EdPod: Adding Classroom Richness to the On-Line Experience

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Abstract

Distance education suffers from a number of limitations including administrative perceptions of on-line instruction as a cost saver, lack of pedagogical underpinning and the lack of richness of media used to offset the missing classroom experience. This presentation explores one approach to providing part of the classroom experience on-line. Through the development of **podcasts**, both a supplement to the classroom for traditional courses and a means of conveying the classroom experience to on-line students have been provided. The concept of the podcast frees the teacher from the time and geography constraints of the classroom, and at the same time, potentially freeing the student from the time and cable constraints of computer-based on-line instruction.

A demonstration on the construction of podcasts will be provided using free or inexpensive software for both Mac and PC environments as well as providing existing designed examples for conference attendees to review.

Keywords
Podcast, Distance Education, Computer Literacy

1. INTRODUCTION

Sam Houston State University is a mid sized state university with an undergraduate population approaching 15,000 students, each of whom are required as part of the general education requirements, to take a computer literacy course.

Traditionally this course has included components that develop skills in the use of standard office applications. However a number of trends have emerged in recent years that are driving the computer literacy courses in two directions. The speed at which software, particularly office applications are evolving and the frequency of the introduction of new applications, are forcing computer literacy courses to reevaluate the importance and value of developing purely functional literacy elements. It is no longer sufficient to give students procedures and practice in handling office functions. By the time those students are ready for the workforce the protocols they have been taught will be obsolete. What is important, in the authors' view is that students are given a conceptual understanding of what is possible, embedded in an **environment** that places technology use in a **cultural** and **social** context that emphasizes the capability of technology to locate, deliver and generate knowledge and an understanding of the moral, ethical and legal framework surrounding technology use in modern society.

Whatever gulf separates the rich from the poor, an even greater chasm separates the

armed from the unarmed and the ignorant from the educated. Today, in the fast-changing, affluent nations, despite all inequities of income and wealth, the coming struggle for power will increasingly turn into a struggle over the distribution of and access to knowledge. (Toffler and Toffler, 1990 quoted in http://adulted.about.com/cs/computerliteracy/a/digitaldivide.htm)

In order to reach the goal of providing a course that provides functional, conceptual, cultural and ethical components within a fixed course framework, on-line educational resources have been utilized. There is no longer sufficient time in the classroom to do everything that is needed.

The computer literacy course (in its current incarnation is better described as "digital life") is provided as either a completely on-line course or as a "web enhanced" course. Recent approaches to providing on-line resources tend to focus on textual or image resources and often center on the administration of courses, leaving the instructor with the impossible task of providing the necessary abundance of material for students. This approach leaves the student primarily in passive mode where demanding a more active role would enhance student learning (Felder & Brent).

2. PODCASTING

Wikipedia defines podcasting as "the method of distributing multimedia files, such as audio or video programs, over the Internet using syndication feeds, for playback on mobile devices and personal computers. The term, coined in 2004, combines "iPod", a popular portable audio device, and "broadcasting."

Each podcast can be thought of as a program or item and using a single web page, new programs can be added. The Podcasting software will check for updates on a site and make those updates available by downloading the new podcasts to a medium available to subscribers.

Podcast management software is available-for both the Macintosh and PC platforms with iTunes being an example of a podcast management tool available on both platforms. Podcast creation software is also available on both platforms, GarageBand on the Macintosh and Audacity on the PC.

Podcasting provides the educational context with four significant opportunities. By moving classroom components that do not require significant student-instructor or student-student communication to podcast, the pressure on classroom time can be alleviated. By providing podcast materials, a sense of the didactic portion of the classroom experience can be provided to distance education students, enriching their experience and allowing them to repeatedly review material normally experienced only once in the classroom. By engaging students in the production and distribution of podcast materials, students can be immersed in an environmental and ultimately cultural experience that can change their notion of what is possible (it's fun too). Podcast materials can be viewed on-line, or downloaded to an MP3 player. This frees the student from time constraints (they can view the materials when it's convenient to them) and from geography constraints (they are not necessarily tied to a computer). In essence podcasting becomes the 21st century equivalent of books on tape.

