A CASE STUDY:
UNIVERSITY CLASS USING PODCASTING IN TEACHING

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ABSTRACT

'Podcast' has been declared Word of the Year 2005 by editors of the New Oxford American Dictionary, reported the BBS News in 2005. As a method of publishing audio files (usually MP3) to the web, which are then made available through subscription and automatically downloaded to a personal computer or an ipod, podcasting is a hot and modern web service belonging to the Web2.0 revolution, which has gained popularity with people all over the world over the past two years.

One obvious application of podcasting in an educational context is to create class podcast lectures that students can listen to at their convenience. As podcasting is relatively new, educators everywhere are still exploring its possibilities. My literature review mainly focuses on exploring the value of using podcasting in education, like in class teaching. I will try to find out what podcast or podcasting is, its main applications/possibilities, what's special, podcast users, podcasting technology, podcasting use in classrooms/higher education, problems or podcast issues people are talking about, and its benefits or some trend.

In the 'pilot study' I conducted over Spring07 Semester (Jan07-May07), students at the SUNYIT taking classes in Research Methods of Nursing School were surveyed to find out exactly how much they know about podcasting and how they feel about podcast lecture learning. Survey results were then matched against theoretical works to try and find out students' 'level of enthusiasm' about using podcasts in learning. During Fall07 Semester (Aug07-Dec07), I also tried to do podcasting projects on three classes: two of them are technical editing classes of IDT program——I assisted with Prof. Kahn to provide students with online podcast lectures, helping them better understand what they learn from the class. And another one is a research method class of Prof.Gina Myers teaching at SUNY Jefferson College. Like we did in the pilot study, I helped with Prof. Myers creating podcasts for her class and tried to get feedback from her students. Survey results were then matched against theoretical works to try and find out students 'level of enthusiasm' about using podcasts in learning. In this thesis project report, first an overview of the problem, research objective, procedures, and delivery methods will be addressed. The main focus of this report will be in the related literature review of this issue and the research study carried out during two semesters with their final findings and some data analysis.
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The same special acknowledgement is to Professor Russell Kahn, who would like to be the second reader of my final thesis. When being a temp service assistant and graduate assistant for the Information Design and Technology program, I worked with Prof. Kahn, and he offered me great help and guidance doing podcasting project on his two technical classes (one is a hybrid class and the other is a wholly online class) throughout the whole 2007 fall semester and also in the semesters of 2008; Professor Kathryn Stam, who would like to set up a synchronous method for presenting my thesis and gave me great help when I felt frustrated on topic selection since the very beginning of this project; and Professor Kris Paap, who offered me constructive information and knowledge about human subjects related issues.

Moreover, special thanks to Professor Gina Myers for her really kind assistance and suggestions on my thesis project along the way. I appreciated it so much that she accepted me as an assistant to fulfill the podcasting project on her nursing class and provided me with constructive suggestions, feedback, and support throughout the semester. She never denied any requests and spent many hours of her time assisting me with my research project on her class from the 2007 spring semester to 2007 fall semester. We had very pleasant communications all the time no matter whether at her office or through emails. I felt lucky as well being a good friend of hers.

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The thesis project research and current findings could not have been completed without the help and support of all these wonderful professors. For this I am grateful and extremely indebted.
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DEFINITIONS OF TERMS

The following terms are essential to understanding this study:

A podcast – “is a digital media file, or a series of such files, that is distributed over the Internet using syndication feeds, for playback on portable media players and personal computers.” (Podcast, Wikipedia, 2007).

A podcaster – the host or author of a podcast.

Podcasting – “the method of publishing audio files (usually MP3s) to the web, which are then made available through subscription & automatically downloaded to a personal computer or portable devices” (University of Minnesota, 2006).

iPod – "is a popular brand of portable media players designed and marketed by Apple Inc and launched on October 23, 2001. As of 2008, the current product line-up includes the hard drive-based iPod classic, the touchscreen iPod touch, the video-capable iPod nano, the screenless iPod shuffle and the iPhone. Former products include the compact iPod mini and the spin-off iPod photo (since re-integrated into the main iPod classic line). iPod can play several audio file formats including MP3, AAC/M4A, Protected AAC, AIFF, WAV, Audible audiobook, and Apple Lossless. The iPod photo introduced the ability to display JPEG, BMP, GIF, TIFF, and PNG image file formats. Fifth and sixth generation iPod classics, as well as third generation iPod nanos, can additionally play MPEG-4 (H.264/MPEG-4 AVC) and QuickTime video formats, with restrictions on video dimensions, encoding techniques and data-rates. So the newer generation can definitely support the podcasting use. Users can download online podcasts from the web to their portable ipods and listen to them all the time. Fifth generation iPods even can additionally play MPEG-4 (H.264/MPEG-4 AVC) and QuickTime video formats” (iPod, Wikipedia, 2008).

RSS – “is a family of Web feed formats used to publish frequently updated content such as blog entries, news headlines, and podcasts in a standardized format. An RSS document (which is called a “feed”, “web feed”, or ”channel”) contains either a summary of content from an associated web site or the full text. RSS makes it possible for people to keep up with web sites in an automated manner that can be piped into special programs or filtered displays.

The initials "RSS" are used to refer to the following formats: * Really Simple Syndication (RSS 2.0) * RDF Site Summary (RSS 1.0 and RSS 0.90) * Rich Site Summary (RSS 0.91).

RSS formats are specified using XML, a generic specification for the creation of data formats. Although RSS formats have evolved since March 1999,[4] the RSS icon ("") first gained widespread use in 2005/2006. "(RSS, Wikipedia, 2008)
**Web 2.0** – is a term describing the trend in the use of World Wide Web technology and web design that aims to enhance creativity, information sharing, and, most notably, collaboration among users. These concepts have led to the development and evolution of web-based communities and hosted services, such as social-networking sites, wikis, blogs, and folksonomies. The term became notable after the first O'Reilly Media Web 2.0 conference in 2004. Although the term suggests a new version of the World Wide Web, it does not refer to an update to any technical specifications, but to changes in the ways software developers and end-users use the Web.

According to Tim O'Reilly: “Web 2.0 is the business revolution in the computer industry caused by the move to the Internet as platform, and an attempt to understand the rules for success on that new platform.”(Web2.0, Wikipedia, 2008).

**Audioblogging** – is formed by combining ‘audio’ with ‘blogging’. “Audio blogging is an extension of blogging, where bloggers substitute the bulk of the text posts with voice recordings” (The Guardian, 2004).

**Human Subject** – “The US Department of Education (ED) regulations define human subject ‘a living individual about whom an investigator (whether professional or student) conducting research obtains (1) data through intervention or interaction with the individual, or (2) identifiable private information.’ (1) If an activity involves obtaining information about a living person by manipulating that person or that person's environment, as might occur when a new instructional technique is tested, or by communicating or interacting with the individual, as occurs with surveys and interviews, the definition of human subject is met. (2) If an activity involves obtaining private information about a living person in such a way that the information can be linked to that individual (the identity of the subject is or may be readily determined by the investigator or associated with the information), the definition of human subject is met” (Human Subject, ED Regulations, 1997).

**SLN (SUNY Learning Network)** – The SUNY Learning Network is the online education program of State University of New York (SUNY). Serves as a new teaching and learning center for students, SLN is an Asynchronous Learning Network (ALN) and is one of the world’s leading providers of online learning. SUNY Institute of Technology (SUNYIT) is part of the SLN network, and all classes at SUNYIT are set up through SLN.

**NUR390** – the ‘research method’ class code of the Nursing School of SUNYIT. Prof. Gina Myers is the instructor of the class during Spring 07 semester (Jan – May, 2007)

**NUR390-70** – the ‘research method’ class code of the Nursing School of SUNY at Jefferson. Prof. Gina Myers is the instructor of the class during Fall 07 semester (Aug – Dec, 2007)

**SUNYIT** – State University of New York, Institute of Technology
I. INTRODUCTION

Opening Vignette

Professor Gina Myers was starting her teaching at State University of New York, Institute of Technology (SUNYIT) by beginning her lesson for her research methods class (NUR390). It was 2:00 pm on a beautiful Tuesday afternoon, and the eighteen students seemed to be ready for the start of the research method class.

After Prof. Myers went through the main content of this lesson ‘classification of research studies and quantitative research designs’ by continuously using powerpoint slides for nearly two hours, she was aware that most students looked a little tired. Professor Myers was smiling as she watched her students answering her questions during the presentation and trying to explore their ideas about classification of research studies. She knows that this is a kind of topic which could easily make people feel bored, so she was trying her best to motivate her students by designing in-class questions and opening students’ discussions.

During the break, she warmly introduced me to the whole class as her assistant doing research on podcasting use in teaching and she also clarified her intention on trying podcast lectures during the last several classes of this semester for this NUR390 class. After that, I got the opportunity to have a self-introduction before the class, a sample show of podcast weblog sites, and also had personal contact with some of her students. Most of them are part time students, working as registered nurses or in medical-related jobs. They are not that familiar with computer technologies, but some of the younger students do use computers a lot.

When asked how many of them have ipod(s), to Mrs. Myers and my surprise, nearly one-third of the students raised their hands. ‘Great!’ the professor said excitedly, ‘You guys are awesome! Let’s have a nice try on the new technology at the end of this semester…’ One lady seemed to be quite interested in podcasting, but felt really
worried about it since she has no ipod at home. Soon after I explained to her ‘You
don’t need an iPod to listen to podcasts. All you need is only your computer or an
MP3 player’, she had no worries any more and replied to me happily, ‘I am really
looking forward to this, after we have podcast lectures, I think I can listen to them on
my computer more conveniently as I am not quite familiar with using SLN and
understanding powerpoints. I think I can understand what the professor said much
better… ’

Figure 1:
Professor is using powerpoint slides
while teaching NUR390 class

Reasons for the Case Study

Currently I am pursuing a Master of Science in Information Design and Technology
(IDT) at SUNYIT, with a special focus on the technology issues. The word
‘podcasting’ is popping up everywhere these days and even mainstream media like
CNN, NBC, and the BBS are getting in on it. Thousands of podcasters around the
world are fascinated with the new technology today making their personalized
podcasts and sharing them.

Podcasting has more potentials in its applications for education, which is being
explored by global educators. As a student learning at university, I am provided with
great opportunity to examine the podcasting use in class. This study will enable me to
learn firsthand about the creation of podcasts and to know about this technology by
reviewing more literature. And it will also provide me with the opportunity to develop
case study and pilot study research methodologies and evaluation skills that should prove beneficial in future academic and professional research.

**Significance of Case Study**

My research will be based on finding out students’ initial views of using podcast technologies and what their ideas are after they are exposed to it in the class teaching. The result of this case study will also reflect the following perspectives:

- How can podcasts affect students’ class learning
- How can students accept this new technology
- What do students know about podcasts
- How about the students’ level of enthusiasm towards podcasts and changes before and after they have exposure

This case study on podcasting use in education is really meaningful and important, because ‘podcasting’ is a very hot technology with wide possibilities being explored by researchers all over the world, especially in the educational field. Given the distinctive features of podcasting, its potential goes far beyond reproducing course materials and making them available for review. Podcasts are not meant to be listened to live, but whenever and wherever is most convenient for the listener. In the educational context, podcasting is becoming or will become an essential assistant tool of class teaching. The conclusions and findings of the final thesis, to some extent, could serve as constructive suggestions, which should be helpful for university teachers to use podcasts as an effective method/tool in teaching.
Central Question to the Case Study

- What are students’ ideas about using podcasting ‘before’ and ‘after’ they have an opportunity to use it in class?

Sub-Questions to the Case Study:

The research also needs to consider the following sub-questions:

- How can we assess students’ knowledge and experience of podcasting before they are exposed to it in class?
- How about students’ age levels and background knowledge of using computer technologies?
- What about students’ podcasting equipments and experience of using podcasts?
- What about students’ learning style and even lifestyles?
- How is students’ ‘level of enthusiasm’ before and after they have tried using podcasts in the class?
- What is the educational impact or value of using teacher-produced(created) podcasts in class?
- What effect do podcasts have on university class teacher and students?
- Does the technology create an effective atmosphere for education?
- How does the technology improve the effectiveness/efficiency in teaching?
- What about the related human subject issues or other problems?
- What is the time schedule of the research?
This study will be aimed at answering a central research question while concerns to several subquestions will help formulate a more thorough and specific response to the central question.

II. THESIS PROJECT OVERVIEW

Objectives and Purposes of the Research Study

The research subject is a university class, for example, NUR390—a ‘research method’ class with 18 students in the School of Nursing, SUNYIT for the 2007 spring semester or NUR390-70, which is another ‘research method’ class with 27 members at SUNY Jefferson College for the 2007 fall semester. The general purpose is to do research (as questionnaire) on students’ ideas of using podcasting ‘before’ and ‘after’ they have an opportunity to use it in class, thus making comparisons between the two and evaluating the result. The class instructor, Professor Gina Myers and I, as her assistant, intend to make class lectures become audio podcasts uploaded to the web for students to download and listen to. By doing so, the podcast lectures will be whenever and wherever the most convenient for the listeners/students to learn about even though they are not so familiar with the computer technologies.

In terms of this, it is necessary to understand students’ ideas about using podcasts and to collect the important data on students’ ‘level of enthusiasm’ before and after they have tried using podcast lectures. One questionnaire is conducted as a mean to assess students’ ‘PRE’ knowledge and experience of podcasting before they are exposed to it in class. Another similar survey is carried out as the ‘post’ one after students have tried using podcasts. The final findings and conclusions will then focus on differentiations/comparisons of the collected data between the ‘before’ and ‘after’ surveys and make in-depth analysis upon those findings. The underlying objectives of
doing such research for final thesis is to realize the podcasting use in the educational context, and to draw constructive conclusions from the findings, which will be helpful for university teachers considering to use podcasts as an effective method/tool in class teaching.

**Research Method**

For the purpose of this research I need to use a qualitative approach of a case study in collecting and analyzing my findings. ‘The case study is an exploration of a bounded system or a case over time through detailed, in-depth data collection involving multiple sources of information rich in context.’ (Creswell 61)

For this project, an instrumental case study will be conducted with the purpose of identifying students’ ideas of using podcasts in class. A case study that focuses on one particular class using podcasts seems to be the most appropriate approach of qualitative research to employ since the topic must be studied in depth. To analyze specific details, implementing the change of users’ enthusiasm and studying the effects intimately provides for an extremely close relationship between the researcher and that being studied. In order to carry out a more effective future study, it is important to make a specific plan beforehand covering the research subject, date, and methods of data collection. Data in the forms of questionnaires, online surveys, email questions, and interviews are proposed to be collected from multiple sources of information.

During the Spring07 Semester, Professor Myers and I focused on doing research on her NUR390 class at SUNYIT while in the Fall07 Semester, we did further study on another class (NUR390-70). The final thesis primarily focuses on the research findings collected in the fall semester rather than those in the spring semester. The case study of the NUR390 class during the spring semester serves as a pilot study
before the formal research carried out during the fall. Pilot study is a small-scale version or trial run of the major study. Pilot study provides methodological guidance in determining sample size requirements for a full test, or strategies for recruiting subjects. The purpose of such pilot study is not so much to test research hypotheses, but rather to test protocols, data collection instruments, sample recruitment strategies, and other aspects of a study in preparation for a larger study (Denise F. Polit, Cheryl Tatano Beck, 2004). Throughout the pilot study, we got the practical experience of conducting the whole research process, thus being able to foresee the possible difficulties students might meet with during the main research study in the fall semester as well as the easier/quicker methods/response to solve such problems. During the pilot study and main study over the two semesters, we were able to carry out our research study by sending out questionnaires, online surveys, and receiving/solving students' feedbacks/problems on the platform of the SUNY SLN Coursespace. We finally got effective responses and fruitful research result.

**Data Collection Procedures**

- **Procedures of the Pilot Study in Spring07 Semester**

During the Spring07 Semester, for NUR390, both a pretest and a post-test were prepared to explore students’ ideas about podcasts. The pretest is the first questionnaire on students’ previews about podcasting use before they have tried it in class. Professor Gina Myers and I carried out this pretest before April 10th 2007 for the 18 students of NUR390. We used the class coursespace SLN site as a platform to post our electronic version of questionnaire (titled as Questionnaire of ‘podcasting’). Students could feel free to download the questionnaire from the SLN site and fill it out online or print it out. They can also fill in the online version of the questionnaire more conveniently. Students submitted the online questionnaire, emailed me the completed survey before April 10th, or they could choose to return their reports in class on April 17th. So we used both the SLN site and an email account to receive their feedback.
On April 10th, Professor Myers opened to her students the online podcast lectures which were ready beforehand. I was in charge of making the audio lectures from iPod to become available online podcasts for class use before the 10th as a project.

After the pretest was realized, another post-test is a similar questionnaire to do research on students’ views after they have tried using those podcast lectures. The second questionnaire for NUR390 class was conducted on April 17th 2007 in class. The paper questionnaires were sent out to every student of the class (18 students). They submitted questionnaires voluntarily during the class time.

**Figure 2. SUNYIT NUR390 Class SLN coursespace**

‘Podcasting Survey’ was open to all the students as one of the learning modules.
Hi everyone,

Molly Sun (the graduate student that I am working with on her thesis) has received approval to go ahead and collect data. Her project was considered exempt from IRB review since this is using surveys that are minimal risk. You may complete the survey one of two ways. You may click on the website in the next section and complete the survey via the web or you may download the word document, fill it out and email it back to her at mollysun23@gmail.com. You may also submit it to me as an attachment in your private folder.

Molly and I would appreciate your participation. However this is a voluntary survey. If you do decide to complete it, please fill it out prior to using the podcasting file that will be available on 4/10/07 in coursespace.

