not a significant amount. From these observations, the thought arises: Why not take advantage of the wide use of these devices to also review for tests (and not only for listening to music)?

Most adults who work closely with teenagers have already heard about podcasting. The majority has heard of how to use music players as educational tools, but doesn't pay much attention to the issue. Many schools, depending on the socio-economic situation of student families, demonstrate an abundant use of student iPods or MP3/MP4 players, and educators are just now understanding how they can use these devices for educational purposes.

When one begins to research the issue of podcasting (understanding the technology required, knowing the processes to follow, becoming skilled at how to explain it to students and perusing the other implications of its use), one discovers a completely new language. Included in the podcasting vocabulary are words such as *RSS, feed, episode* and *XML*

file. New concepts, although challenging at first, become clearer after working through a complete teaching process, as the author of this research himself discovered.

Methodology

After the creation and upload of four podcasts, students were asked to download them and were allowed to use them both before and during a test. The use of podcasts was voluntary. Test grades were compared among students who took it with and without audio accesibility to a podcast. Subsequently, the researcher informally interviewed students in order to determine their appreciations of the experiment as well as the implications of their podcast use. Finally, the results of the tests were compared in order to determine any impact possibly related to the use of podcasting.

Theoretical Background and Process

Podcasting, although originally introduced as a music entertainment concept by Apple Computers, eventually found itself a way into the field of education. The Office of Information Technology of the University of Minnesota (2006) defines *educational podcasting* as a method of publishing audio files (usually MP3s) to the Web, which are then made available through subscription and automatically downloaded to a personal computer or portable MP3 player. Podcasts are not meant to be listened to live, but whenever and wherever it is most convenient for the listener to hear them.

In general, a podcast is used to share ideas, concepts or any other sort of information that can be transmitted via audio or video files. Middleton (2008) indicated that an educational podcast allows for the development of shared knowledge through distributed digital media which is accessible to a community through flexible interfaces. A podcast can be a way of sharing knowledge and developing virtual learning communities connected through a web feed.

Web-savvy writers commonly describe three stages in the development of a podcast: file production, publication and delivery/ playback (Deal, 2007). However, the author has concluded that a prior step is as important as the other three in the production of a podcast: planning and organization.

Stage 1: Planning and Organization

First of all, one must begin with an end in mind: What will the podcast be used for? In the particular case of the author, students needed tools that would help them activate certain information learned which would, in turn, allow them to do well on an exam. The information provided on the podcast was data which they were asked to analyze and synthesize.

In order to prompt the activity of data synthesis, the teacher prepared a Word document with the information he wanted to include (a script), then divided up this information in four different sections (episodes). Once they were separated, the teacher decided which music would be suitable in each episode. Such audio needed to be motivational and not distractive. Music heard in the background of the voice track not only supplies the atmosphere, but it gives the voice a different ring.

In the planning, the teacher also included some *attractor* elements such as: "The following question will be on the test," "The formula for answering this problem is…," etc. These attractors were designed to get the student's attention. The strategy was that students who experienced the advantage by getting these clues and helps would tell others about the benefits of listening to the podcast.

Stage 2: File Production

The script produced in the previous stage is recorded on different audio files as needed. One can make the recording by reading the script directly from the screen with a prompter; similar to what is done on television news shows. A free online prompter can be found at http://www.cueprompter.com. With this software the teacher can set the pace of the recording, which will greatly aide in including all the information needed. Without a script, it is likely that the producer will leave information out.

The following step is to select the software and hardware needed for the recordings. The instructor will need to have access to a quality microphone and to assure that the microphone works properly with the computer. One can use any audio editing software for the recordings, but the free software Audacity© is a very good choice. Audacity allows one to modify the audio and add effects to it.[1] It is recommended that one do some trials before the final recording as it will be necessary to make sure that the intonation and pronunciation are suitable.

Based on the author's experience while recording, the following aspects should be taken into account:

Pacing. If the designer of the podcast speaks too fast, hearers won't understand or it may be difficult for them to follow. On the other hand, speaking too slow causes others to consider the podcast to be unattractive and boring. Therefore, the prompter is recommended for assisting the speaker with pacing.

[1] One disadvantage of Audacity is that this software produces audio files in WAV format. In most cases, podcasting requires audio in MP3 format. What can be done is that once the WAV file is finished, the podcaster can convert it into an MP3 with some other free software such as iTunes© or Switch©.

Tone. The podcaster needs to use a consistently interesting tone of voice so that the students will feel engaged. In many cases, people don't even like the way their own voice sounds when it's recorded. Try not to let that hinder you from recording. Each person has a specific tone and pitch, which one should not attempt to change. What is suggested is that each person sound alive with vibrant speech emanating from the enthusiasm one feels about the subject being taught. With that, all issues of sound become secondary.