3. METHODOLOGY

Creating Podcasts using GarageBand

GarageBand (Figure 1) is a free application distributed with the Apple operating system OSX. GarageBand provides facilities for mixing sounds and associating them with images or with video. GarageBand has a large collection of built-in sounds (called loops) including sound effects. GarageBand also has the capability of recording sound from a microphone or from a device that has a line out capability, such as an electric guitar or a CD player.

The GarageBand interface has three main components, the **timeline**, split into tracks, the **loop browser**, which allows predefined music to be added to the time line and a **media browser** which allows other sounds, photos or video to be added.
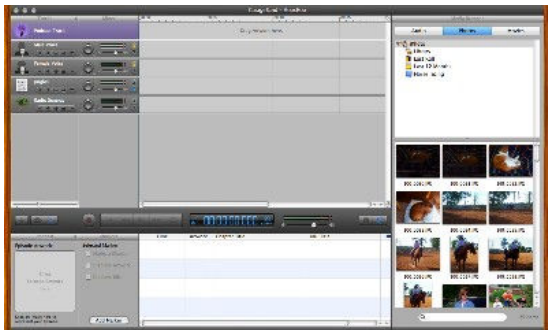
Figure 1: GarageBand Interface

Audio narrative is added by selecting a vocal track (2nd from the top), click on the record button and talking. (Is it really as simple as that?). Sound effects can be added by selecting the effect from the loop browser (bottom) and dragging the effect to the radio sounds (fifth) or jingles (fourth) track. Background music can be added by locating an MP3 file in the media browser (right), and dragging it to the space under the tracks, creating a new track.

Once the media are in place, GarageBand provides simple tools to create the podcast files and distribute them via an individual's web site or through iTunes.

The procedural issues are so simple that we do not need to spend classroom time trying to gain an understanding of the application. Instructions on media creation can be provided as an A/V resource on-line leaving the classroom time for active learning, discussing structure, planning and the role of such tools in social or cultural contexts.

Creating Podcasts Using Audacity

Audacity is a free application that can be downloaded from the Internet. It is used to create MP3 files for use in podcasts. One can record directly into Audacity using a microphone. It can also write over existing tracks to create multi-track recordings and with multi-channel hardware can record up to 16 channels. Audacity also allows the import of sound files which can then be edited and combined with other files. Audacity will then export the recordings in several formats such as WAV, AIFF, AU, MP3.

Editing can be accomplished by cut, copy, paste and delete. A user can also edit and mix an unlimited number of tracks. Pitch

can be changed and static, hiss, hum and other background noises can be eliminated.

Sound quality is excellent and can be recorded up to 96 KHz. It can be used on both MAC OSX, Windows and GNU/Linux.
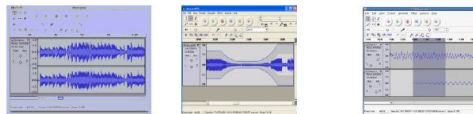
Mac OS   Windows   GNU/Linux

Figure 2: Audacity running on different systems

Before saving the files, check the MP3 export settings. In Audacity, this is found in the application preferences:

Figure 3: Audacity Preferences

Audacity may at first appear to be complicated or strange but one can quickly adjust by following simple instructions and using the same MP3 export for all your podcasts once the settings are found that give the best possible result. MP3 export settings will need to be checked and the ID3 tags set. These tags provide information about the podcast and are used by applications to display the show's title and other information. All of the tags will

probably not be used because they were designed for CDs, not podcasts.

The bit rate may need to be adjusted because this is what controls the quality of the audio and the size of the file. The lower the bit rate, the smaller the file will be. The lowest bit rate possible that will still give 'adequate' quality should be used. Bit rates range from 48k – 128k.

Once the export settings have been determined and the ID3 tags edited, export the MP3 file and then copy the files to a web server.