**Questionnaire of 'podcasting'**

**General Purpose:**

The purpose of this research is to understand your ideas about using podcasting 'before' and 'after' you have an opportunity to use it in class. (Further information about its use in class: the class lectures will become audio podcasts uploaded to the Internet website in the next few classes. It will be more convenient for you to download the class podcasts from the web to your computers, iPods, or MP3 players. After that, you can listen to the lecture whenever and wherever you want.) The data I am collecting is helpful and important for me to obtain in order to compare your 'level of enthusiasm' before and after you have tried using podcasts in this class. This questionnaire is meant to assess your knowledge and experience of podcasting before you are exposed to it in class.

There are many open-ended questions in this survey. Please provide me with as much information as you possibly can. Thank you very much for your participation and cooperation.

In the questionnaire, insert your answer directly after each question, or submit the completed questionnaire as the Microsoft Word file to the class NUR390 CourserSpace site. You may also send me emails directly at mollysun23@gmail.com If you have any questions, please feel free to contact me by email. Thank you again.

Sincerely yours,

Molly Sun

Please go to the next section to access the survey via the web or as a word document.

**Figure 3. NUR390 Class SLN coursespace**

The Instruction of 'Podcasting Survey' to students

**Figure 4. NUR390 Class SLN coursespace**

Students have two ways to submit questionnaires:

1. download to fill up the Microsoft Word version of questionnaire
2. choose to fill in the online version of questionnaire
Procedure & Timeline of data collection for NUR390:

Pretest Questionnaire (before April 10th 2007):
1. Identify the research purpose – to test students’ idea about podcasting before they try it in class
2. Determine the research model – Level of Enthusiasm
3. Design questionnaires involving various question categories, such as personal information, podcasting equipment, experience, life style/learning style, etc.
4. Publish the questionnaire to the web – post it to the SLN site for students to review
5. With support from professor (who assigned it as a task for students), students can see the questionnaire and submit it
6. Receive reports from email box or the SLN site

Figure 5. Online Version of the Questionnaire created by using [http://my.sunyit.edu/survey](http://my.sunyit.edu/survey)

Post-test Questionnaire (on April 17th 2007):
1. Identify the research purpose—to do research on students’ views after they have
tried using podcast lectures in class

2. The research model – Level of Enthusiasm

3. Design questionnaires involving various question categories, such as class podcast experience, problems/gaps/bridges, etc.

4. Send out the paper questionnaire to every student of the class (18 students)

5. Students submit questionnaires voluntarily during the class time.

- Procedures of the Main Study in Fall 07 Semester

After we conducted the pilot study over the spring semester, in the Fall07 Semester, we carried out our main study research for NUR390-70 class in a similar process. Both a pretest and a post-test were prepared beforehand to explore students’ ideas about podcasts. The pretest is the first questionnaire on students’ previews about podcasting use before they have tried it in class. Professor Gina Myers and I carried out this pretest in early September 2007 for the 27 students of NUR390-70. We used the class coursespace SLN site as a platform to post our electronic version of questionnaire (titled as Questionnaire of ‘podcasting’). Students could feel free to download the questionnaire from the SLN site and fill it out online or print it out. They also had another choice which is to fill in the online version of the questionnaire more conveniently. Students submitted the online questionnaire, emailed me the completed survey before the end of September 2007, or they chose to return their reports in class in late September 2007. So we used both the SLN site and an email account to receive their feedback.

In October 2007, Professor Myers opened to her students the online podcast lectures which prepared well beforehand. I was in charge of making the audio lectures from iPod to become available online podcasts for class use before the middle of October 2007 as a project.

After the pretest was realized, another post-test to find out on students’ views after they have tried using those podcast lectures was carried out in November 2007. The
second questionnaire for NUR390-70 class was conducted in November in class. The paper questionnaire was sent out to every student of the class (27 students). They could submit questionnaires voluntarily during the class time.

**Procedure & Timeline of data collection for NUR390-70:**

Pretest Questionnaire (before late September 2007):
1. Identify the research purpose – to test students’ idea about podcasting before they try it in class
2. Determine the research model – Level of Enthusiasm
3. Design questionnaires involving various question categories, such as personal information, podcasting equipment, experience, life style/learning style, etc.
4. Publish the questionnaire to the web – post it to the SLN site for students to review
5. With support from professor (who assigned it as a task for students), students can see the questionnaire and submit it
6. Receive reports from email box or the SLN site

Post-test Questionnaire (in late November 2007):
1. Identify the research purpose—to do research on students’ views after they have tried using podcast lectures in class
2. The research model – Level of Enthusiasm
3. Design questionnaires involving various question categories, such as class podcast experience, problems/gaps/bridges, etc.
4. Send out the paper questionnaire to every student of the class (27 students)
5. Students submit questionnaires voluntarily during the class time.

**Podcasting Projects**

**Pilot Study - One Main Podcasting Project during Spring07 Semester**

During Spring07 Semester, I assisted Prof. Gina Myers with her NUR390 Research Method class carrying out pilot study on podcasting use in classrooms. During the pilot study, we tried to create two websites offering students online podcast lectures to listen
to and download. In this project, the podcast lectures are playing the central role for students to know about podcasting use. Materials in the educational setting as the course lectures can be recorded as audio files by using iPod and then delivered to subscribing users automatically or posted to the websites as online podcasts for students to download. The websites are supposed to be podcast hosting weblog sites that can support audio podcasts, videos, blog posts, pictures, etc. They will also need to have enough storage to contain large audio files. Moreover, it would be better if those sites can offer users to customize layout from a range of templates, categorize posts, and invite comments. Such sites offering such services aim to become easy-to-use hybrids of podcast production, distribution, and promotion, offering something like blogging service provided by Blogger but with the greater sophistication and complexity that multimedia authoring requires.

So far, among all the podcast weblog sites I tried, my favorite podcast hosting sites are http://www.mypodcast.com and http://www.podbean.com
For podcast lectures this current semester, I chose podbean.com; based on this I created two customized podcast weblog sites for NUR390 class as http://nur1.podbean.com and http://nur2.podbean.com
Each of the podbean sites serves as an online platform for students to explore podcast lectures. It is believed that students will have a nice experience trying on the new form of lectures and also enjoying the podcast songs.
Figure 6. Podbean.com is a very nice podcast hosting site

Figure 7. http://nur1.podbean.com is one NUR390 podcast weblog
The podcast lecture of ‘Descriptive Statistic Research’ by Professor Myers was displayed on this site for students to listen to and download.
Two Main Podcasting Projects during Fall07 Semester

1. Prof. Gina Myers - Research Method Class

One research was on Prof. Gina Myers’ research method class of Nursing School. Same as what we did in the Pilot Study, I kept on assisting Prof. Myers with creating podcast websites for students to listen to streaming podcast lectures. During the fall semester (Sep 07 – Dec 07), Prof. Gina Myers and I tried to take a further step on podcasting use in her teaching. Prof. Myers has a research method class of 27 students at Jefferson College in Watertown, NY in the fall. Before we provided students with

Figure 8. http://nur2.podbean.com is the other NUR390 podcast weblog. The podcast lecture of ‘Population and Sampling’ by Professor Myers was displayed on this site for students to listen to and download. Another podcast song was attached for students to enjoy and relax.
experience of trying on online podcast lectures, we designed the 1st questionnaire for students to explore their preview of podcasting use. So in early September, 21 out of the 27 students helped submit our questionnaires for us. From their feedback, we can see that most of them are RNs (registered nurses), and they didn’t know about high-tech. In another word, they had no knowledge prior to this class and many are mid-aged women (41-50 yrs old or 30/40ies). Most of them seemed very interested in this new area, which inspired us a lot. Although some reported problems while listening to the podcasts as they only got dial-ups going to the Internet, most of them went through the podcasts and enjoyed the online lectures. In late November 2007, the second questionnaire was carried out to explore students' postview of podcasting use. 18 out of 27 students volunteered to fill in the questionnaires and 13 of them regarded the project as a meaningful one which is interesting and necessary.

Figure 9. NUR390-70 Class SLN Coursespace
In this section are two items. The first is the powerpoint presentation that goes with the descriptive statistics lecture. You may want to print this as a handout or have the file open as you listen to the lecture. The second is a link to a website called "podbean". The link will bring you directly to the page that has the audio file for the descriptive statistics lecture. You may open it and listen to it, or download it to your PC, IPod, or MP3 player.

Click here to hear the Descriptive Statistics Lecture

If you are have any trouble hearing the podcasting lecture please see the next section of this module or you may ask a question. Molly Sna will be monitoring questions about the podcast file. You may also email her at mollysn@suny.net.

If you have any questions about this material, please click on the ASK A QUESTION link below. Now go to the next document to continue this module.

Figure 10. Posting podcast lecture assignment through NUR390-70 Class SLN Coursespace

Figure 11. Podcast weblog site for NUR390-70 class, uploaded as: http://sunynur.podbean.com
2. Prof. Prof. Russell Kahn - Technical Editing Classes

The other podcasting project was conducted on Prof. Russell Kahn’s two technical editing classes (one hybrid class and one wholly online class). Over the Fall07 Semester, technical editor class instructor, Professor Russell Kahn and I tried to create an online podcast lecture for nearly each chapter and supplementary podcasts such as mid-term guidance and students’ presentations. Finally there were over ten podcast lectures created and they were all available online combining with both audio recordings of professor’s presentation as well as well-designed powerpoint slides for each class. Students could feel free to listen to, review, or download those online podcast lectures at any time anywhere. Those podcasts serve as the assisted tool of class teaching, we are currently still looking forward to exploring its effects on class teaching. At the end of the project, we carried out our questionnaires to students to get their feedback of trying podcasts of this class. Interesting and impressive comments were received. In addition, Prof. Russell Kahn also talked about his experience of creating podcasts and future plans on exploring more in this area.

Figure 12. Posting podcast lecture assignment through Technical Editing Class SLN Coursespace
Figure 13. Online podcast lecture created by Prof. Russell Kahn for Chapter 17 in Technical Editing Class, uploaded as:
http://xserve.sunyit.edu/~russ/Teched/Chap17_podcast/organization.html
III. REVIEW OF RELATED LITERATURE

Several scholarly journal articles regarding podcasting in education and other relevant issues were reviewed. It is significant first to understand what podcasting is, the background situation, the related issues, primary users, applications especially in educational setting and healthcare education. These issues are explained here with the help of the literature.

1. Introduction to Podcasting

What is a podcast? / Pod What?

Vogele and Gard in their Emerging Technologies Center identified the origins of podcast: “Podcast roots date back to at least 2001 and are closely tied to the development of blogs. Blogs have historically been limited to text and still images, but the advent of easy audio and video capture has many people delving into the world of audio blogs and video blogs. For lack of a better term, these are what we refer to as podcasts” (Vogele, Gard, 2006). That is the very beginning of podcast development. And in December 2005, the editors of the New Oxford American Dictionary firstly declared podcast the 2005 word of the year. They defined the term as “a digital recording of a radio broadcast of similar program, made available on the Internet for downloading to a personal audio player” (Honan, 2005). Moreover, wikipedia also offered a similar definition, “A podcast is a digital media file, or a series of such files, that is distributed over the Internet using syndication feeds, for playback on portable media players and personal computers; and the term podcast is a portmanteau of the name of Apple Corporation’s portable music player, the iPod, and broadcast” (Podcast, Wikipedia, 2007).

And what is podcasting? University of Minnesota gave us the definition, “podcasting is 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” (University of Minnesota, 2006). Such definition also
indicates that podcasts are not meant to be listened to live, but whenever and wherever is the most convenient for the audience. Moreover, recently, with wide use of the internet, increasing bandwidth, and the availability of easy-to-use video-editing tools, more and more podcasters are beginning to create video podcasts, so called "vodcasts". We are glad to see this new technology is growing up fast and we could enjoy vodcasts at our leisure in near future.

**Podcasting—a growing new media**

Podcasting is a relatively new media. Years ago, people probably only heard the word *podcast* if kids wanted an iPod as a present. Now it has become part of the mainstream of our global media community. From the “podcast timeline” in Wikipedia, we can get an overview of the growth/development of podcasting:

In “October 2000, the concept of using enclosures in RSS feeds was proposed in a draft by Tristan Louis, and implemented in somewhat different form by Dave Winer, a software developer and an author of the RSS format. For its first two years, the enclosure element had relatively few users and many developers simply avoided using it. In September 2003, Winer created special RSS-with-enclosures feed for his Harvard Berkman Center colleague Christopher Lydon’s weblog, which previously had a text-only RSS feed. In October 2003, Winer and friends organized the first Bloggercon weblogger conference at Berkman Center. On the conference, Kevin Marks demonstrated a script to download RSS enclosures and pass them to iTunes for transfer to an iPod; and after the conference, Curry offered his blog readers an RSS-to-iPod script (iPodder) that moved mp3 files from Userland Radio to iTunes, and encouraged other developers to build on the idea. Until February 12, 2004, the term *podcasting* became one of several terms for portable listening to audioblogs suggested by Ben Hammersley in The Guardian, referring to Lydon’s interview programs (“...all the ingredients are there for a new boom in amateur radio. But what to call it? Audioblogging? Podcasting? GuerillaMedia?”) (History of Podcasting, Wikipedia, 2007).
Later on September 28, 2004, it was reported that there were only 24 hits on Google’s search engine for the word “podcasts”. Meanwhile, the term podcasting was firstly used to describe the automatic download and synchronization of audio content, and in 2005, podcast became the New Oxford American Dictionary’s Word of the Year. On September 28, 2005, exactly a year after first tracking hits for the word “podcasts” on Google's search engine, Google found more than 100,000,000 hits on the word “podcasts.” In June 2005, Apple staked its claim on the medium by adding podcasting to its iTunes 4.9 music software and building a directory of podcasts at its iTunes Music Store. Only in 2005, for example, it has seen a jump in the number of podcasts listed in its education category in iTunes Music Store from 900 to 3300 in the space of just five months (at time of publication). Those new iTunes could subscribe to, download and organize podcasts, which made a separate aggregator application unnecessary for many users. Moreover, Apple promoted creation of podcasts using its GarageBand and QuickTime Pro software and the MPEG 4, m4a audio format instead of MP3. This action increasingly promoted the development of podcasting. And in 2006, podcasting began to have a wide range of applications especially in education, like Duke University had a test on podcasting use for its students, and Kansas State University also became educational-podcasting capital of the world.

**What’s Special?**

As a relatively new media, the addition of web feed that allows users to subscribe to the audio program is the key feature that distinguishes a podcast from other traditional multimedia files distributed on the Internet. In other words, files could be subscribed, accessed, or organized by feed aggregators like Bloglines automatically rather than having to visit the website to seek new episodes or to explore the available new content—instead they are downloaded automatically to the personal computers as they are made available and that they are not streamed. Although most podcast audience use tools such as iTunes to download media files to their iPods or other portable MP3 players, podcasts can also be listened to on their computers.
And Diane J Skiba also summarized in her journal "The 2005 Word of the Year: Podcast, Nursing Education Perspectives" some other main distinctions are listed as follows:

- Podcasts are in an archived format that allows for listening, and now viewing, at a later point in time. Streaming is usually a live event or, if archived, only available for a predetermined amount of time.
- Podcasts allow the user to capture files for playing on mobile devices such as iPods or other MP3 players. Streaming usually requires connection to a computer and the Internet.
- Podcasts are convenient. You can listen to them through your mobile devices while commuting to work, jogging, working out, or while traveling on an airplane.
- Podcasting, normally associated with audio, is now expanding to include video. (Skiba, 2006)

Applications and Possibilities
As one of the newest Internet tools and applications, podcasting and its relatives as webcasting, mobcasting, VoIP, IP, telephony, skype, moblogging, blogging, PodTV, screencasting are emerging all the time. Well, not everyone is a believer. Earlier in 2005, there was one blog carried a much-quoted article titled “Why I’m Not Smoking the Podcasting Dope”(Barefoot, 2005). For example, Clyde in 2005 nicely identified some features of podcasting and its relatives that are different from broadcasting. “Podcasting and its relatives are certainly not suitable for all kinds of broadcasting, nor are they likely to usurp large portions of the audience of the mainstream broadcast networks. However, they do allow people to select specific audio and video programming related to their needs and interests, independently of scheduled mainstream broadcast media, and so can be expected to attract the kind of Internet-savvy audience that responded to the development of blogging” (Clyde, 2005). Their broad applications and potential possibilities will definitely be welcomed by more and more internet users in near future.
With its uniqueness, podcasting has a wide range of applications and possibilities in various fields such as knowledge management, content management, education, training, social networking, research collaboration, healthcare, etc. Besides, currently in corporations, “iPods assist an array of learning programming, including everything from leadership development to workshops on topics such as handling difficult conversations” (Weinstein, 2006). And since the beginning of 2006, more and more language learning podcasts have been growing up. It is reported that over two dozen language-training podcast series have cropped up offering audio instruction in tongues from Spanish, Italian, German, Greek, Korean to English, which could be accessed on iTunes service. Gronstedt in 2007 in his journal called 'The Changing Face of Workplace Learning' reported how podcasts were used in the corporation like IBM. “IBM is also approaching 1 million downloads by employees, who can select from more than 2007 podcast episodes. National Semiconductor spent $2.5 million on video iPods for all of its 8,500 employees”(Gronstedt, 2007). And article like 'Podcasting in Academia: A New Knowledge Management Paradigm within Academic Settings' also mentions certain podcasting use in the educational field. "Podcasting research interests could range from individual, corporate to political podcasting”(Ractham, Zhang, 2006). So we could see in the long run, podcasting also has a potential to be embraced not only by consumers or academic users, but also a societal entities such as communities and government agencies.