Background music. Try to make a good choice of any background music so that students may feel more motivated to listen to the podcast. However, do not let music or sound effects dominate the information. On this matter, one should also take into account copyright issues. If the producer is not sure about the legal considerations, it's better to assume that one is under copyright limitations. For free music and tracks, see http://www.freeplaymusic.com.

Length. Do not create extensive or long podcasts. Keep audio files short (about a 5 minute maximum). If the topic is too long, it becomes difficult to locate a specific section. Very few students will be able to spend more than 30 minutes of their time listening to a teacher from school, as beloved as the teacher may be.

In podcasting exercises, the file is the basic means of communication the students will have with their instructor, unless the work the teacher is developing involves more technology such as a wiki, a blog or a webpage. However, the development of an audio file for educational purposes is not as simple as just recording information. It is a complex task that requires a clear purpose, motivational elements and detailed time-management. With regard to the tempo of an audio recording, Campbell (2005) says that when students listen to a podcasts they are:

> … at the mercy of the speaker's tempo. For this author, sometimes it is a good thing for the learner not to control the tempo, particularly if one wants to lead the learner away from habitual patterns of perception and cognition. Perhaps listening attentively to the pace of another mind, revealed in voice, can help train the learner to be more attentive generally.

Nevertheless, the above statement should be weighed carefully in the area of language learning, given that pace significantly affects the ability of students to comprehend the lesson being taught.

Stage 3: Web Subscription and Publication

A teacher who will be using podcasting will need to have a website with RSS (Really Simple Syndication), which is the "feed" for podcasts.

In other words, one must find a host site where one may upload the MP3 and eventually retrieve the same files. An RSS document, also called a *feed* or *web feed* can include text such as descriptions, questions or guidelines, as well as metadata such as publishing dates and authorship. There are some excellent free commercial web feeds such as Podbean.com and MyPodcast.com. The creation of a feed is as simple as any normal e-mail account creation. Just follow the steps, make a recording, and one is ready to publish a podcast. It's important to know that not every podcast is free because some teachers have committed the mistake of creating commercial podcasts on feeds where students have to pay for the information posted.

Once the web feed is established, the instructor will be ready to upload the different tracks/episodes of the podcast and make them public. Some college professors post their class lectures on podcasts for review or for cases of absenteeism. The hosting sites give clear directions about how to upload. Normally, there are visible step-by-step instructions for a user to follow. The biggest limitations of a free website are the amount of space available and the possibility of losing the hosting at their convenience. This is why it is very important to keep backups of all audio files in case one needs to move to another host.

Another advantage of using a web feed is that, in most cases, subscribers have the option of getting constant updates. This means that whenever one uploads anything new to their feed, the subscriber can be notified. Deal (2007) states that the feed and subscription model of file delivery is what differentiates podcasting from a simple posting of audio files on the Web. Accordingly, the Office of Information Technology at the University of Minnesota (2006) describes podcasting like a magazine subscription. The "push" feature will suggest potential uses for the listener, such as departmental updates or course updates from a professor.

Stage 4: Delivery and Playback

Delivery and playback may be different depending on the type of audio player that one has available. The process for iPods is different from the process for MP3/MP4 players. If a teacher wants students to be able to download podcasts to an iPod, the teacher will need to subscribe to a web-feed through iTunes. Once subscribed, every time iTunes is opened, the podcast subscription may be updated and the podcast can be downloaded to the device through synchronization. In the case of students who are using an MP3/MP4 player, the file will have to be downloaded from the web feed to the computer through the download option that appears on the website. After that, the audio file must be copied onto the player as any other normal audio file.

Educational Uses

Podcasting is a growing art in the field of education. It is being used both by teachers and students alike, which gives it a multidimensional aspect. Podcasting is not limited to instructor content, but learners are also creating their own podcasts as (1.) a record of activities, (2.) a means for note collection (3.) or a reflection on a lesson learned (www.educause.edu/eli). More and more research is being carried out to determine the impact podcasting could have on education and innovative uses have been proposed by teachers as well as IT educational researchers. For example, Dan Schmit (2005) proposes about 20 uses of podcasts in the classroom in different subject areas.[2] In addition to those mentioned by Mr. Schmit, podcasts can also be used for:

- Weekly newsletters. In these, teachers can post information about weekly class activities for parents and students to listen to.
- Digital story telling. A story can be recorded.
- Audio e-portfolios. Students can keep track of the development of their speaking skills as they progress over time.