4. VIDEOS

Videos are becoming popular in podcasts and have as much if not more of a future in education. They not only can show examples that would be used in a classroom, but also give the distance learning student a more personalized experience with the instructor. All it requires is a digital camcorder, download the film to a video producing software program such as iMovie and export it as a .mov file.

FTP the .mov file over to the web server, include a link to it in the RSS file and then a visual as well as audio tool can be used in classes. It would not be out of the realm of possibility to completely video an entire course and convert the series to podcasts. This would allow the students to have more of a "classroom feel" rather than just staring at a computer screen full of words and trying to make sense of a procedure or concept they find difficult to understand. Many students find visual aids easier to understand rather than just the audio version.

5. PODCAST DISTRIBUTION

The way in which audiovisual materials are distributed is somewhat dependent upon the nature of the materials. For materials tied closely to a course, this can be done through embedding the .rss file on a faculty or course web page. For institutions that use web course management systems such as Blackboard or WebCT this is a trivial operation.

6. RSS FILES

Depending on who one listens to, RSS is not an acronym and does not really stand for anything or it can stand for Really Simple Syndication, RDF Site Summary, Rich Site Summary, etc. So just take it at face value and don't worry about what it stands for, just know what it actually does.

RSS files are in XML format and provide an open format for all types of content. Once a newsfeed is created, others can then subscribe to the newsfeed or incorporate the content of the newsfeed into their site. In addition to syndicating story summaries and headlines, they are now being used to syndicate audio/video content or podcasting.

RSS file contain four types of elements, two are required and the others are optional. The elements are:

1. Channel – this contains metadata that describes what the channel is and who created it. It is required and includes the name of the channel, description of what is on the channel, the language used and the URL which is used to point to the website associated with this information source.

2. Image – this is optional but is used to include the logo of the channel provider if used. The images title, URL, link, width and height tags are rendered in HTML.

3. Items – these are the most important elements in a channel because they contain the content of the channel. These are required and the RSS file must contain at least one. The number of items is not limited. Items require three elements:

    a. Title which is like a headline

    b. Link is the URL to the file

    c. Description which is usually one or two paragraphs that emphasize the nature of the podcast in a manner that would catch a person's interest in listening to the podcast.

4. Text – there is only one text input area allowed per channel. This is the other optional element. This is used when you want users to query or respond to a channel. They are used infrequently because they are

rendered in a form, such as a form for people to be added to a mailing list to advertise new podcasts.

After the four elements, the RSS file must be closed for it to be valid. An example of a podcast is below with the bolded elements being the ones that need to be changed to coincide with the name of the folders, files and IP address.

One thing of interest is that all the folder and file names should be as short as possible with no spaces, punctuation or special characters. Pay close attention also to the extension used when saving files.

```
<?xml version="1.0"?> Assignment
<rss version="2.0">
<channel>
<title>Podcasting </title>
<link>http://www.shsu.edu/~csc_j
fb</link>
<description>My First Pod-
cast</description>
<language>en-us</language>


<item>
<title>My Video Podcast</title>
<link>http://www.shsu.edu/~csc_j
fb/podcastassignment/MyAudioPo
dcast.html</link>
<description>Podcasting Assignment
that was fun</description>
<enclosure
url="http://www.shsu.edu/~csc_jf
b/podcastassignment/podcast1.mo
v" length="5258166"
type="video/mov"/>
</item>
</channel>
```

Once the RSS file is believed to be correct, it needs to be validated to assure there are no typing errors or that something has been left out that is critical. The quickest way to do this is to go to the website http://feedvalidator.org. This will locate any errors and give the line number and the type of error along with instructions on how to correct the file.

There are low cost packages that can be purchased that will include a manual, recording software, ready to use sounds and web resources that will also produce the RSS newsfeed for you. A package from Podcast Blaster for less that $20.00 will supply the tools needed or one can search the Internet to find free downloadable software to help.