**Podcast Users/Audience**

How about podcast users? Ractham and Zhang in their ‘Podcasting in Academia: A New Knowledge Management Paradigm within Academic Settings’ addressed that “the popularization of Podcasting is stemming from emerging trends in portable information technology such as iPod and Smartphones. There have been more than 27 million iPods sold since its introduction in 2001. The iPod has captured approximately 70% of all the sales MP3 portable players. Users can easily download their favorite audio/video programs from popular content management and distribution software
such as iTunes” (Ractham, Zhang, 2006).

Since the previous Pew survey of 2005, podcast listening and viewing have become more accessible to the average user; one reason might be newer versions of the popular iTunes Music Store incorporate an easy way for a casual user to sample, download, and subscribe to free podcast content. Another change identified in the report is “the inclusion of a reference to podcast downloads that one can listen to or view, which allows researchers to capture the larger universe of those who have experience downloading a podcast of any kind” (Madden, 2006). There are some interesting findings in the report like “12% internet users have downloaded a podcast”, this figure compares to the 7% of internet users who reported podcast downloading in the Feb-April 2006 survey. And “men are more likely than women to report podcast downloading; 15% of online men say they have downloaded a podcast, compared with just 8% of online women. And those who have used the internet for six or more years are twice as likely as those who have been online three years or less to have downloaded a podcast (13% vs 6%)” (Madden, 2006). From these interesting figures above, we could also see the fast growth of podcasting technology as well as its acceptance or usage by a variety of Internet 'savvy' people, especially in men.

2. Overview of Podcasting Technology

After we know about the definition, features, growth, applications, and users of podcasting, we also need to know something about how it works, and how to use the technology. Podcasting allows any computer user with a microphone and Internet access to create audio files that could be shared with other Internet users. Listeners can download the files one at a time, or to choose subscribe to a podcast and have recordings/subscriptions transferred to their portable devices like iPods or other digital audio players automatically. Vogele and Gard in another article, ‘Podcasting for Corporations and Universities: look before you leap’ identified that “the technology for podcasting developed initially from a desire to have downloaded audio
content delivered automatically to a user’s digital media player like Apple’s iPod or any other MP3 or MP4 player”(Vogele, Gard, 2006). In addition, textual, pictorial and video content can also be delivered via the same methodology. These types of content have already been available to users via the Internet. However, a subscription model, where users receive content feeds regularly is fairly new. Cambell in ‘There’s Something in the Air: Podcasting In Education’ also emphasized that “what is new about podcasting is the ease of publication, ease of subscription, and ease of use across multiple environments, typically over computer speakers, over a car stereo, and over headphones”(Cambell, 2005). Perhaps the most significant point of podcast technology is that it empowers users to publish audio content directly and seamlessly onto the Internet, which is a unique innovation in the area of content publishing based in large part on its inherent simplicity and ease of use.

**Information about the mechanics of podcasts**

“The key common ingredients of a podcast are: (1) an audio and/or audiovisual file that is (2) archived and available on the Internet, (3) such that it is accessible by a computer automatically, (4) is downloaded, and (5) is transferable to a portable media player. Importantly, a podcast is not just a downloadable file. Downloadable files have existed for some time on the World Wide Web”(Gard, Vogele, 2006).

How to find a podcast? “Software packages such as iTunes have a music store included-it allows users to access both fee-based programs and music files as well as a library of freely downloadable podcasts. A simple Google search using the word podcast and the topic of interest will at times retrieve hundreds of choices. To meet the needs of users looking for wider directories, a number of services have appeared on the Internet. Like other Internet directories, these podcast metasites allow users to tap into a broad range of podcasts; many can be played from the host webpage but some will require the user to copy the link to a podcatcher service such as iTunes”(Lee, 2006).
What is the process of making a podcast then? “Using special software, such as GarageBand, QuickTime 7 Pro or Audacity, podcast creators can record and edit audio and video. The first stop is to record audio using a microphone and convert it to an MP3 file format. Next, create a Really Simple Syndication (RSS feed). This is a file that will provide information about the podcast. Following the creation of the text file, the next step is to upload and validate the RSS feed. Once that is completed, the podcast is published” (Rivera, 2007).

From Huann and Thong’s *Audioblogging and Podcasting in Education*, we can see more clearly about what hardware and/or software do users need to begin podcasting: (1) a digital voice recording device (e.g. microphone, a portable mp3 recorder), (2) a voice recording software (e.g. LAME MP3 encoder), (3) server space, (4) blog server software (e.g. MovableType, WordPress), (5) RSS feed creator and FTP software (e.g. Podifier), (6) Podcast playback software (e.g. iTunes). (Huann, Thong, 2006)

Moreover, several especially promising developments in podcasting emerged since 2005, such as Adam Curry, an early developer of podcatching software, helped to create a utility he calls a “castblaster” that automates much of the recording, encoding, and uploading process; and Curry’s PodShow.com, “Odeo” (http://www.odeo.com), and other such services began promoting themselves as one-stop-shops for podcast creation, publication, and subscription. “All these services aim to become easy-to-use hybrids of podcast production, distribution, and promotion, offering something like the blogging service provided by Blogger but with the greater sophistication and complexity that multimedia authoring requires” (Campbell, 2005).

For more information about the mechanics of podcasts and podcasting, the “7 Things You Should Know About Podcasting” series from the EDUCAUSE Learning Initiative (ELI) also provides concise information on emerging learning practices and technologies. Each brief focuses on a single practice or technology and describes what it is, how it works, where it is going, and why it matters to teaching and learning.
RSS Technologies

When it comes to podcasting, RSS is the core of the technology. The unique of podcasting is that it focuses on providing a universal centralized content distribution to its subscribers through a XML-based format called Really Simple Syndication (RSS). Akamai in the article, 'Creating & Delivering Podcasts & other downloadable Media' described “RSS is like a ‘table of contents’ for your podcast feed. RSS used for podcasting is no different from the RSS used for Weblogs and news feeds. The simple XML file format provides two kinds of information: (1) basic information about your feed as a whole, and (2) specific information about each individual episode in your feed. For a podcast, this includes the URL (using the <enclosure> tag) to the actual audio/video file itself” (Akamai, 2007). Since such RSS formats can provide predefined web content or summarized information of web content together with links to the full version of the content or other meta-data. By using media aggregator software or podcatcher such as iTunes, users only need to subscribe to their desired RSS feed upon the topics of their interest. Then, whenever there are new updates on the subscribed sites, the podcatcher software can help download predefined types of media from text to pictures, audio, or video to user's computer automatically. Peter Ractham and Xuesong Zhang in their journal 'Podcasting in Academia: A New Knowledge Management Paradigm within Academic Settings' gave us the figure of podcasts available online. "There are more than 20,000 free podcasts available through the iTunes services. The programs vary from music, sports, politics, science, education, and business!” (Ractham, Zhang, 2006).

Since June 2005, Apple built directories of podcasts at its iTunes Music Store, podcast directories have begun to emerge to help people find the programs they want, from the topic like ‘The Paris Hilton Podcast’ or the ‘Language Learning Podcast’ or the ‘Vision of the Future’ podcast. It is said that one of the better-known directories is ipodder.org (http://www.ipodder.org/), and another is Podcastdirectory.com. Laurel A Clyde in 2005 in her article called 'Some New Internet Applications Coming Now to a
Computer near you' showed us the findings of a company using a new search engine for searching podcasts. In April 2005, the company TVEyes announced a new search engine called Podscope that enables users to “keyword search every word spoken in a podcast” (Price, 2005); it is likely that this search facility will be incorporated into the major Internet search engines such as Yahoo! within the next year or so. Readers can either subscribe to a RSS feed to get updates on their own computer desktop, or they can download the chapters by clicking on the links on a webpage” (Clyde, 2005). By using certain tools, we could see more and more podcasts with awesome RSS technologies could enable Internet users great convenience to get required information at their leisure.

**Podcasting Blog Hosting Service and Web Services**

Besides iTunes Music Store, web-based podcasting blog hosting service together with web services is also approachable to Internet users. One example is BlogMatrix (http://www.blogmatrix.com), which has its Sparks program recording, saving sound files in MP3, and mixing podcasts involving fields for title, description of the episode, and tags. The site offers users 500 megabytes of storage and use of its Sparks program free for one month, and cost little if the user chooses to continue the service. Moreover, BlogMatrix allows the user to configure how his or her site will display in Apple iTunes Music Store, including a image or a photo as a logo. And there is a variety of websites serving podcasters already covering different web directories on various topics. Steve McCarty in his journal 'Spoken Internet to Go: Popularization through Podcasting' also gives us some examples:

"The Podcasting News directory lets a member podcaster select smiles and choose the colors of one's directory entry. See, its Education category http://www.podcastingnews.com/forum/link_6.htm. Odeo http://www.odeo.com, which includes the founder of Blogger who left Google, offers members data on subscribers and downloads by Odeo members, compiles comments, generates webpages and tags for each show, which the podcaster can edit. Another new type of
service to various listeners is audio searching through voice recognition spidering, like Yahoo Audio Search beta http://audio.search.yahoo.com" (McCarty, 2005)

3. Podcasting Use in Education

(1) Uses for Podcasting in Higher Education

Today many university teachers are trying to use a technological teaching method, combing with not only weblogs or blogs, wikis-web publishing software that lets users create and edit webpages using a standard web browser-and other forms of social software, but also various digital media and devices-podcasting. Linda Man identified in her 'Podcast bring 24/7 teachers' the current situation of this technology coming to the school: “This technology is becoming more ubiquitous. At some point, we’re going to have a wake up and think about the implications for school” (Man, 2006). And also more and more educators have realized podcasting can be "an effective pedagogical tool". The author Kenneth Y T Lim in his journal 'Now Hear This—Exploring Podcasting as a Tool in Geography Education' addressed Vygotsky's idea about background culture and social influences on the learners using the new technology:

"Vygotsky (1978) drew attention to the strong links between the culture and social influences upon the learner, and their relationship with the learner's cognitive development. That is to say, given the fact that many student in schools today already have access to a portable music player, it would appear to make sense(at least from a motivational point-of-view) that potential of using such players for goals which are more explicitly linked to the curriculum be at least explored."(Kenneth Y T Lim, 2005) (Vygotsky,1978)

Such idea also enlightened educators today to take advantage of the technological tools we (both the savvy generation—our students today and also teachers) have already had and to better use them for our teaching.
Podcasting will be a big thing in education as it allows education to become more portable than ever before, giving educators another way to meet today’s students where they live and learn—on the Internet and on audio players. Since students today are already familiar with the underlying technology, podcasting even broadens educational options in a non-threatening and easily accessible manner, which will be a cool thing. From the perspectives of educators, podcasts are being used in two main ways: "consumption and production" (Kenneth Y T Lim, 2005). That is, teachers may either try to search for or use existing podcasts in one’s lessons or online (e.g. there are specific categories focusing on education-themed podcasts available in iTunes Music Store), design assignments around the production of podcasts themselves, or try authoring podcasts, which could be structured as primarily teacher-driven, or learner-driven. From the perspectives of students, for instance, it is really something different and can keep them interested as they will spend the class learning how to download images, music, record their own poems or songs, and try out various ways to alter the sound of their voices. That might be something they never did before, and can also arouse their interest in learning.

Many studies on podcasting use in classrooms have started. Teachers at South Iredell High School are piloting in classrooms where they can measure the success of iPod technology and its impact on student achievement. “Officials hope to pique students’ interest in school by bringing in technology that they use for fun” (Gach, 2007). Schools in Region’s Universities also have launched some podcasting efforts. Some professors make their lectures available online or for students to download and others consider podcasts a means of providing supplemental material and think how to better use them. The Chronicle of Higher Education reports the podcast lectures use situation in Purdue University: “Purdue University has created podcasts of lectures in about 50 courses on its main campus. The podcasts are currently available to the public, although the school may later decide to restrict the material. Students who visit the Purdue’s BoilerCast website can download individual lectures or subscribe to have
a whole semester’s worth of courses automatically transferred to their portable MP3 players” (Read, 2005).

And since September 2006, classrooms at Arizona State University’s downtown Phoenix campus were equipped to convert lectures into podcasts that involve any video or slides that professors could use to explain the material in a better way. These researches will all promote the podcasting use in academic setting. So far, the most potential academic uses of podcasting are as follows: class lectures, news/updates, student presentations, student-produced podcasts, interviews with guest experts, tours/fieldwork, internships/residencies, feedback/evaluation of student work, supplementary material such as speeches, music, or other audio recordings, and short language lessons, or other lessons that help students develop listening and speaking skills.

-Podcast Lecture Use

Perhaps the most obvious use of podcasts in an educational context is the recording of class lectures that students can listen to at their convenience. There are several colleges, including Duke University which is an early adopter, and Drexel University, Allegheny College, the University of Chicago, and Purdue University, are having podcasting courses to their students.

In August 2004, Duke University made the headlines by carrying out a podcast experiment. The school distributed approximately 1,650 20GB Apple iPods to its first-year students equipped with voice recorder peripheral. Although those iPods were preloaded with university's academic calendar, orientation schedule, and even introductions from Duke Administrators, school songs and lyrics, they were primarily used academically for 16 courses during the fall semester and 33 courses during the spring semester. And it appears most podcasts are student-driven, 60% of students reported using iPod for recording material and 28% for music and hard drive storage.
A total of 75% reported using it to support their learning (Bell, Cockburn, Wingkvist, Green, 2007). And Diane J Skiba in the article of 'The 2005 Word of the Year: Podcast, Nursing Education Perspectives' also mentioned this meaningful experience:

“With over a year’s experience, Duke used those iPods for the following five academic purposes: course content dissemination, classroom recording, field recording (capturing field notes, interviews, etc), study support (audio books, vocabulary lists), and file storage and transfer for large multimedia files” (Skiba, 2006).

Amongst those implications, podcasting was mainly used for disseminating recorded lectures and discussions at Duke University. Brian Flanagan and Brendan Calandra in their journal 'Podcasting in the Classroom' quoted one Duke University student's remarks on his podcasting experience.

"I loved being able to listen to the lectures at my convenience, to be able to listen to difficult portions several times, and just hear the material again—while working out, or running other errands—and I think the value of listening to the lectures showed through with a high score on the first exam."(Flanagan, Calandra, 2005)

At Purdue University, it has its podcasting project called "BoilerCast", which are audio recordings of classroom lectures (http://www.itap.purdue.edu/tlt/Boilercast/). The project website stores recordings are offered in nearly 70 different courses. Students can download or subscribe to a whole semester's worth of lectures as podcasts.

And in Brock Read's journal, 'Lectures on the Go', the author named the technology of recording teacher's lectures and send to their students as "coursecasting". And perhaps the largest coursecasting project carried out so far is at Purdue University at West Lafayette. The project was to let students 'skip the library'. Read's journal gave us some descriptions about this project:
"The project’s website stores recordings made in about 70 different courses. Students can download the podcasts individually or subscribe to have a whole semester's worth of lectures automatically transferred to their portable MP3 players. Michael Gay, the university's manager of broadcast networks and services for information technology. 'We are trying to give people as many options as possible if they miss a course and need to catch up — or if they just want to review,' he says." (Brock Read, 2005)

Many students in different colleges using podcast lectures indicated that they used podcasts to catch up missed lectures, to gain understanding of difficult material, or to use the podcast lectures as a revision aid in preparing for exams. Podcast lectures are now extensively used as part of student's revision strategy. And the ability to replay and pause lectures while checking associated reference material increased the flexibility to review. And Tynan and Colbran in their journal 'Podcasting, student learning and expectations' summarized some other key advantages and disadvantages: "Other advantages included providing a 'clear overview' and contextualization of topics, 'convenience', 'break from reading', 'indication of lecturer emphasis', 'focus and motivation, a feeling of being part of the class', 'provides external students with the same opportunities as internal students', 'hearing additional examples/explanations given in lectures makes it much easier to understand than the 'dry' textbook', etc.

The main disadvantages of podcasting were expressed to be the perceived cost of implementation, lack of a visual link to overheads, powerpoints or writing on the board, 'not being able to ask questions', equity access issues, 'difficulty of capturing peripheral sound', 'delays in availability' and 'download times', 'additional time needed to listen to podcasts', 'lecturers don't necessarily think to repeat inaudible questions'." (Tynan, Colbran, 2006)

-Foreign Language Study

Foreign language study is another big area of podcasting use since podcasting can
integrate naturally with audio-dependent courses especially like foreign languages. It is reported that in some colleges, language teachers have started sharing music, literature, speeches, and playing through podcasting while students have created foreign language audio projects to share with fellow students. The main advantage of using podcasts is that it enables students’ great flexibility and exposure to native speakers without having to be tied to classroom or computer lab.

One college newspaper reported the very first podcasting project in college:
"The first-ever iPod giveaway was at Osaka Jogakuin College in Japan, where officials distributed 15-gigabyte iPods to their 210 incoming freshmen in 2004. The school put its original English audio-learning aids into their students' iPods to help students learn English more efficiently"(Mochizuki, 2004) And that project was on April 3, 2004, nearly a half year before the one carried out in Duke University.

And Thorne and Payne of the Pennsylvania State University also reported interesting case studies about foreign language learning by using podcasts at Duke University:

"Duke University students in Lisa Merschel's elementary Spanish courses, for example, have used the university's iTunes site to download listening materials and audio flash cards for improving pronunciation (e.g., a dramatic reading of Don Juan Tenorio by Duke Spanish instructors, oral comprehension exercises for use in class, and songs). These students have also created a diachronic and potentially developmental oral production portfolio by uploading weekly recording of their own speech."(Thorne, Payne, 2005)

-Other Academic Implications in Universities
What might be the other academic implications of Podcast being or to be used in schools? It has been reported that many universities have been using the technology for more than just the dissemination of class lectures. Skiba in his journal ‘The 2005 Word of the Year: Podcast’ mentioned that “Many Universities report using the
technology for more than just the dissemination of course lectures. At Drexel, the School of Education offers interviews with guest speakers and messages from the university president. Peter Meng at the University of Missouri listed several possible uses of podcasting in the academic setting: (1) recording and distributing news broadcasts, (2) recording and uploading foreign language lessons to an instructor’s website, (3) developing audio/video recruiting brochures with personalized messages, (4) recording teacher’s notes, (5) recording meeting and conference notes, (6) oral history archiving and on-demand distribution, (7) sport event distribution.”(Skiba, 2006).