Podcasting is becoming a more useful tool in education as teachers and students find more applications for it. Its functions are not limited to specific subject areas, but it is being more widely used and appreciated in certain particular areas such as languages and social sciences. Godwin-Jones (2005) in his article: *Emerging Technologies: Skype and Podcasting: Disruptive Technologies for Language Learning*, says the following:

> Podcasting has just begun to be used in language learning. The popularity of MP3 players among students means that students could easily download podcasts in the target language (e.g., from a newspaper site, blog, radio program) for listening on the go. Several schools have made podcasts available for language students. The PIECasts from Scotland are intended for a variety of uses including vocabulary revision, listening exercises, and interviewing with native speakers. J. van Rose's "Really Learn Spanish" blog includes podcasts. The Bob and Rob Show offers "weekly English lessons from a Yankee and a Brit." Middlebury College has announced support for podcasts in the upcoming version of its StudyDB software, called Crescendo. The University

[2] These applications can be seen on the following site: http://learninginhand.com/blog/2006/12/podcastingnotes.html.

> of Missouri's white paper on podcasting highlights language learning as well as many other potential education uses for podcasting. In a recent discussion on Slashdot, prompted by a question about best ways to learn another language, using podcasts was one of the very first suggestions made. As support for podcasts grows and new tools streamline production, their use in language learning will surely increase.

It is evident that this kind of tool favors auditory learners, given the nature of its production. However, the use of video in podcasting is currently increasing. This resource is called *video podcasting* and is aimed at both visual and auditory learners. The principles are the same, but this technique uses video production software such as Windows Movie Maker or i-Movie, built-in software in PC and Mac Computers, respectively. There is also commercial software with more advanced tools for video production, but they require investments of considerable time and money. The production of video is more resource consuming, but it is more rewarding as students will be able to easily identify more ideas and make more mental connections as they see and listen to the podcast. For the student devices now being used, a limitation is the type of player needed; the iPod must be iPod video and the MP4 player must also have video capabilities.

Even though podcasting is opening new paths in education, adding audio to a course is not a panacea according to Manning (2005). There are several sobering issues that should be considered before deciding to broadcast. It is suggested that the podcast producer consider the following: (a) Target: What type of audience will it have? (b) Goals: Are my goals audience-oriented? (c) Resources: Do I have the software and hardware needed? Does my audience have the software and hardware needed for retrieval? (d) Assessment: How will I determine the impact of my podcast?

Certainly, podcasting is a useful addition to the teacher's toolbox and a strategy which may be employed efficiently. However, there is still much room for the exploration and consideration of how it may be implemented. It is hoped that this very brief preliminary paper may provide some ideas for further research and applications.

Results

An explanation was given to students for them to be able to retrieve and subscribe to the podcast. As stated earlier, the subscription and use of the podcast was optional for the students. During the test, students were allowed to use the podcast, a resource which provided them with general concepts, formulas and a description of a procedure to solve some

scientific problems. The explanation about the solving of the problems was perhaps the facet of the podcast which was most appreciated by students. In most cases they struggled with problem solving, but the guidance provided on the podcast helped them to organize their ideas. It also provided them with the tools they needed to solve the problem on the test.

When students finished the test, they were given two additional questions: 1.) What did you think of the podcast? And, 2.) Did it help you? In general, students expressed an appreciation for the podcasts. For some of them, it was a very useful instrument for studying for the test. Being that they did not feel the need to memorize specific data; it seems that they focused more on applying information and problem solving. The outcomes of the test showed that students who did not use the podcast (who normally were on the same level of performance as others) got a lower grade than the students that used the podcast. Compared to other tests with similar characteristics, students who took advantage of the podcast scored 40% above their usual grade. The study didn't include advanced-placement (AP) students, as they usually have exceptionally high grades and with great consistency.

Some students expressed an interest in producing their own podcasts to review and study for other classes. This experience was highly motivational and they expressed a desire to utilize podcasts more in the future. They are expecting more podcasts for coming units and tests.

Conclusion

In this particular study, students found some benefits when using a podcast as a means of studying and reviewing for a test. Assigning the use of podcasting has proven to be a good way to take instruction beyond the classroom and to provide multiple mechanisms for student learning. Podcasting is initially a time-consuming process which requires some preparation and resources, but eventually, with practice, it may become another routine strategy that teachers apply to class intellectual development and production skills. Depending on one's technical skills, it can take up to 30 minutes of time for every 5 minutes of produced podcasting audio. However, this preparation time gradually lowers as more experience is developed.

Using podcasts is a worthwhile experience that educators can use to enhance student learning as well as to develop the skills needed for the 21st century. Its application is increasing worldwide. Schools and students are already, in general, up-to-date with its functionality, which will often make a teacher's implementation of podcasting easier than one may expect.

Suggestions

The current research is quite superficial and should be carried a few steps further. It is recommended that further research be done on the various applications of podcasting using data-collection instruments with a larger group and over a more extended period of time. A more systematic methodology is needed in order to validate data and conclusions more quantitatively. A control group with similar academic characteristics would also be very helpful for comparing the results of the pedagogical strategy.

To review the already-published podcast used in the classroom project, readers of this article are invited to view the web feed: http://aaristizabal.podbean.com.

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