7. DISTRIBUTION ON WEBSITE

Publishing the podcasts to a podcast directory so that they would get the widest possible distribution may be desired. However, in this instance since the making of a podcast was for students to learn the process, the information could be published on the schools server. Publishing to a podcast host such as iTunes is probably best left to the discretion of the individual student. To do this, create a folder inside the public_html folder labeled podcasts or something to that effect. In the above example, podcastassignment is the name of the folder within the public_html folder. FTP the RSS file, audio files, etc to that folder. Only one RSS file is needed but it can contain many audio and/or video files. Update the RSS file every time to add a new podcast to the folder. For each podcast added to the file, a new item in the RSS file needs to be included. Use the one originally created, copy and paste to make the appropriate changes.

```
<item>
<title>My Video Podcast</title>
<link>http://www.shsu.edu/~csc_jf
b/podcastassignment/MyAudioPodca
st.html</link>
<description>Podcasting Assignment
that was fun</description>
<enclosure
url="http://www.shsu.edu/~csc_jfb
/podcastassignment/podcast1.mov"
length="5258166"
type="video/mov"/>
</item>
```

There are times when a wider distribution through commercial sites may be desired. The music distribution service offered by Apple, iTunes, provides a mechanism for free distribution of podcasts.

Figure 4: iTunes

The distribution services allows for the submission of information concerning the podcast and a link to the .rss file. The service does not store the files, these are still stored and managed by the institution. The iTunes service periodically updates information from the .rss file.

8. RESULTS: PODCASTING TO SUPPORT INSTRUCTION

Two podcasting trials were performed. In the first trial, podcast materials were provided as a set of A/V resources via Blackboard to support a Java programming course. The podcasts detailed procedures, particularly for the setup of application development environments and complex compilation protocols that require review by the students but take significant explanation or question and answer time in class. Student reaction was highly positive with two major categories of comments. The ability to repeat, stop and review instructions was highly valued. Students were able to control the speed of the materials to coordinate with the execution of the procedure. Students commented also on the removal of repetitive components leaving more time for concepts and examples.

9. PODCASTING AS A DIGITAL LIFE SKILL

The second trial consisted of providing opportunities for students to develop audiovisual podcasts as part of their course materials. The students reacted very positively to the assignment with comments such as "I really enjoyed the podcast assignment as I've been wanting to learn how to do this for over a year" and "What I most liked was

that we got the chance to put our own ideas and thoughts into something that we really care about". Students were more nervous though about being in front of a camera and microphone. Students saw the potential value of podcasts as a teaching medium, particularly where standard procedures were the primary concern.

Students expressed some concern in two areas. First, students would not willingly accept podcasts as a substitute for a live instructor, "No, I enjoy interaction with the professor. If I get confused I can ask questions." Comments concerning the need for quality control were also expressed.

Students were asked whether they would get involved in podcasting outside of class. A significant group felt they had no desire to podcast, that they had nothing of value to say. On class member expressed concern over the lack of censorship of podcast materials. Others saw value in podcasting as a means of communicating to a widely dispersed family group, to leave a legacy to grandchildren, supporting their future teaching, or providing an outlet for musical talent.

10. CONCLUSION

Teaching a computer literacy course has become an exercise in "how much material can be thrown at the students in a one semester course" and still have time for them to be able to assimilate the information. Students in the computer literacy course have advanced to the point that they no longer need the "open file" and "close file" instructions, but ways in which they can use the technology of today to enhance their lives as well as their careers.

To be able to cram all of the information necessary in a 50-minute or even an 80 minute class period during one semester leaves many students scratching their heads and wondering what they learned. Therefore, podcasts are a tool that can be used to enhance not only the distance learning courses but the face-to-face classes as well. Many students are afraid to speak up because they either fear being laughed at or "I didn't want to hold up the class" attitude. Podcasts are another way to explain difficult concepts that can be played over and over again helping them to understand the concept or procedure.

Time and effort will have to be invested into the making of a podcast, but once it is done it becomes an invaluable tool in terms of learning for the student. It is conceivable that an entire course could be recorded and turned into podcasts. This would aid students in that they could download the podcasts and then listen to the information at anytime.

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Make Your First Podcast

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