As one example, the athletic department of Boston University, home to 24 men’s and women’s varsity programs, Ronald Roach in the journal 'University of California Offers Video Podcasts on Disaster Preparedness' recorded the project of using video podcasts at the university: "The university provided a variety of video podcasts of game highlights, interviews, and content in other sports, particularly targeting its 250,000 alumni, 16,000 undergraduate students, 12,000 graduate students, and 9,000 faculty and staff” (Roach, 2006).

Another example could be found in the podcasts at the Lansing Public Library in Lansing, Illinois. The library developed its own podcasts, which provide audio and video resources targeted toward very specific audiences. Podcasts specialized in four areas are developed from adult programs to teen programs, youth programs, and information technology programs.

And in a rich range of potential applications, podcasts could become a way of providing hands-free instructions or manuals for students doing laboratory work or using various computer programs. Bell, Cockburn, Wingkvist, and Green in their journal 'Podcasts as a supplement in tertiary education: an experiment with two computer science courses’ widens our thoughts: "In the wider educational setting, podcasting could be used for recruiting and marketing, recording meetings and
conference talks, and broadcasting for specific groups such as alumni, sports teams, or cultural groups.” (Bell, Cockburn, Wingkvist, Green, 2007)

And here is an example for podcasting could be a good tool for web-conferencing. One journal (McCarty, 2005) does mention that World Association for Online Education (WAOE) colleagues in different countries are having certain web conferences. If one colleague can record free Internet telephony conversations or conference calls like via Skype, those files may become MP3 format for podcasting. And those conferences may be reviewed by more audiences.

Besides, the journal 'Our iPod Story' states a virtual learning application at college that “Georgia College & State University has created a full virtual learning community, termed "The iVillage", to connect Apple technology with related sources such as WebCT” (Our iPod Story, 2006)

In addition, Flanagan and Calandra in their journal 'Podcasting in the Classroom' mentioned interesting examples of how students might use to explore and use the new technology: "Students can conduct field research by taking an MP3 player with a microphone to interview, take verbal notes, and record foreign environments. Many podcaster are now creating soundseeing tours. Some authors of soundseeing tours post pictures on the Flickr website for people to look at after they've listened to the podcasts." (Flanagan, Calandra, 2005)

And Apple also developed new technology together with its enhanced podcasts that allows listeners to view pictures on their photo iPods, so called 'Soundseeing'. In 2005 the NECC Premier Podcast Event was also an enhanced podcast enables listeners to view powerpoint slides while listening to the conference presentation.

As to the academic applications of podcasting use, just like what Skiba indicated on its potentials: “Where I see the most potential is in access to information and
knowledge that is no longer bound by time, geography, or physical space. Students will be able to connect with experts in their own fields from all over the world”(Skiba, 2006). Podcasting use in near future will be beyond our imaginations.

(2) Problems/Podcast Issues
While more and more people are using podcasts today, there are many related issues and problems need to be taken into consideration. And what might be the ways to solve those problems are suggested.

- Technology Use
While using podcasts, users need to have sufficient bandwidth to download the podcast. So actually, there are potential issues existed with the format beyond access. Podcasting has limited usefulness for the hearing impaired as it is primarily an audio delivery technology. It is designed only for one way interaction, not calling for audience participation. By doing so, podcasters or podcast creators are, in fact, essentially “sound amateurs” producing and publishing audio feeds.

And the journal of EDUCAUSE Learning Initiative (ELI) ’7 things you should know about Podcasting' also talks about some problems in the quality issue of podcasts This might be the key issue concerning technology problems, could happen quite often if educators are not paying attention. “The quality of speakers’ voices, speech patterns, intonations, and other sound effects may not be the same as those of a professional broadcast. Faculty who wish to record their lectures or other instruction for podcasts may need some training, both in handling an audio-only medium and using the technology” (ELI, 2005).

What might be the way to solve the problem? Besides the training required to teach faculty how to podcast, it may need to set up a special education institution to have some dedicated technical staff available willing to facilitate podcasting in the school
as well as equipment prepared that could handle the technology problem. Such technology support is necessary to solve problems from podcast production to accessibility. That will be definitely helpful for both faculty and students in podcasting use in the classroom.

- Copyright
Another apparent problem of podcasting use is the copyright issues or privacy concerns, which is being discussed by more and more podcasters and educators. Since distributing content through iPods, Internet users could feel free to download audio files and to subscribe podcasts—this can definitely create copyright concerns. Like a journal published by Regents of the University of Minnesota also mentioned this issue: “As is this the case with any instance of technology-based teaching and learning, the creation of content raises copyright issues that are often complex and can involve considerations of University police, federal statutes, and consultations with experts” (Regents of the University of Minnesota, 2006).

But according to Robert Viau, a professor of English and interdisciplinary studies and one of the first professors to use iPods in the classroom when Georgia College began the initiative in 2002, showed us another opinion: “Under the Technology, Education and Copyright Harmonization Act, educators are not violation of copyright laws when they distribute certain content in a controlled way” (Burk, 2006).

- Quality/Size
Given that the focus of podcasts is audio, the quality sound elements are considered. Another issue is the size of the files and the ease of using the web feeds for downloading. So far, most podcasts are in the MP3 format and are easy to use, but the technical quality of the MP3 files vary. Annette Lamb and Larry Johnson in the journal of 'Podcasting in the school library' pointed out some specific problems: "Some programs are poorly edited, causing concerns regarding sound quality, volume control, and other issues that may interfere with their use” (Lamb, Johnson, 2007).
- Attendance

“The attendance issue is usually the No.1 thing that people are concerned about, and frankly, it’s a huge debate right now”, said Obadiah Greenberg, who manages the podcasting program at the University of California at Berkeley. Critics now point out podcasting can lead to empty classrooms or serve as "a crutch for late-sleeping students" due to its advantages in class lecture review. Lum in his journal The Power of Podcasting also addressed the problem of class attendance: “Some faculty fears students won’t go to class if they know they can rely on recorded lectures”(Lum, 2006).

However, after he talked with Gaugler, who is an Assistant Professor of Spanish, Marist College and said, “I saw no difference in class attendance”, he realized that they should “approach podcasting as a way of interacting more with students, not avoiding them” (Lum, 2006). And Brock Read in his journal 'Lectures on the Go' also quoted an assistant professor of international relations at American University, Mr. Jackson's words which suggests a possible way to avoid the problem:

"Are your class sessions heavy with information and light on discussion? Make students listen to a podcast before class, and they will show up ready to converse.”(Brock Read, 2005)

Some professors who podcast do notice the threat of empty lecture halls and they admit the necessity to take special steps to keep students from simply tuning in to class on their iPods. They tried to make efforts like some believe that pre-class listening materials delivered to students via podcasting could be an effective solution to help alleviate the problem, and others offered students special incentives for showing up to class like the teacher told his students that he won't tell them the answers to the next test on the screen if they don't come to the class. But most students reported are "savvy enough" to realize that podcasts in class are not an alternative to class.
- **Don’t forget the Deaf People**

Since audio podcasts may play its essential role in future education, we also should not forget the deaf students or those who have impaired hearing. One journal does talk about the issue. The authors Laing, Wootton, and Irons in their journal called 'iPod! uLearn?' mentioned the influence of podcasts on deaf people:

"Audio podcasts will discriminate those who are deaf or have impaired hearing. No matter how creative your educational podcast, those who are unable to hear it, will not be able to engage with the material provided." (Laing, Wootton, Irons, 2006) So when educators are making our educational podcasts, more and more we should think of its simplicity and usability towards different target audiences.

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**-The learning and teaching issues (Tips for designing educational podcasts)**

Concerning with some learning and teaching issues like one highly rating problem is getting distracted as students may be listening to the lectures while carrying out activities such as cycling and driving, so for better designing educational podcasts, the University of Wisconsin has created a guide outline or guideline, which may work as good tips as it presents constructive ideas for educators to be aware of when creating educational podcasts. Here the University of Wisconsin suggested us some learning and teaching issues concerning five points:

- 1. Selecting appropriate content

Be aware of the environment in which the learner may be listening to your podcast - in the gym, on the metro, walking the dog; it may be inadvisable to introduce difficult and complex issues. Perhaps such issues should be introduced in a lecture, and the podcast should instead concentrate on those concepts that students are having problems with - focus on the essentials; this is termed narrowcasting.

- 2. Determining educational goal
What do you want the podcast to achieve - preparation prior to a lecture or seminar, reflection on activities undertaken during a seminar, elaboration of concept or issue introduced during a lecture, explanation of what is required from an assignment. The educational goal of the podcast will influence the design of the content.

• 3. Designing the content

How will you communicate the message - monologues, interviews, dialogues, or group discussions, etc? Consider the podcast's educational goals; can the podcast use a scenario to introduce a problem or challenge; can the podcast use a personal experience; is it possible to use a group discussion with opposing views? Again, be aware of the learner's podcasting listening environment; can you use that environment to identify the optimum length for your podcast - how long do they spend in the gym, how long do they spend on the metro, how long do they spend walking the dog, etc.

• 4. Producing the podcast

Try not to read from a script - be informal, be personal, be yourself, use your passion for the subject to enthuse and motivate your audience.

• 5. Incorporating the podcast into course

Don't make it an option - integrate the podcast into the learning and teaching environment. Try to ensure that there is a connection between the lectures, seminars, tutorials, and podcasts.

(Laing, Wootton, Irons, 2006)

In addition, some other good tips are suggested in the journal 'Podcasts as a supplement in tertiary education: an experiment with two computer science courses'.
• Keep podcasts short and to the point - 15 minutes per week is probably about right for most students unless the podcast is expected as part of the contact time for the course.

• Use a system such as RSS to push the information out to students; this is likely to result in a higher uptake than if they students have to manually download the files.

• Be aggressive in overcoming technical problems at the start, such as making sure files are easy to download both on-campus and at home.

• Include motivating material in the podcasts such as interviews and topical news articles.

• Maintain a live feel to the podcasts, and inject personality. Recording the podcast with minimal editing dramatically reduces the work for the producer and creates a dynamic mood for the episode. Apart from the initial overhead of setting up the recording system and background music, the time taken to produce a podcast will not be much longer than the podcast itself.

• Do not be surprised or concerned about low response-rates to requests for feedback in the podcasts. This is a known phenomenon for the podcast medium. Based on our experience, podcasts seem to be an attractive tool to help engage students, build a class "culture", and disseminate the important and fascinating problems that the discipline addresses.

(Bell, Cockburn, Wingkvist, Green, 2007)

Those guidelines and tips may be very helpful for educators to enlighten their thoughts in creating class podcasts.

(3) Benefits & Trend
When it comes to the advantages of podcasts, the most noticeable point as mentioned in early paragraphs is they can be automatically routed through cyberspace to subscribers' personal media devices like iPods or MP3 players, and consumed at their leisure. The word podcast certainly works to iPod's advantage as some pioneers of the medium suggest the term stands for 'personal-on-demand' or 'personal option digital'. Lydia Lum in the journal named 'The Power of Podcasting' also made an interesting comparison between podcasts and magazines to illustrate the podcast is a better tool: "Podcasts are like a digital audio version of hard-copy magazines, can be shared and swapped over and over again. But unlike magazines, podcasts don’t require any physical space, making the medium even more appealing" (Lum, 2006).

As podcast users, what we could enjoy most from podcasts maybe is what the Internet could provide us. Not surprisingly, Apple Corporation is the major promoter of the academic podcasting trend. It offers free host services to different colleges and campuses that distribute podcasts through a subsidiary of its iTunes online music store 'iTunes U'. Gadi Dechter in the journal 'Education at hand: Colleges podcast courses to palm-size media players, and students skip that 8 a.m. lecture' also addressed that "Apple commands about 70 percent of the U.S. digital media player market, according to a recent survey, but students who don’t own an iPod, which can cost $80 to $400, can still use iTunes U on most Apple Macintosh or Microsoft Windows-based computers" (Dechter, 2006).

As we are trying to explore the benefits podcasting could bring us in near future in educational settings, Peter Ractham and Xuesong Zhang in their journal 'Podcasting in Academia: A New Knowledge Management Paradigm within Academic Settings' illustrated some potential benefits: “Podcasting offers an easy way for users to create, distribute and manage the class and research materials…In the long run, podcasting has a potential to be embraced not only by consumers and academic users, but also societal entities such as communities and government agencies” (Ractham, Zhang, 2006).
Well, the possibilities are still being explored, Vestal in his article called 'Region’s universities test podcasting: Professors using new technologies to connect' gave us the hint: “In the near future, it’s not likely to replace classroom instruction entirely but could provide a more social forum for students studying a particular subject to gather and discuss” (Vestal, 2007).

We could see that educational podcasting can provide additional, on-demand, personalized content that is linked to seminar activities or lecture, thereby arousing student's enthusiasm towards learning as well as supporting independent study. And so far podcasting has been widely used in global universities like in School of Computing, Engineering & Information Sciences of Northumbria University, UK, and School of Medical Sciences, RMIT University, Australia, etc. With well-designed podcasts in colleges, teachers can get the benefits of reusing the class podcasts as resources from semester to semester, but may be difficult to create or modify mid-semester to meet the needs of a particular cohort.

- **Time Shifting**
Podcasting is a time-shifting technology, it involves mainly audio files, production quality varies, presentation quality matters, length matters, copyright issues, etc. The time-shifting capability of podcasting means that students can download and listen to lectures and tutorials podcasted by their teachers over and over again in a quiet of the library or at home, while others might take advantage of downtime while commuting, walking across campus, or waiting in line. By doing so, students can learn to ruminate over what they have heard and potentially podcasts also help encourage their critical and analytical thinking. The Information Technology Office of University of Minnesota also identified this benefit of podcasting:

“The mobility and time shifting afforded by podcasting enables learners and instructors to expand the boundaries of the classroom and bring together course content and the world outside the campus. In an educational context, instructors might
create guided audio tours for field trips, or perhaps commentary or instructions for an internship or residency. Conversely, students can create podcasts to report their observations or conduct interviews” (Regents of the University of Minnesota, 2006).

- **More than just a Review Tool**

The portability of podcasting makes it ideal for students to review what we learn at school at any place, at any time, or "on the move". The technology could turn the entire campus or bigger environment into a classroom. As mentioned, podcast your classes, and you may review them at your leisure. Listening and re-listening to material is a very helpful and may enhance the understanding. So podcasting could be the best and valuable review tool, but some advocates also say that it is "more than just a review tool".

It can also help enliven classroom interactions as well as help lecturers critique themselves. Teachers in many colleges now have used pre-podcasts for their courses as they post their podcasts before the class and require students to pre-view them. So before the class, students could have pre-knowledge about what central idea of the next course is and what key concepts are involved. And in class time, they can just have enough discussions and in-class interactions. Podcasts, to some extent, can help save plenty of class time!

- **Creativity**

While in the process of creating podcasts, it can definitely encourage your creativity. Podcasting technology gives ordinary people control of creating their own media. It is a kind of inexpensive way for regular people or students to showcase their talent with productions as they are the creator. The author Julie Nightingale in her journal also addressed what the technology might bring to teaching:

“A key factor in what many teachers feel is a more enlightened approach to learning is the political shift away from the rigid prescription of numeracy and literacy strategies to allow teachers more freedom in how they interpret the curriculum. At the same time,
the technology available to support creativity in both teaching and learning is proliferating. Digital cameras, DV, sound, film-editing packages, and even mobile phones enable students to learn in different and innovative ways" (Nightingale, 2006).

- **A Self-teaching/Peer-tutoring Tool for students**

As students are also podcast producers or creators, such experience encourage their further understanding and improve critical thinking on what they learned before they could "invent their own productions". To some extent, it is also beneficial for students to self-learning, self teaching, or tutoring fellow/peer students as podcasting provides better cognitive-based personalization in self-learning and e-learning. Brown & Campione in their journal also pointed out the idea of peer tutoring or teaching:

"Having students from earlier cohorts of a subject teach or impart their knowledge and experiences to new students is consistent with the principles of peer tutoring or teaching" (Brown & Campione, 1992)

And in Chan, Lee, and McLoughlin's journal 'Everyone's learning with podcasting: A Charles Sturt University experience', the authors addressed the benefit of peer tutoring by podcasting as a valuable exercise for both tutors and tutees. "Advocates of peer tutoring assert that it is a valuable exercise for both the tutors as well as the tutees, since it is a cost-effective way to provide academic support to the tutees, but also affords the tutors the experience of 'learning by teaching'." (Chan, Lee, McLoughlin, 2006)

- **A great Self-critique Tool for teachers**

More than a helpful tool that benefits students in learning, podcasting is also a great "self-critique tool" for teachers or podcasters as well. While professors try to podcast, they need to listen to recordings of their own classroom or lecture-hall performances regularly before post them. They must check for moments where speak too quickly for students, didn't explain clearly enough, or run a bit too far off message. Teachers also need to have great patience while making podcasts as they may fail "thousands of
times” before they are satisfied. So the process of podcast making or self-reviewing, to some extent, can also improve their teaching as well as practice their podcasting skills. Read's journal 'Lectures on the Go' also quoted one teacher's words at Purdue University:

"I've learned a lot just from listening to my own podcasts...they are really great for self-critique — if you've got the guts to listen."(Brock Read, 2005)

- Is Podcasting a fad?

Currently the iPod has already become popular for listening to downloaded music from iTunes and other functions like voice recording or storing digital files. The ubiquitous of the digital device together with a number of other trends have converged to popularize podcasting, including developed Internet, web services, and easier-to-use technology for recording or making podcasts.

Many educators might ask, ‘Is podcasting a fad? Is it worth the time and effort to develop podcast resources?’ The answer is 'Certainly'. For internet generation or 'netgen', more users tend to be technologically savvy patrons. We could see it must be a trend as even in educational settings, podcasts offer colleges more abilities to provide cultural events, instruction on-demand, or promotional activities in a highly portable medium, which provide students or teachers with great convenience. Bull (2005) states the meaning of developing podcasting use in education. "MP3 players such as the Apple iPod have become the mechanism for distribution of music for today's youth just as the CD and vinyl records filled this role for previous generations. Educational uses of podcasting build on the foundation of this cultural phenomenon."(Bull, 2005) Researchers (Mindlin, 2005) forecast between 30 and 57 million people living in the United States will access and use podcasting technology by the year 2010.

Moreover, we do have seen the advantage of having audio information since to most people, listening may be more attractive and less tedious than pure reading. As Steve
McCarty in his journal 'Spoken Internet to Go: Popularization through Podcasting' indicated the advantage of using audio: "Although audio can be considered an intermediate stage on the way to video with ubiquitous broadband, audio represents a great leap in sensory input over text." (McCarty, 2005)

Durbridge (1984) also emphasizes the educational advantages of audio over printed media.
"As compared with a written text, the spoken word can influence both cognition (adding clarity and meaning) and motivation (by conveying directly a sense of the person creating those words)." (Durbridge, 1984)

And Deborah Lee addressed in the journal 'iPod, You-pod, We-pod: Podcasting and Marketing Library Services' the trend of podcasting in new century: 
"Only time will tell if podcasts are a permanent addition to the college marketing toolkit. But for now, it has emerged as one of the most powerful new technological trends of the 21st century with new recreational and educational uses emerging daily" (Lee, 2006).

- iTunes U
Apple recently introduced iTunes U, could be a contentious development for podcasting in educational use. iTunes U is a free services that offers participating universities to post academic materials via iTunes music portal. Both faculty and students can access and download those materials through iTunes U, the process is nothing different from how they download music from iTunes commercial site. Once a university joined iTunes U and has enrolled onto the iTunes U service, its faculty, students, and alumni members of the public can access and download college resources from the Internet. iTunes U, to some extent, serves as a perfect online platform, that may meet the needs to teachers who are eager to create their educational podcasts as well as to students who wish to access more class materials.
-Vodcasting

Vodcasting, or 'video podcasting' is a future trend of podcasting development, but so far, it is still in its infancy. Instead of audio clips, video clips are distributed through RSS 2.0 enclosures—that's the only difference between vodcasting and podcasting. Concerning the technology issue, the file sizes of vodcasts could be five times as large as podcasts, depending on the quality of content. And more powerful computers and related softwares are needed to create or edit videos. Moreover, users must need video-capable players to play those vodcasts. It was reported Apple has developed certain kind of iPods that can play vodcasts, it is still a long way to go. But we could imagine that with vodcasts, teachers and students could share video clips, like even the interactions or discussions in classroom could be recorded to become videos. Those videos could be shared with students of wholly online classes or of distant learning. What to say is the potential of future podcasting use in teaching is only limited by the creativity or resourcefulness of students and faculty.

4. Podcasting in Healthcare/Medical Education

Not surprisingly, educational uses of podcasting are very much in vogue at present. In the medical field, podcasting has the same potential of wide uses. Educating patients or patient education, for example, is becoming “a particular niche that has a lot of resonance around the world”(Peyton, 2007). Podcasting has also many potentials in medical education.

Along with the latest music videos, pilot programs of podcasting use have been carried out in both the United States and the United Kingdom. Those health podcasts are offered to allow patients to view and hear health advice or additional details about an upcoming surgery, for instance, on an MP3 player or a personal computer. The Journal Gazette gives us some examples of such pilot programs of podcasting use:

"In US, Clarian Health Partner’s Healthpod system leads the way in podcasting information to its bariatric patients. The Indianapolis health system’s officials say that educating patients about the procedure, preoperative preparation and post-operation
follow-up can ease some fears and encourage them to be more engaged in their own care.” (Hospitals & Health Networks, 2007).

In healthcare education, there is a program called OsiriX(2006) open-source system that could be compatible with iPod to provide professionals and students to view medical-related images or Digital Imaging and Communications in Medicine(DICOM) files before determining patient's conditions. And nurses may give patients video iPods with relaxing videos or podcasts that could help them especially when they are anxious or worried about their sickness. Maag of University of San Francisco in her journal 'iPod, uPod? An emerging mobile learning tool in nursing education and students' satisfaction' also mentioned a practical use of podcasting in healthcare education:

"Healthcare educators may create short and simple nursing skill related enhanced podcasts and load them on MP3 players that students may check out of the college's learning department, much like a library book, before practicing the skill on a patient in a clinical setting."(Maag, 2006)

Moreover, in December 2006, the University of California television system (UCTV) unveiled its new vodcasting service at the American Public Health Association conference. And UCTV has been offering vodcasts or video podcasts of programs for healthcare professionals who need timely disaster preparedness information. From 'Diverse Issues in Higher Education' by Boston University, UCTV chose the “Disaster Preparedness for the Healthcare Provider” series as its first foray into the medium because of its timeliness and the importance of having information accessible to health care professionals at any time or place.

In addition, the Agency for Healthcare Research and Quality (AHRQ) also launched a series of podcasts in late 2005, so called 'the 411 Health Series'. A variety of topics of podcasts ranging from quality of healthcare to personalized health records are offered
each week by AHRQ. Do not think that nursing is not a part of this phenomenon. Diane J Skiba in the article of 'The 2005 Word of the Year: Podcast, Nursing Education Perspectives' disclosed certain podcasting use in the school of nursing:

"Dr. Margaret Maag, an assistant professor in the School of Nursing at the University of San Francisco, and her colleague, Ray Schoroeder, are creating the Higher Education Podcast Repository to serve as an international clearinghouse for the sharing of lectures, conversations, speeches, and related podcasts for higher education worldwide” (Skiba, 2006).

Faculty have also acknowledged this powerful new force and understand its transformative impact on nursing education. The author Campbell also states in his journal ‘There’s something in the air: Podcasting in education’ about its influences:

“Podcasts too convey that potency of life, and they can preserve and communicate the living intellect with unusual immediacy. The air within the human voice retains its inspiration, even as it inspires the listener to speak in response. In this way, podcasting can help education realize one of its noblest goals: to make a better conversation out of the thing we call civilization”(Campbell, 2005).
IV. METHODOLOGY/DATA COLLECTION

Research Model

A research model of ‘Level of Enthusiasm’ was suggested before carrying out the whole study. The purpose of exploring the level of enthusiasm of students towards podcasting before and after they are exposed to it is to find out their potential views about using podcasts in class (podcast lectures) and to get the underlying information of how podcasting use effects their enthusiasm and how they changed their views on the issue. Two questionnaires, with one pretesting (to figure out students’ previews) and the other (to explore students’ after views) were carried out as mentioned in the prior sections. Based on the research model and received survey reports, I tried to summarize the findings in the following table 0.

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<thead>
<tr>
<th>Level of Enthusiasm</th>
<th>'BEFORE' students tried on podcast lectures</th>
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<td>'AFTER' students were exposed to the podcasts</td>
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Table 0. Research Model of ‘Level of Enthusiasm’ ("?" will be replaced by collected numbers)

By using this model, we intend to gather data of how many students have high or low level of enthusiasm towards podcasting use. Those who had no interests or little passion towards podcasting were regarded as having ‘low level of enthusiasm’. Meanwhile, for those who had strong interests or passion to try on podcast lectures were regarded as
having ‘high level of enthusiasm’.

In terms of this, we can conclude there are four types of people:

- (1) For those who had both low levels of enthusiasm before and after they tried listening to and downloading podcast lectures, they were thus considered as ‘tech-phobe’, which means they are really afraid of, are not familiar with, or dislike using technologies.

- (2) For those who had low level of enthusiasm before they tried listening to and downloading podcast lectures but high level of enthusiasm after, they were considered as ‘converted’, which means they changed their mind and began to feel interested in podcasting after they were exposed to it.

- (3) For those who had high level of enthusiasm before they tried listening to and downloading podcast lectures but low level of enthusiasm after, they were considered as ‘disappointed’, which means they felt disappointed with podcast lectures because they did not reach their expectations.

- (4) For those who had both high levels of enthusiasm before and after they tried listening to and downloading podcast lectures, they were thus considered as ‘savvy’, which means they really understand the value of podcasting technology, cherish its existence, and use it wisely.

**Pilot Research Study & its Findings**

Professor Gina Myers and I planned to conduct a ‘pilot study’ for SUNYIT NUR390 class during the Spring semester (Feb to Apr 2007), which is a ‘small-scale version or trial run of the major study’ (Polit, Beck, 2004). Our major data collection (in the same procedure) was conducted as a case study during the 2007 fall semester from Sep to Dec 2007, while Prof. Myers was teaching exactly the same research methods class (but not at SUNYIT campus).
‘Pilot study’ is usually referred to as pretesting the questionnaire, which means, before actually collecting research data (fall semester), researchers often perform some ‘tests’ to ensure that plans will work smoothly. For example, they may evaluate the readability of any written materials to determine if people with below-average reading skills can comprehend them, or they may need to test whether everything is working all right. If questionnaires are used, it is important to know whether respondents understand questions or find certain ones objectionable. Many research studies skip the process of ‘pilot study’, but it would be better if there is such a step involved, and the result of ‘pilot study’ could also be an important part of data for a thesis. So that’s our plan to have such study conducted during this semester.

According to the idea of the research model, we finally got the data as shown in the following Table 1:

<table>
<thead>
<tr>
<th>Level of Enthusiasm</th>
<th>‘BEFORE’ students tried on podcast lectures</th>
<th>‘AFTER’ students were exposed to the podcasts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LOW</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>HIGH</td>
<td>6</td>
</tr>
<tr>
<td>'LOW'</td>
<td>Tech Phobe</td>
<td>Disappointed</td>
</tr>
<tr>
<td>9</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>'HIGH'</td>
<td>Converted</td>
<td>Savvy</td>
</tr>
<tr>
<td>9</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 1. Findings of Pilot Study in the Research Model of ‘Level of Enthusiasm’
(The figure in the table stands for the number of students of NUR390)

Based on this model, initial data was gathered from questionnaires and online surveys regarding the use of SLN coursespace for the NUR390 class of total 18 students. From there, using primarily online research, a series of questions was developed. The questions of the surveys primarily cover five perspectives: Personal Information, Podcasting Equipment, Podcasting Experience, Lifestyle & Learning Style, and Enthusiasm about Class Podcasting Project. These aspects can be seen as factors that
may influence students’ point of views on podcasting use. Since Professor Gina Myers and I announced the two surveys as voluntary questionnaires to the 18 students, students who were not interested in podcasting use might not attend the survey. So those who did not choose to submit the survey could be regarded as having no interests or low level of enthusiasm on this issue.

The current findings upon NUR390 class are that out of total 18 students, there were 6 students voluntarily joined the survey while the other 12 did not as they had no special interests on this issue. After the class module of ‘podcast lectures’ were open to the students, there were 9 students joined the second survey while the other 9 did not. The ‘tech-phobe’ people are 7 students while the other 5 who had original low level of enthusiasm ‘converted’ to become interested. Among the original 6 students who had high interests, 2 of them switched to become ‘disappointed’ while the other 4 are really ‘savvy’ people.

**Major Research Study & its Findings**

- **Basic Class Findings**

  Same as what we did in the pilot study, the major study was also on Prof. Gina Myers’ research method class of Nursing School, NUR390-70. I kept on assisting Prof. Myers with creating podcast websites for students to listen to streaming podcast lectures. During the fall semester (Sep 07 – Dec 07), we tried to take a further step on podcasting use in class teaching.

  Prof. Myers has a research method class of 27 students at Jefferson College in Watertown, NY in the fall. Before we provided students with experience of trying on online podcast lectures, we designed the 1st questionnaire for students to explore their preview of podcasting use. So in early September, 21 out of the 27 students helped submit our questionnaires for us. From their feedback, we can see that most of them are RNs (registered nurses), and they didn’t know about high-tech. In another word,
they had no knowledge prior to this class and many are mid-aged women (41-50 yrs old or 30/40ies). Most of them seemed very interested in this new area, which inspired us a lot. Although some reported problems while listening to the podcasts as they only got dial-ups going to the Internet, most of them went through the podcasts and enjoyed the online lectures. From the questionnaires, we found that there were 10 of them chose that “they feel the project is interesting, useful, and necessary” while 11 did not know/care about it or thought it is unnecessary. Among them, about 5 reported that they got problems while listening to the sample podcasts as they only had dial-ups going to the Internet.

After the first survey, in Oct and Nov, we created the class podcast site as http://sunynur.podbean.com with two audio lectures presented by Prof. Gina Myers on “Literature Review” and “Ethics in Research” available for students to listen to or download.

Figure 14. NUR390-70 Class SLN Coursespace
Figure 15. Posting podcast lecture assignment through NUR390-70 Class SLN Coursespace
Figure 16. Podcast weblog site for NUR390-70 class, uploaded as:
http://sunynur.podbean.com

In Nov, we sent out the 2nd questionnaire to find out their post view of using the class podcast site. 18 out of 27 students volunteered to fill in the survey and it was happy to
see 12 of them chose “they feel the podcast project is interesting and necessary” this time while only 9 of them said “they don't know or don't care”. Still about 5 of them reported that due to problems of dial-up Internet connections or old computers, they could not listen to the podcast easily or download the podcast lectures whereas all the other students had no trouble accessing the podcasts at all.

- **Students' Purposes of Computer Use**

When identifying what are students' purposes of using computers, we found out the majority of their choices still focus on searching class information, resources, SLN coursespace, and email checking, etc. The details could be seen in the following Chart 1.

![Chart 1. Study on Purposes of Computer Use among 21 students of NUR390-70 class](chart1.png)

Seen from the above chart, among 21 students' feedbacks, (this is a multiple choice), 15 choices were made on searching class information or resources, the most choices as 22 were on SLN coursespace use and assignments checking. Other choices are like making powerpoints/documents, downloading podcasts, entertainment, building weblog or personal sites, stuff sharing cover relatively the minority of choices. And
another big share goes to email check. From the result, we could to some extent, found out students’ habits or preferences of computer use.

- **Some Important Findings on 21 students of NUR390-70**

To all, those findings above from class students are really valuable for exploring the benefits of class podcasting use as well as for fulfilling this thesis project. From the first questionnaire to the second, I followed 21 students’ feedbacks and tried to focus on several issues (their age level, ipod and podcast used experience, years of internet use and the frequency they use computer) that may have some relations to their levels of enthusiasm or interest towards the podcasting project. And later I could analyze the relations between those items, like their age level and their level of enthusiasm, or their experience of ipod/podcast use and their level of enthusiasm, for instance.

Here's the table as summarized:

<table>
<thead>
<tr>
<th>No.</th>
<th>Age Level</th>
<th>Ipod/Podcast Experience</th>
<th>Years of Internet Use/Frequency</th>
<th>Interest(Before they tired)</th>
<th>Interest (After they tried)!</th>
<th>Analysis(what type of people they are)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>41-50</td>
<td>N</td>
<td>5-10 years/several times a day</td>
<td>interest</td>
<td>interest</td>
<td>savvy</td>
</tr>
<tr>
<td>2</td>
<td>41-50</td>
<td>N</td>
<td>5-10 years/once a day</td>
<td>Not too interest</td>
<td>N/A</td>
<td>tech phobe</td>
</tr>
<tr>
<td>3</td>
<td>41-50</td>
<td>N</td>
<td>2-4 years/several times a day</td>
<td>interest</td>
<td>N/A</td>
<td>disappointed</td>
</tr>
<tr>
<td>4</td>
<td>41-50</td>
<td>N</td>
<td>2-4 years/once a day</td>
<td>Not too interest/Don't know</td>
<td>Don’t know/tried though</td>
<td>tech phobe</td>
</tr>
<tr>
<td>5</td>
<td>51-60</td>
<td>N/has podcasting experience</td>
<td>5-10 years/once a day</td>
<td>Not interest/unnecessary</td>
<td>Saw it/not very interest</td>
<td>tech phobe</td>
</tr>
<tr>
<td>6</td>
<td>26-30</td>
<td>N</td>
<td>&lt;1 year/once a day</td>
<td>Don’t know</td>
<td>Don’t know/unnecessary</td>
<td>tech phobe</td>
</tr>
<tr>
<td>7</td>
<td>31-40</td>
<td>N</td>
<td>5-10 years/several times a day</td>
<td>interest</td>
<td>Never saw it/don’t know(computer prob)</td>
<td>disappointed</td>
</tr>
</tbody>
</table>
Table 2. Some key findings of Main Study on 21 students of NUR390-70 class

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Experience</th>
<th>Years/Usage Frequency</th>
<th>Level of Interest</th>
<th>Feel Interest (Reason)</th>
<th>Tech Phobe</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 41-50</td>
<td>Used iPod/No Podcasting Experience</td>
<td>2-4 years/several times a day</td>
<td>interest</td>
<td>Feel interested (didn’t download)</td>
<td>savvy</td>
</tr>
<tr>
<td>9 31-40</td>
<td>Used iPod/Has Podcasting Experience</td>
<td>2-4 years/several times a day</td>
<td>interest</td>
<td>Feel interested (didn’t download)</td>
<td>savvy</td>
</tr>
<tr>
<td>10 51-60</td>
<td>N</td>
<td>2-4 years/once a day</td>
<td>Don’t care/know</td>
<td>Feel interested (also because it’s an assignment)</td>
<td>converted</td>
</tr>
<tr>
<td>11 31-40</td>
<td>Used iPod/No Podcasting Experience</td>
<td>5-10 years/several times a day</td>
<td>Don’t know</td>
<td>Feel interested (didn’t download)</td>
<td>converted</td>
</tr>
<tr>
<td>12 &gt;60</td>
<td>N</td>
<td>2-4 years/once a day</td>
<td>Don’t know</td>
<td>Feel interested (didn’t download)</td>
<td>converted</td>
</tr>
<tr>
<td>13 31-40</td>
<td>N</td>
<td>2-4 years/3-5 days a week</td>
<td>Not much</td>
<td>Feel interested (didn’t download)</td>
<td>converted</td>
</tr>
<tr>
<td>14 41-50</td>
<td>N</td>
<td>5-10 years/once a day</td>
<td>Not too interest</td>
<td>N/A</td>
<td>tech phobe</td>
</tr>
<tr>
<td>15 18-25</td>
<td>Used iPod/Has Podcasting Experience</td>
<td>5-10 years/once a day</td>
<td>interest</td>
<td>Feel interested (didn’t download)</td>
<td>savvy</td>
</tr>
<tr>
<td>16 41-50</td>
<td>N</td>
<td>2-4 years/1-2 days a week</td>
<td>interest</td>
<td>interest</td>
<td>savvy</td>
</tr>
<tr>
<td>17 51-60</td>
<td>N</td>
<td>12 years/several times a day</td>
<td>interest</td>
<td>Feel interested (didn’t download)</td>
<td>savvy</td>
</tr>
<tr>
<td>18 41-50</td>
<td>Used iPod/Has Podcasting Experience</td>
<td>5-10 years/3-5 days a week</td>
<td>interest</td>
<td>interest</td>
<td>savvy</td>
</tr>
<tr>
<td>19 41-50</td>
<td>N</td>
<td>2-4 years/3-5 days a week</td>
<td>Don’t care/know</td>
<td>Tried/not very interested</td>
<td>tech phobe</td>
</tr>
<tr>
<td>20 41-50</td>
<td>N/Has Podcasting Experience</td>
<td>15 years/several times a day</td>
<td>not too interest</td>
<td>Feel interested (didn’t download)</td>
<td>converted</td>
</tr>
<tr>
<td>21 31-40</td>
<td>N</td>
<td>2-4 years/once a day</td>
<td>interest</td>
<td>Don’t know/care</td>
<td>disappointed</td>
</tr>
</tbody>
</table>

- More Detailed Findings on students' 'Level of Enthusiasm'
To see more details, from the following table, we could identify different degrees of interest of each student before and after they got exposure to the podcasting project:

<table>
<thead>
<tr>
<th>Level of Enthusiasm</th>
<th>Degree of Interest</th>
<th>No. of students (Before they tried)</th>
<th>No. of students (After they tried)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIGH</td>
<td>Feel it interesting/necessary</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>HIGH</td>
<td>Eager to know about it</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>LOW</td>
<td>Okay for me</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>LOW</td>
<td>Don’t care/don’t know</td>
<td>6</td>
<td>2 + 3 N/A</td>
</tr>
<tr>
<td>LOW</td>
<td>Go see it cause it is an assignment</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>LOW</td>
<td>Unnecessary/Tried but no interest</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 3. More detailed findings on 21 students' level of enthusiasm towards the project in NUR390-70 class

As 21 students submitted the first questionnaires while 18 students submitted the second, so there were 3 students had no answers, here we identified them as "N/A"- they don't know or don't care about the issue. And from their different degree of interests, the top three situations as (1) they feel the project is interesting or necessary, or (2) they were eager to know about the project are categorized as they got the high level of enthusiasm whereas the other three possibilities, (1) they feel the project is just okay for them, or (2) they don't care or know about it, (3) I will try go see it because this is an assignment (or they won't go see), and (4) they tried the podcast but felt no interest or they thought the project is unnecessary are categorized as they got relatively low level of enthusiasm towards the project.

- Key Findings of Main Study in the Research Model of 'Level of Enthusiasm'
  So from those findings above and in terms of the idea of the research model, we could finally got the table 4 as follows:

<table>
<thead>
<tr>
<th>Level of Enthusiasm</th>
<th>'BEFORE' students tried on podcast lectures</th>
</tr>
</thead>
</table>

...
Table 4. Key Findings of Main Study in the Research Model of ‘Level of Enthusiasm’
(The figure in the table stands for the number of students of NUR390-70)

The findings upon NUR390-70 class are that out of total 27 students, in the first study, there were 21 students voluntarily joined the survey while for some reason the other 6 students did not. And from the feedbacks from the 21 students, 11 students reported they were very interested in the project and were in the high level of enthusiasm before they tried on podcast lectures while the other 10 were in the low level.

After the class module of ‘podcast lectures’ were open to the students, we had the second survey. Also, there were about 5 students reported they got technical problems that they didn't know if they really love or hate this new technology. There were 18 students joined the second survey voluntarily. We were glad to see this time among the original 21 students(3 of them didn't submit the second survey), there were 12 of them chose “they feel the podcast project is interesting and necessary” while 9 of them said “they don’t know/don't care or they felt it was unnecessary”. So we can identify there were 12 students in high level of enthusiasm after they were exposed to podcasting and the remaining 9 students were in relatively low level of enthusiasm.

And as we followed students' feedback, we found the ‘tech-phobe’ people are 6 students while the other 5 who had original low level of enthusiasm ‘converted’ to become interested. Among the original12 students who had high interests, 3 of them switched to become ‘disappointed’ due to technical problems they met or they felt
those podcasts were not that good as they expected while the other 7 are really ‘savvy’
people.

- **Accessibility/Usability of Class Podcasts**

Other supplementary findings like some students who met technical problems that
they could not solve when trying on podcast lectures, Prof. Myers and I took great
concerns with those students.

- 1. Laurie Brown reported she could not access the podcast site easily because
   she only has dial-up at home.
- 2. Kathleen Maynard reported that she tried to listen to a podcast, but it didn’t
   work.
- 3. Becky McDougall reported she has tried podcasts…but only has dial-up, so
   it is SLOW…dial up only in 3 word movements…. 
- 4. Tammy Suiter reported that “it would be good if I didn’t have dial up”
- 5. Bonnie reported that “she never download or listen to podcasts cause she
   has dial-up, and it takes too long.”

Though we tried hard to give them suggestions or ideas, they could not reach our
podcast lectures successfully or they accessed them very slowly. But such experience
also reminds us it might be a potential problem we could meet in podcasting teaching.
For our teachers, we need to do better preparations beforehand to solve the problems
in later teaching.

So among the 18 students who submitted the second questionnaire, in terms of the
accessibility of class podcast lectures, we also tried to find out their different
situations.

So let's see the following chart:
Chart 2. The accessibility/usability of podcasts

From this Chart2, we could see the situations of podcast use among the 18 students. 3 students who are in high level of enthusiasm towards the project not only listened to the podcast lectures, but also downloaded them with no problems. About 9 students reported they enjoyed the podcasts online in good qualities, but didn't download them. 2 students said they tried to listen, but didn't hear the sound. Another 1 student went see the podcasts just because it is an assignment for them. Also, other 2 students don't care about the project as they were not interested it. And 1 student reported he could never see the podcasts due to some technical problems, so he thinks the project is unnecessary.
• **Values/Benefits of Podcasting Use in class**

When exploring the values/benefits of podcasting in classroom use, I tried to figure out how helpful or beneficial did students feel when they used podcast lectures compared to the traditional in-class lectures. And also what do they mostly want to get from the podcasts is another issue to be found out.

When asking “how helpful is the podcast lecture to your learning”, some very impressive answers are like:

- “I find it exceptionally beneficial as I am an auditory learner and it is difficult to catch everything in class! You can pause too!” (by Nicole Danforth)

- “I was able to download it and copy it to a CD to listen to later, I didn’t have any difficulty using the website…I have found that the podcasting lectures are valuable for online classes. I prefer to hear the lecture and this makes it passable plus it can be downloaded, burned and listened to at my leisure.” (by Ellen Plopper – Eves)

- “I really liked that I would listen to the class lecture at home. I like it better if it is an online course, but I do like a classroom setting because I like asking the instructor questions.” (Anonymous)

- “Traditional is best. If same thing is not understood. I can ask for clarity in person.” (by Christine Bacon)
From Chart3, we could see there are about one-sixth (3 out of 18) of the subjects reported they love podcast lectures much as they could enjoy them at their leisure and at any place, and about 44% (8 out of 18) of the subjects felt the podcasts are really helpful for their learning as they could pause the lectures freely, and such lectures could help a great deal in explaining the materials/handouts and helping fill in blanks if they miss anything in the class or regular lectures. Another one-sixth (3 out of 18) students said they felt them helpful, but they could not ask instructor any questions even they want to and another 4 students out of the 18 didn't think such podcasts are helpful at all. They prefer traditional lectures in class as they could build more interactions and discussions with instructor and other classmates.
And when asking 21 students of the NUR390-70 class in the first survey, what do they most want to get from the class podcasts, from Chart 4, we could see 17 students (80.9%) reported they need class lectures, 1 said she wants other educational materials, 1 wanted some class notes from the podcasts, 1 preferred video podcasts, and another 1 wished he could have some class discussions from the podcasts. Those ideas really can enlighten us to explore a wider territory of the podcast making in the educational settings. And from this, we could also see the potential great value class podcasts may bring us students to meet their needs in near future.
Other Findings from the Interviews

Interview Findings from Students in Dr. Russell Kahn's Class

I had interviews with 5 graduate students of Technical Editing class of Dr. Russell Kahn in Fall2007 semester, and 3 of them created group presentations that became online podcast lectures for both hybrid and wholly online class. During the semester, Dr Kahn and I created over 10 class podcast lectures, which cover wealthy resources from chapter information, key concepts, guidance for mid-term or finals or assignments, to answering students' in-class questions. From their responses, 4 of them viewed 100% of class podcasts while 1 viewed 26-50% of all the podcasts. And 3 of them listened to every podcast multiple times while other 2 fast-forwarded to certain portions of the podcast and listened to them many times. For each chapter's podcast, averagely, 3 of them reviewed them once and the other 2 viewed them twice. And all students spent half to one hour time averagely to review a podcast lecture for each chapter. Only 1 student said she does not like such technology while the other 4 all felt it was really interesting and showed high level of enthusiasm upon the project.

The most impressive part of the interviews is some interesting feedbacks I got from those students. When asking "what do you think of podcast lectures of technical editing class this semester", most of the students gave me positive evaluations while some pointed out the weakness in those podcasts and also suggested constructive ideas how to improve them.

"The podcasts were put together nicely...Sometimes the instructor hums and haas during the podcasts and I see the time increasing but that's natural when using new technology. One thing I do not like is marking up the slides to the extent that they are no longer readable...it became a negative for me. Other than that, I think they are good and a nice resource for reviewing key concepts. Keep up the good work." (Harry Baran)
"I thought the podcast lectures were very helpful for reviewing chapter material. The final review was the most helpful podcast for me. The one aspect about podcasting that I thought was the best was the fact that you could view it at your own leisure and also pause and rewind it at any time." (Steve Besler)

"I liked the podcast options that were available for technical editing. I felt they were useful as a reference, but did not always feel the need to view them. I personally prefer actively searching for information in a book or online, and I become impatient when casually listening to a slow paced podcast....when professor mentioned in class that there was important helpful information specific to a mid-term, final, or assignment available in the podcast, I usually fast forwarded and skipped through the podcast until I found that information." (Sara Sullivan)

"I think that the podcasts droaned on a bit. Often the same material was discussed repeatedly and some other subjects were not covered enough. The red pen was messy and time consuming. Volume level should be higher. It would be helpful to be able to download it so that you wouldn't have to be on the internet to view it. A friend of mine takes wholly online classes at Boston School of Music. Her facilitator is actually on the screen. She says it is awesome. I haven't seen it yet. You might want to look into how other schools use podcasts. I think the technical editing podcasts were more of a glorified powerpoint. Quicker, more neat." (Christine Swalgin)

"They were very well done and a very useful resource in the class. The class was the best online course which I have taken. Previous online classes taken were ok, but I would have said that I preferred traditional courses. I think the podcasts changed my mind on this. I now think that a well constructed online class which includes podcasts can be just as good as a traditional class. And in this case saved me a lot of driving time(time to download podcast: about 5 minutes; time to drive to SUNYIT: about 2 hours, there and back.."(Anonymous)
From the reports from students, the podcasting project we carried out in technical editing class in the Fall07 semester is to some extent successful, but also asks for higher demanding on our instructor and better quality of our "productions" — the podcast lectures we might create in future classes. It is a constructive suggestion that we could take the advantage of the podcasts of other universities and improve our own podcasts to make them more enjoyable and usable in later classes.

**Interview Findings from Prof. Russell Kahn and Prof. Gina Myers**

After interviewed Prof. Russell Kahn and Prof. Gina Myers, I tried to summarize as well as compare their feedbacks from the podcasting projects we carried out during the 2007 semesters.

Some key findings are "captured" in the following Table 5:

<table>
<thead>
<tr>
<th></th>
<th>Dr. Russell Kahn</th>
<th>Prof. Gina Myers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Years of Teaching</strong></td>
<td>About 17 years</td>
<td>Over 7 years</td>
</tr>
<tr>
<td><strong>All Lectures involved so far</strong></td>
<td>Traditional in-class Lectures</td>
<td>Traditional in-class Lectures</td>
</tr>
<tr>
<td><strong>Technologies Used for teaching</strong></td>
<td>Powerpoint, SLN, Angel System, Flash, Word, Scrapbook, Wiki, GoogleDocs, tablet PC tools, etc</td>
<td>Powerpoint and some media such as videos and skillport, SLN, etc</td>
</tr>
<tr>
<td><strong>Classes they had in the semester</strong></td>
<td>Two Technical Editing classes in Fall07: one hybrid class and one wholly online class</td>
<td>NUR390 research method class in Spring07 and NUR390-70 research method class in Fall07</td>
</tr>
<tr>
<td><strong>Some differences between the two classes they taught</strong></td>
<td>Much more interactions are needed in the hybrid class. Graduates gave in-class presentations in the hybrid class and posted them online for the wholly online class</td>
<td>NUR390-70 seemed to be more enthusiastic about podcasting project and more willing to try it.</td>
</tr>
<tr>
<td><strong>First time tried podcasts</strong></td>
<td>Fall 2007 semester</td>
<td>Spring 2007 semester</td>
</tr>
<tr>
<td><strong>Reason for trying</strong></td>
<td>The awarding of a tablet PC for creating, editing, compiling podcasts and for online class teaching.</td>
<td>Received an Ipod through a Tech Now Grant at SUNYIT and felt excited to try to find ways of using tech in the class</td>
</tr>
<tr>
<td><strong>Expectations ‘BEFORE’ tried</strong></td>
<td>Felt excited and was optimistic about the project as had been thinking about using podcasting</td>
<td>Was really happy to offer students podcasts, and it would be a nice supplement to online</td>
</tr>
</tbody>
</table>
for several years. part of the course. It would be easy for students to listen to or download the podcasts.

| General Process of Creating podcasts | Used Camtasia Studio to choose audio option, opened Powerpoint and stepped through slides. Use the tool to record audio presentation and capture screens before combining the two together. | Used Ipod to record presentations before resizing and uploading the audio podcasts to the Internet, class podcast website. |
| Problems Met | Had to redo some podcasts due to technical difficulties. The biggest problem is the use of the pen tool on the Tablet PC. At times the stylus seemed to stop working. | Had a few attempts at recording presentations. And some students were in either they could not hear the podcasts or that it took too long to access or download (due to the dial-up connection). |
| Problem Solving | Has been successful after redid several times. And contacted Gateway about fixing the computer. | Tested the podcasts early in the semester. Made audio CDs for those who could not download the podcasts. |
| Post View ‘AFTER’ the project and how to improve the podcasts. | Very pleased to get positive responses from students’ online surveys. Do believe the podcasting use does enhance the learning process. And would like to improve on “production” techniques by adding sound, video, and other multimedia tools. | Thought they were great. And would like to improve the lectures by making them a lot shorter and breaking them into segments. Would focus more on concepts that are difficult to grasp rather than just recording the whole lecture. |
| Differences in Class Attendance? | Not much. When students miss a class, the podcasts give them a way to catch up. | Did not make a difference |
| Advantages/Values (how helpful)/Benefits of using podcasts | The key concern is the quality of slides. Once I feel my slides only enhance learning and are not a substitute for it then I feel comfortable using them via podcasts. Podcasting provides the in-class interactive model while allowing for the deeper outside-of-class discussions that are the hallmark of quality online learning. | It was very helpful and useful, especially for students who are not comfortable with online courses because they want to hear a lecture. |
| Preferences between | Like using both because the | Prefers Podcast lecture as it |
Table 5. Key findings from the Interviews on Prof. Kahn and Prof. Myers

From the table, we could see that both two instructors are highly-experienced professors that have been teaching for many years, they didn't try podcast lectures before the project though but used to have traditional lectures for teaching. It is interesting to see both of them had a rewarding of "Gadgets", Tablet PC and Ipod, that triggered their idea or interests of using podcasts in their class teaching. No matter it was a hybrid class using SLN coursespace or a wholly online class, both two professors see the benefits of using podcasts for their class teaching. Podcast lectures could either be used as a teaching method to "lend" available in-class interaction to our wholly online class, or as important teaching supplements that enable students to enjoy a number of times, at any place, and at their leisure. Students could definitely get benefits from the class podcasts. Although both two instructors had difficult times making podcasts at the first, later they solved their problems by practicing many times or conquering technical problems. I, myself, from talks with both teachers, do respect for both of them as I know how hard they tried on recording their presentations and how many difficulties they met. In one case, it took Prof. Russ Kahn 90 minutes to create a podcast, but later the laptop ran out of power and he lost his file, in another
case, in the middle of recording, he had to re-start the computer in order to get his stylus to work...he had to redo it again, and maybe again again. With such professional dedications and great patience, both two teachers overcame difficulties and made the project successful. As I feel, podcast making not only requires instructors good techniques of self-recording or operating softwares or recorders(ipod, etc), but also offers instructors great chances to listen to their own lectures, thus making improvements in their way of presenting or teaching. Teachers may need to think about their way of explaining concepts or key information of their class in a clearer way through podcasts as no body languages could be seen this time although we might have video podcasts in near future. This might be a key benefit or value we could get from podcasting use especially for teachers. Both two teachers have future plans on keeping on using podcasts in their teaching, and we do hope we could improve our "productions" as well as the final effects of class teaching.

When concerning podcast lectures use against traditional in-class lectures, many students or teachers might question that it lacks in-class interaction as students could not ask instructors questions right after the lecture or teachers cannot receive immediate feedback on the questions that students may want to ask. Here, what Prof. Gina Myers said is impressive:

"I agree that you do not get immediate feedback on the questions that students may want to ask, however, in this format students are more likely to write a question to me (since this can be done privately) rather than raise their hands in class..." (Prof. Gina Myers)

**Data Analysis & Limitations**

- **Data Analysis on Pilot Study - Gina Myers’s Class Spring 2007**

Let's review the research results real quick:

<table>
<thead>
<tr>
<th>Level of Enthusiasm</th>
<th>'BEFORE' students tried on podcast lectures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 1. Findings of Pilot Study in the Research Model of ‘Level of Enthusiasm’

(The figure in the table stands for the number of students of NUR390)

Based on the Research Model and Table 1 - the data collection through paper questionnaires and online surveys, I developed qualitative responses, which I then reviewed, organized, and analyzed. From the findings, I would like to say before the podcast lectures were open for students to enjoy, there were 33% of the class students (6 out of total 18) had high level of enthusiasm to this issue while the figure became 50% (9 out of total 18) after students tried podcast lectures. Out of the 6 students who had high level of enthusiasm, 2 of them switched to become ‘disappointed’ with the issue due to technology problem (they could not hear or download the online podcast lectures) while the other 4 remained to be ‘savvy’. Compared to this, out of 12 students who had low level of enthusiasm, 5 of them converted to have high level of enthusiasm after they tried podcast lectures while the other 7 were still in low enthusiasm towards this new technology use. As can be seen from these figures, we can easily draw the conclusion that the podcast lectures are successful to have motivated students’ interests and enthusiasms of learning such podcasting technology.

- Data Analysis on Main Study - Gina Myers's Class Fall2007

Let's review the major research results again:

<table>
<thead>
<tr>
<th>'AFTER' students were exposed to the podcasts</th>
<th>LOW</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tech Phobe</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Disappointed</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Converted</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Savvy</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>'BEFORE’ students tried on podcast lectures</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOW</td>
</tr>
<tr>
<td>11</td>
</tr>
</tbody>
</table>
Table 4. Key Findings of Main Study in the Research Model of ‘Level of Enthusiasm’

(The figure in the table stands for the number of students of NUR390-70)

Based on the Research Model and Table 4 - the data collection through paper questionnaires and online surveys, I developed qualitative responses, which I then reviewed, organized, and analyzed. From the findings, I would like to say before the podcast lectures were open for students to enjoy, there were 47.6% of the class students (10 out of total 21) had high level of enthusiasm to this issue while the figure became 57.1% (12 out of total 21) after students tried podcast lectures. Out of the 10 students who had high level of enthusiasm, 3 of them switched to become ‘disappointed’ with the issue due to technology problem (they could not hear or download the online podcast lectures) or it took too long time for them to access the podcasts while the other 7 remained to be ‘savvy’. Compared to this, out of 11 students who had low level of enthusiasm, 5 of them converted to have high level of enthusiasm after they tried podcast lectures while the other 6 remained as "tech phobe", they just don't like technologies! As can be seen from these figures, we can easily draw the conclusion that the podcast lectures are successful to have motivated students’ interests and enthusiasms of learning such podcasting technology.

And from Table 2 as belowed, we could find out the tricky relations (1)between students' age level and their level of enthusiasm, (2)between their ipod/podcast using experience and the level of enthusiasm, and (3)between their internet/computer using frequency/habit and their level of enthusiasm, thus could further identify what kind of person they are and podcasts might be more easily welcomed by what kind of people.
<table>
<thead>
<tr>
<th></th>
<th>Age Group</th>
<th>Gender</th>
<th>Experience</th>
<th>Frequency</th>
<th>Interest</th>
<th>Regarding Tech</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>41-50</td>
<td>N</td>
<td>5-10 years/once a day</td>
<td>Not too interest</td>
<td>N/A</td>
<td>tech phobe</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>41-50</td>
<td>N</td>
<td>2-4 years/several times a day</td>
<td>interest</td>
<td>N/A</td>
<td>disappointed</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>41-50</td>
<td>N</td>
<td>2-4 years/once a day</td>
<td>Not too interest/don't know</td>
<td>Don't know/tryed though</td>
<td>tech phobe</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>51-60</td>
<td>N/has podcasting experience</td>
<td>5-10 years/once a day</td>
<td>Not interest/unnecessary</td>
<td>Saw it/not very interested</td>
<td>tech phobe</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>26-30</td>
<td>N</td>
<td>&lt;1 year/once a day</td>
<td>Don't know</td>
<td>Don't know/unnecessary</td>
<td>tech phobe</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>31-40</td>
<td>N</td>
<td>5-10 years/several times a day</td>
<td>interest</td>
<td>Never saw it/don’t know/computer prob</td>
<td>disappointed</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>41-50</td>
<td>Used iPod/No podcasting experience</td>
<td>2-4 years/several times a day</td>
<td>interest</td>
<td>Feel interested(didn’t download)</td>
<td>savvy</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>31-40</td>
<td>Used iPod/has podcasting experience</td>
<td>2-4 years/several times a day</td>
<td>interest</td>
<td>Feel interested(didn’t download)</td>
<td>savvy</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>51-60</td>
<td>N</td>
<td>2-4 years/once a day</td>
<td>Don’t care/know</td>
<td>Feel interested(also because it’s an assignment)</td>
<td>converted</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>31-40</td>
<td>Used iPod/No podcasting experience</td>
<td>5-10 years/several times a day</td>
<td>Don’t know</td>
<td>Feel interested(didn’t download)</td>
<td>converted</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>&gt;60</td>
<td>N</td>
<td>2-4 years/once a day</td>
<td>Don’t know</td>
<td>Feel interested(didn’t download)</td>
<td>converted</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>31-40</td>
<td>N</td>
<td>2-4 years/3-5 days a week</td>
<td>Not much</td>
<td>Feel interested(didn’t download)</td>
<td>converted</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>41-50</td>
<td>N</td>
<td>5-10 years/once a day</td>
<td>not too interest</td>
<td>N/A</td>
<td>tech phobe</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>18-25</td>
<td>Used iPod/has podcasting experience</td>
<td>5-10 years/once a day</td>
<td>interest</td>
<td>Feel interested(didn’t download)</td>
<td>savvy</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>41-50</td>
<td>N</td>
<td>2-4 years/1-2 days a week</td>
<td>interest</td>
<td>interest</td>
<td>savvy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Age Group</td>
<td>Experience</td>
<td>Frequency</td>
<td>Level of Interest</td>
<td>Feel</td>
<td>Savvy</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-----------</td>
<td>------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>51-60</td>
<td>N</td>
<td>12 years/several times a day</td>
<td>interest</td>
<td>Feel interested (didn't download)</td>
<td>savvy</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>41-50</td>
<td>Used ipod/has podcasting experience</td>
<td>5-10 years/3-5 days a week</td>
<td>interest</td>
<td>interest</td>
<td>savvy</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>41-50</td>
<td>N</td>
<td>2-4 years/3-5 days a week</td>
<td>Don’t care/know</td>
<td>Tried/not very interested</td>
<td>tech phobe</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>41-50</td>
<td>N/has podcasting experience</td>
<td>15 years/several times a day</td>
<td>not too interest</td>
<td>Feel interested (didn’t download)</td>
<td>converted</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>31-40</td>
<td>N</td>
<td>2-4 years/once a day</td>
<td>interest</td>
<td>Don’t know/care</td>
<td>disappointed</td>
<td></td>
</tr>
</tbody>
</table>

**Table 2.** Some key findings of Main Study on 21 students of NUR390-70 class

(1) **Relations between students’ age level and their level of enthusiasm:**

Firstly, seen from the table, there are nearly half of the students (10 out of 21) are in age level 41-50 years old, 5 are in 31-40 years old, 2 are younger than 30 and 4 are older than 50 years old. So totally, there are about 14 students out of the 21 are above 41 years old, and only 6 of the 14 students have high interests in podcasting use before they tried. That means, only 42.8% of the older aged students care about the issue. On the contrary, 4 out of the 7 younger group (younger than 40 years old) chose "they are interested in the project". Over half, that’s about 57.1% of younger students have high interests in the project before they tried it. Compared to this, after they got a chance to use podcasts, there becomes 8 out of the 14 older age students, which is 57.1% of older students now felt interested while still 4 out of 7 younger students are interested in the issue, which remains the same.

This result shows younger students are more likely to be savvy people while it is more difficult for older age group people to like new technology at the beginning, but once they got chance to use it, they are more likely to be converted to become interested in it.
(2) Relations between their ipod/podcast using experience and the level of enthusiasm:

Secondly, from their ipod and podcast use experience, we might guess people with more prior experience of using ipod or podcasts, it might be easier for them to have higher level of enthusiasm or interests towards the podcasting project in class. Now let's analyze the data in the above table and see if our hypothesis is correct. Among the 21 students, 6 used ipod before and had podcasting experience. They either took the class which used podcasts or viewed podcasts online before the NUR390-70 class, which occupies nearly one-third of 21. And 1 student did use podcast before but he didn't use ipod, which also reminds us again that you don't have to get an ipod to see podcasts. You can just listen to stream podcasts online. So together there are about 7 students have prior experience of using ipod or podcasts. But are those people more likely to feel interested in the project? From the table, 4 of the 7 students (57.1%) had high interests in the issue from the beginning, which almost occupies half of the total 10 students who were in high level of enthusiasm in the class. And after they tried the class podcasts, 6 of the 7 students (85.7%) were interested in the project, which means they are half of the total 12 students who are in high level of enthusiasm.

This result also proves our hypothesis is correct. Those who had prior experience or knowledge of ipod or podcast using are more likely to be involved in the podcasting project. This is a pleasant result, and we can see the attractiveness of the new technology to students today, even most of them are not so young now. And as the level of enthusiasm or interest rate among them even grows up more after they had exposure to class podcasts, it shows the success of the project and also some values or benefits we could found in the project.

(3) Relations between their internet/computer using frequency/habit and their level of enthusiasm:
Thirdly, also let's find out the relations between how many years of their computer use with online frequency and their level of enthusiasm. We were surprised to find that although most of them are mid-aged women, 8 of the 21 students have at least five years of computer use and now go on the Internet several times a day. And about 9 of the 21 students go online once a day with about 2-4 years of computer use experience. Only 4 of the 21 students go online less than once a day. Those numbers show almost all students in the research have great experience of using computers and still keep in touch with the Internet nearly every day. 5 out of 8 5-10 years computer users felt interested in the podcasting project from the beginning, and 6 out of 8 those going online "several times a day" were also in high level of enthusiasm from the start. And almost every of them kept their high interests towards the project even after they tried the class podcasts.

So from this result, we could say those who had more computer use and higher frequency of online surfing are more likely to feel interested in the project. Those students more tend to be "savvy" people.

The limitations are:

1. As this is a case study, which only focuses on one particular class of nursing school, most of them may be are not so familiar with or interested in trying computer technologies due to their career background/medical jobs and even ages. So the result of the pilot study or the main study, to some extent, cannot stand for general situations;

2. For those who did not attend surveys voluntarily, it might not be proper enough to count them fully as those who had ‘low level of enthusiasm’ since some of them might be interested in podcasting but have no time to submit the questionnaires.

3. Due to the technical problems like students who used dial-up, some were not able to access the podcast lectures or attend the second survey, so we could not count them in the data collection. Like there were 21 students submitted the first survey while 18 students submitted the second. There were 3 students who are missing. In order to be easier to analyze the data between the two surveys, I tried
to fill in the gap of the 3 students, it might not be proper enough to categorize
the 3 people as they "don't care much about the project"(low level of enthusiasm)
as their attitude towards the issue. It is also a pity that in this case, we included
even fewer students for the study as we minus those people from the total class
number.

V. CONCLUSIONS AND FURTHER RESEARCH

During my current research, I came to the conclusion that students’ enthusiasm or
interest towards podcasting learning is quite related to their background information,
such as their job, age level, technology knowledge, personal interest, lifestyle/learning
style, equipment, and also their podcasting experience. Nearly all the students in
NUR390 or NUR390-70 class are part time students with related job to nursing, like
registered nurse or school nurse. To our surprise, most of them have been using
computers for a long time, at least 2-4 years, and they still surf Internet daily as a
registered nurse while there are about one-third of the class members especially in
41-50 age level used ipod or MP3 players before. One obvious purpose of using
computers for them is to have class learning such as making powerpoint, accessing
SLN, or searching online resource. These background experiences do affect the final
result of their enthusiasm on podcast lectures. The relatively younger students tend to
be more interested in our class podcasts use against the older group of students. For most who had no prior knowledge of podcasting or ipod use background, their level of enthusiasm appeared to be really low. Somehow, it was an interesting phenomenon that there were two middle-aged students (at 51-60 age level) in the pilot study had strong interests in podcasting use although they did not know about it before. And after podcast lectures were open to students, there were some people converted from low level of enthusiasm to the high level, which is an inspiring situation. And those who used ipod and podcasts are more likely to stay to be "savvy" people who love high-tech very much. Also, those who go online frequently everyday or have been using computers for many years are more likely to be in the high level of enthusiasm towards the podcasting project. The result of the pilot study motivated me to have done further research study in the main research. Towards different research subjects between the two semesters, although they are different people in various background situations, very small differences exist between the two research studies. But in general, more students in the NUR390-70 class against NUR390 class showed higher level of enthusiasm or stronger interests after they had a nice try on podcast lectures although many of them were not familiar with the high-tech stuff.

Besides, from the research studies, some values or benefits of podcasting use in class could also be seen, like about one-sixth (3 out of 18) of the subjects reported they love podcast lectures much as they could enjoy them at their leisure and at any place, and about 44% (8 out of 18) of the subjects felt the podcasts are really helpful for their learning as they could pause the lectures freely, and such lectures could help a great deal in explaining the materials/handouts and helping fill in blanks if they miss anything in the class or regular lectures. Another one-sixth (3 out of 18) students said they felt them helpful, but they could not ask instructor any questions even they want to and another 4 students out of the 18 didn't think such podcasts are helpful at all. They prefer traditional lectures in class as they could build more interactions and discussions with instructor and other classmates. And when asking 21 students of the NUR390-70 class in the first survey, what do they most want to get from the class
podcasts, 17 students (80.9%) reported they need class lectures, 1 said she wants other educational materials, 1 wanted some class notes from the podcasts, 1 preferred video podcasts, and another 1 wished he could have some class discussions from the podcasts. Those ideas really can enlighten us to explore a wider territory of the podcast making in the educational settings. And from this, we could also see the potential great value class podcasts may bring us students to meet their needs in near future.

In addition, from the teachers' perspective, they need to make or work on their own podcast lectures. Podcast making not only requires instructors good techniques of self-recording or operating softwares or recorders (ipod, etc), but also offers instructors great chances to listen to their own lectures, thus making improvements in their way of presenting or teaching. Teachers may need to think about their way of explaining concepts or key information of their class in a clearer/better way through podcasts as no body languages could be seen this time although we might have video podcasts in near future. This might be another benefit from podcasting use especially for teachers.

Due to the time constraints of those studies, each research carried for one semester (about three months time), further study under this topic is still to be carried on in later class teaching at SUNYIT. In this study, as suggested in the proposal, data in the forms of questionnaires, interviews, documents, and websites were collected from multiple sources of information. A proposed data collection matrix illustrating these types of information gathered and their sources is presented in Table 6.

<table>
<thead>
<tr>
<th>Information/Information Source</th>
<th>Questionnaires</th>
<th>Interviews</th>
<th>Documents</th>
<th>Websites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Instructor(Professor)</td>
<td></td>
<td>2 (Prof. Gina Myers and Dr. Russ)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 6 — Data Collection Matrix/Final Report

<table>
<thead>
<tr>
<th>Class Student</th>
<th>Kahn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18(pilot study)+21(main study) (from Prof. Gina Myers’s classes)</td>
<td>5 (from Dr. Russ Kahn’s class)</td>
</tr>
</tbody>
</table>

Scholarly Journal Articles   about 15
Total Literatures Reviewed   40-50 30

In addition, a wider range of literatures together with podcasting projects should be reviewed and carried on as more and more teachers has begun using podcasts in the class teaching. There is still a long way to go in this field, but I believe more sufficient information and methods of data analysis could be reached to make more accurate assertions and satisfactory conclusions in further researches.

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and
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APPENDIX A. Pilot Study

Questionnaire of ‘podcasting’

General Purpose:
The purpose of this research is to understand your ideas about using podcasting ‘before’ and ‘after’ you have an opportunity to use it in class. (Further information about its use in class: the class lectures will become audio podcasts uploaded to the
Internet website in the next few classes. It will be more convenient for you to
download the class podcasts from the web to your computers, iPods, or MP3 players.
After that, you can listen to the lectures whenever or wherever you want.) The data I
am collecting is helpful and important for me to obtain in order to compare your ‘level
of enthusiasm’ before and after you have tried using podcasts in this class. This
questionnaire is mean to assess your knowledge and experience of podcasting before
you are exposed to it in class.

There are many open-ended questions in this survey. Please provide me with as much
information as you possibly can. Thank you very much for your participation and
cooperation.

In the questionnaire, insert your answers directly after each question, or submit the
completed questionnaire as the Microsoft Word file to the class NUR390 CourseSpace
site. You may also send me emails directly at: mollysun323@gmail.com If you have
any questions, please feel free to contact me by email. Thanks again.

Sincerely yours,
Molly Sun

General Information about Podcasting (Mini-Lecture):

**Podcasting NEWS**

*Podcast=*iPod+*broadcast* (but it doesn’t mean you can not enjoy podcasts without
iPods, you can use your computer instead)

*A podcast* is a media file that is distributed by subscription (paid or unpaid) over the
Internet using syndication feeds (RSS2.0 enclosure feeds), for playback on mobile
devices and personal computers

*A podcaster*: the host or author of a podcast.

*Podcasting*: the method of publishing audio files (usually MP3s) to the web, which
are then made available through subscription & automatically downloaded to a
personal computer or portable devices

*Its Main Applications in Education*: archive of class lectures; interview with
external experts/resources; distance learning; student presentations; student-produced
podcasts; tours/fieldwork; internships; speeches; music, or other audio recordings;
short language lessons to develop students’ listening and speaking skills, etc.

*Podcast Framework:*
Please go to the next page for all the questions, thank you very much!

QUESTIONS:

(Most questions are open-ended, and I hope I can get as much information as possible from you—thanks)

1. Personal information:
(You may choose anonymous if you don’t want to disclose your name)

(1) Could you please briefly introduce yourself? (e.g. your name, background, job, etc. as much as possible)

(2) Are you a full time or part time student? What type of job/career do you have? How often do you use the Internet or computer technologies in your job?

(3) Could you tell me your age please? (choose a letter please)
   A. <18
   B. 18-25
   C. 26-30
   D. 31-40
   E. 41-50
   F. 51-60
   G. >60

(4) Do you mind providing me with your email address? (Just in case I need to contact you for data collection or you may skip the question)

2. Podcasting Equipment:
   (1) Do you currently have a desktop computer? laptop? iPod? MP3 Player? or other kind of equipment? Have you used an iPod before?

   (2) If you have any of the above, what kind of equipment is it? (e.g. brand, type)
       How many do you have? How often do you use it and for what primary purpose?
3. Podcasting Experience:
(If you have never used podcasting, you may skip some of the following questions)

(1) How much do you know about podcasts? (if anything, please explain)

(2) If you know nothing about podcasts, how interested do you feel in learning about them in this class? (Please choose a number 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10)
(0—no interests at all; 5—middle; 10—high enthusiasm, can’t wait to learn something about it)

(3) If you use podcasting, how long have you been using it and what do you use it for?
(e.g. listen to, watch, or subscribe to podcasts)

(4) If you used podcasts before, what experience did you have?

(5) How often do you download or listen to podcasts?

(6) What types of podcasts do you feel interested in listening to or watching in most cases? (e.g. entertainment, politics, education, news, lectures, ethical issues, video or audio podcasts?)

(7) Where (e.g. what websites) did you search for podcasts or create and publish your own podcasts?
8. If you created your own podcasts, what types of tools or software did you use or could you recommend for recording your own voice? (e.g. garageband)

9. Have you had any other courses using podcasting technologies before? If you did, what kind of experience did you have and how helpful was it for you?

4. Lifestyle & Learning Style:
(1) As a student, are you used to studying at daytime, evening, or night? Do you study at home, your workplace, or the library? (any reasons?)

(2) Do you use computers (pc or mac) a lot for class learning? For what purposes do you use them in most cases? (e.g. class info searching, SLN, assignments, making powerpoints? downloading podcasts, movies?)

(3) If you have an ipod, do you use it for listening to the radio, music, or watching movies in your daily life? How often do you use it? Do you use it while driving a car?

5. Enthusiasm about Class Podcasting Project:
(1) I created a personal podcast weblog site as a simulation for future class podcasting: http://mollythesis.podbean.com There is a sample podcast of a new year song there that can be played, downloaded, and shared by any visitors.
If there were a class podcast weblog site like this, what would you think of it? (e.g. any thoughts, like it or not, usability..)

(2) What is or are the issue(s) below that most fit your situation? (please choose one or more letter(s) below or write down your own words)

A. I am quite interested in this issue, and I can not wait to try exploring class podcasting sites and downloading class podcasts. I am looking forward to it.
B. I am eager to know more about it through this class since I also want to learn some new technologies.
C. It is okay for me. If there will be, I'll have a look at it.
D. Maybe I’ll download the class podcasts, but I won’t listen to them.
E. I have to see it since it is part of the class assignment; I do not like it though.
F. I do not care about it.
G. I will never see it, since it is unnecessary.

(3) What do you feel about the project? (please choose one letter or write down your own words)
A. It is interesting, useful, and necessary
B. It is unnecessary, and I can not see any of its advantages
C. I don’t know.

(4) What kind of teaching materials or suggestions do you wish to get from the class podcasting site? (e.g. audio lectures, anything else?)

THANK YOU VERY MUCH FOR YOUR GREAT HELP!

If any of you have interest in this field and want to be a volunteer, you're more than welcome to contact me by email: mollysun323@gmail.com Thank you very much!

APPENDIX B. Pilot Study

Questionnaire 2 of ‘podcasting’ use
**General Purpose:**

The purpose of this research is to understand your ideas about using podcasting ‘after’ you have an opportunity to try on the podcast lectures in class. Last time it was the first questionnaire to pretest your level of enthusiasm on this issue while this time it serves as the second post-test. The data I am collecting is helpful and important for me to obtain in order to compare your ‘level of enthusiasm’ before and after you have tried using podcast lectures of this class. This questionnaire is mean to assess your knowledge and experience of podcasting after you are exposed to it in class.

There are many open-ended questions in this survey. Please provide me with as much information as you possibly can. Thank you very much for your participation and cooperation.

Like the first questionnaire, please insert your answers directly after each question, and submit the completed questionnaire as the Microsoft Word file to the class NUR390 CourseSpace site or submit the online survey. If you have any questions, please feel free to contact me by email at: mollysun323@gmail.com. Thanks again.

Sincerely yours,
Molly Sun

**QUESTIONS:**

(Most questions are open-ended, and I hope I can get as much information as possible from you—thanks)

I. **Personal information:**
(You may choose anonymous if you don’t want to disclose your name)
Like the first time, do you mind if providing me your name with your email address? (It will more helpful for me to compare your ideas before and after you were exposed to the class podcast lectures, or you may skip the question)

II. **Enthusiasm about Class Podcasting Project:**

(1) Professor Gina Myers and I created two podcast weblog sites as: http://nur1.podbean.com and http://nur2.podbean.com
On each site, there is a class audio lecture attached for you to listen to or download to
your computer desktop, ipod, or MP3 player.

Please describe your experience, how did you use it, and what do you think of it?
(e.g. any problems, enjoy it or not, usability, did you download it or not; was the sound clear to you?)

(2) What is or are the issue(s) below that most fit your situation? (please choose one or more letter(s) below or write down your own words)

H. I am quite interested in podcasting and I explored class podcasting sites at very first time and downloaded podcasts lectures to my computer, ipod, or MP3 player
I. I did not download the audio files, but I enjoyed the beautiful sites and podcast lectures online.
J. I tried to go to the sites, but I could not hear the sound.
K. I saw it since it is part of the class assignment; I do not like it though.
L. I do not care about it.
M. I never saw it, since it is unnecessary.

(3) What do you feel about the project? (please choose one letter or write down your own words)

D. It is interesting, useful, and necessary
E. It is unnecessary, and I can not see any of its advantages
F. I don’t know.

(4) How helpful is the podcast lectures to your learning? (please compare it to traditional way of class lectures)

THANK YOU VERY MUCH FOR YOUR GREAT HELP!

APPENDIX C. Main Study

Questionnaire of “Podcasting” Use in Class SUNYIT (Dec.07)
General Purpose:

The purpose of this questionnaire is to identify your ideas about experiencing online podcast lectures of research method class of the nursing school this semester. During this 07fall semester, research method class instructor, Prof. Gina Myers and I tried to create class podcast lectures available online. Students may feel free to listen to, review, or download those online podcast lectures at any time anywhere. Now we would really like to know your level of enthusiasm and opinions about using podcast as a new assisted teaching tool. The data (your feedback) we are collecting is really helpful and important for me to obtain in order to fulfill my thesis project of podcasting use in education as well as to help evaluating the effectiveness of keep on using podcast technology in SUNYIT’s future class teaching.

There are some open-ended questions in this survey. Please provide me with as much information as you possibly can. When fulfilling the questionnaire, please choose the letter or insert your answers directly after each question, and submit the completed questionnaire as the Microsoft Word document to the class SLN CourseSpace site. Thank you very much for your participation and cooperation. Please feel free to contact me by email at mollysun323@gmail.com if you have any questions.

Sincerely yours,
Molly Sun

Questions:

FOR FIRST QUESTIONNAIRE:

1. Could you please tell me your name? ______________________

2. Are you a __________
   A. full time student
   B. part time student

3. Are you a __________
   A. undergraduate student, which year __________
   B. graduate student, which year __________
4. So if you are a part time student, in what field your job is? ________________
   A. Computer Science/Technology/IT
   B. Educational Field/Teaching
   C. Finance/Economics/Accounting
   D. Medical/Healthcare Field
   E. Lawyer
   F. Management
   G. Politics/Government/News Media
   H. Others (can you help describe a little about your job)
   ____________________________________________

5. How does computer use relate to your job or study? ________________
   For what purposes do you use computer in most cases?
   A. Searching Internet information and resources
   B. SLN Coursespace and class assignments
   C. Making powerpoints or documents
   D. Downloading or listening to online podcasts
   E. Checking emails
   F. Entertainment, e.g. watching movies, videos, or listening to songs
   G. Creating/Working on your own online webpage, journal, weblog, e.g.
      facebook, myspace, msn space, etc
   H. Sharing things online that you created yourself, such as your own photos,
      artwork, stories, or videos
   I. Posting comments to online group, social networking, or online community
   J. Chatting/making phone calls
   K. Others (Please be specific) ________________________________

6. About how often do you use computer or go online from home and workplace?__________
   A. several times a day
   B. about once a day
   C. 3-5 days a week
   D. 1-2 days a week
   E. every few weeks
   F. every few months
   G. or less often?

7. About how many years have you been an Internet user? ________________
   __________ Record Number of Years
A. About 5-10 years
B. About 2-4 years
C. Under a year
D. Don’t know/Refused

8. Could you please tell me your age level? _________________
   (You may skip the question if you don’t want to tell)
   A. < 18
   B. 18-25
   C. 26-30
   D. 31-40
   E. 41-50
   F. 51-60
   G. >60

9. Do you mind providing me with your email address?
   (Just in case I need to contact you for further information or you may skip the question)
   ____________________________________________________________

* Podcasting Equipment & Prior Experience of Podcasting Use:

1. Do you have any equipment as follows? ________________
   A. iPod or other MP3 player
   B. desktop computer
   C. laptop or notebook computer
   D. cell phone
   E. blackberry, palm, mp4, or other personal digital assistant
   F. digital camera
   G. video camera
   H. webcam

2. If you have any of the above, what kind of equipment is it (e.g. brand, type)
   __________________________________________________________
   How many do you have ___________________

3. Have you ever used an iPod before? ________________
   A. Yes, about for how long: _________________
      a. over 3 years   b. 1-2 years   c. less than 1 year
4. If you have iPod or other MP3 player, how often do you use it? 
   __________
   A. everyday                  B. 3-5 times a week            C. 1-2 times a week
   D. every few weeks           E. every few months

5. Have you ever listened to or downloaded a podcast before this class? __________
   A. Yes, what kind of podcast it is
      (e.g. content, where did you hear it, what tool did you use)
      _______________________________________________ 
   B. No, never

6. If “Yes”, how often do you listen to/download podcasts besides class podcasts? __________
   A. everyday                  B. 3-5 times a week            C. 1-2 times a week
   D. every few weeks           E. every few months

7. If “No” or you know nothing about podcasts, how interested do you feel in learning about them in this class?
   (Please choose a number 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10)
   (0—no interest at all;  5—middle;  10—high enthusiasm)

8. Have you ever created your own podcasts? __________
   A. Yes, what kind of podcast it is (e.g. content, how did you create it, what software
      tools did you use to create it, what websites did you publish it to)
     ______________________________________________________
   B. No, never
9. What kind of podcasts might interest you even if you haven’t experienced listening to/downloading or creating podcasts? _______________________
   A. Entertainment
   B. Politics
   C. Education
   D. News/Media
   E. Sports
   F. High-tech information
   G. Lectures
   H. Ethical Issues
   I. Others ______________________________

10. If you used podcasts before, what experience did you have?
    (e.g. experience for entertainment, teaching, learning, or others?)

11. What do you expect or feel about the class podcasting project? _________
    A. It is interesting, useful, and necessary
    B. It is unnecessary, and I cannot see any of its advantages
    C. I don’t know

Questions:
FOR SECOND QUESTIONNAIRE:

- **Experience with Class Podcasting Project:**

1. What percentage of class podcasts did you listen to during the semester?
   __________________
   A. None
   B. 25% or less
   C. 26-50%
   D. 51-75%
   E. 76-100%

2. Of the following, which best describes your typical listening habits for a single class podcast? ______
   A. I listened to the entire podcast once
   B. I listened to the entire podcast multiple times
   C. I listened to the entire podcast once and certain portions of the podcast multiple
D. I fast-forwarded to certain portions of the podcast and listened to them multiple times

3. How many times do you review the podcast lecture of each chapter averagely? ____________
   A. “millions of times”        B. over 5 times        C. 3-5 times
   D. twice                     E. once              F. never

4. How much time do you spend listening to or reviewing the podcast lectures for each chapter roughly? _____________
   A. over 5 hours for each chapter
   B. 3-5 hours for each chapter
   C. 1-2 hours for each chapter
   D. 0.5 -1 hour for each chapter
   E. less than 0.5 hour for each chapter
   F. don’t know…didn’t count

5. Did you have any problems accessing the class podcasts?
   A. Yes, please explain
      ____________________________________________________________________________
   B. No

6. Have you ever downloaded any of the class podcasts to your computer or ipod?
   A. Yes, how much time did it take you to download roughly ________________
   B. No, but I tried, and I got problem with it, please describe the problem you’ve got
      __________________________________________________________________________
   C. No, I didn’t try to/didn’t want to/I forgot.

7. Do you use ipod or any other portable device to enjoy class podcasts this semester besides your computer/laptop?
   A. Yes, I tried them on my _________________________
   B. No, I only used computer

8. What was your primary means of listening to or downloading podcasts? ____________
A. On my personal computer  
B. On a campus computer  
C. On an iPod/MP3 player in a location with computer access  
D. On an iPod/MP3 player in a location without computer access  

9. In which way, if any, did the podcasts support your learning? ____________________________  
   A. They were a convenient way to access class materials  
   B. They helped me catch up when I missed class/ in class participation  
   C. They helped me prepare for homework/assignments, presentations, or exams  
   D. They clarified concepts discussed in class  
   E. Others (can you explain if any) :  
   _________________________________________  

10. How effective do you think podcast lectures for your study against traditional lectures in class?  

   Strongly agree  Agree  Neutral  Disagree  Strongly disagree  
   * I can easily access the podcasts. ______ ______ ______ ______ ______  
   * I can hear professor's voice more clearly ______ ______ ______ ______ ______  
   * I can view PPT slides more clearly ______ ______ ______ ______ ______  
   * My interest towards lectures has improved exploring class podcasts against in class ones ______ ______ ______ ______ ______  
   * My ability to understand the lecture has improved compared to in class lectures ______ ______ ______ ______ ______  
   * It is convenient for me to review podcast lectures at any place any time ______ ______ ______ ______ ______  
   * I can download and save the lectures to my
computer/portable devices conveniently/easily

* I only reviewed the podcasts on my computer instead of ipod or mp3 players

* It takes too much time to view every podcast

* I do enjoy the looks of online class podcasts

* I do enjoy the usability of podcasts (e.g. I can jump to any slides as I wish)

* It is really helpful in hearing information again while viewing podcasts against in class lectures (It is repeatable and can be paused)

* I do enjoy the red marks on podcast ppt slides

* I have problems accessing the class podcasts

* I strongly dislike using class podcasts

* I feel it very bad because I cannot ask instructor questions right after the podcast lectures

* I prefer in-class lectures over the previous podcasts

* I dislike any kind of lectures

11. The availability of podcasts…
A. Made me more likely to attend class
B. Made me less likely to attend class
C. Had no effect on my attendance

12. **How much do you like class podcast lecture this semester?** __________
   A. I love it, I can see its great value and do enjoy it very much
   B. So so, I have no idea about it, don’t like or dislike
   C. Dislike it and don’t want to use it any more.
   D. Don’t want to tell…keep it as secret

13. **What do you feel about the class podcasting project?** __________
   A. It is interesting, useful, and necessary
   B. It is unnecessary, and I cannot see any of its advantages
   C. I don’t know

*LAST BUT NOT LEAST,*
**THE MOST IMPORTANT QUESTION / TO GET FINAL IDEAS ABOUT....**

14. **What do you think of podcast lectures of research method class this semester?**
   (any comments, your good or bad experience, like or dislike? reason? your suggestions,
   how to improve it, how helpful it is to your learning, etc. Please tell me as much as you can, thanks a lot.

THANK YOU SO MUCH AGAIN FOR YOUR FEEDBACK ON PODCASTING PROJECT!!