

Work in Progress - Using Podcasting in Engineering Education

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Abstract - Podcasting allow students to learn outside the boundaries of the classroom and without time constraints. Podcasting is an audio broadcast that has been converted to an audio file format for playback over the Internet or in a digital music player. Podcasting cannot replace the classroom; however, it gives students a new way to broadcast concepts they have learned and allows educators to interact with their students. In a computer information system and software engineering course, podcasting was used to add value to the in-classroom experience and enhance course content. In both classes groups of students were required to investigate real-world software failures and produce a fifteen-minute podcast that demonstrated the failure and its impact on society. This work-in-progress will discuss how students used podcasting to understand how course content applied in the real world and how they could effectively communicate this knowledge to the rest of the class without taking class time and finally, how the students improved their teamwork skills by participating in the group podcasting assignment.

Index Terms - Communication Education, Podcasting, and Software Engineering

INTRODUCTION

Getting students to pay attention in the classroom has always been a challenge. Today's instructors not only compete with the usual tired and/overwhelmed student, they now compete with the misuse of laptops in the classroom. While educators face that challenge by using active learning strategies, what about getting the students to pay attention outside of the classroom? Based on an informal survey conducted at the University of Mary Washington, 75% of students who responded do not even open their book unless they are required to submit answers from questions in the book. In addition, 50% of students look for answers on the Web instead of in course material even if they own the book or have prepared class notes. More disturbing is that 40% of the students responding say they do not do any assignment that is not graded and believe there is no benefit to pen-and-paper assignments. Therefore, does the professor grade everything they assign or do they find alternative ways to disseminate important information? Podcasting has been a unique and successful way of disseminating information in two courses at the University of Mary Washington.

NET-GENERATION STUDENTS AND PODCASTING

Podcast can be created with a computer and microphone and anyone with a laptop or portable device can listen to them[1]. Today's generation of college students has been raised on interactive technology and entertainment-style communication. Podcasting offers educators a method of communication that is based on the technology students have become accustomed to. Some common usages of podcasting in education are: taped lectures, guest speakers, tutorials, exam review and reinforcement of key concepts [2]. While podcasting is a great use of technology for the Net generation, the students still desire face-to-face social interaction [3]. Simply moving a lecture from class to a podcast does not necessarily increase learning, in fact, it has been shown that there is no significant difference between podcasting and in-class lecture. Therefore, when making the decision to use podcasting in the classroom, time and thought must be given to how to engage the student in the assignment, outside of class.

PODCASTING EXPERIMENTS

To evaluate the potential of podcasting in speaking-intensive courses at the University of Mary Washington, the author ran two experiments in two courses, Software Engineering and Computer Information Systems. The University requires that all students take two courses that are designated speaking intensive. Speaking-intensive courses must provide information and feedback about oral communication. Both said courses fulfill this requirement.

Software Engineering Course

During the fall of 2007 the author introduced podcasting to a Software Engineering course with 21 students, primarily seniors and some juniors. The students were broken into 7 teams of 3. The podcasts were spread out over the semester; approximately one podcast was released every two weeks. Teams were randomly assigned due dates and each team researched a major failure of a software engineering system/project. No system failure/project could be repeated. A member of the division of instructional technology lectured for one hour on the essentials of podcasting and introduced the students to the on-campus production studio. After the initial lecture each student was assigned a five-minute podcast on any topic in software engineering they

found interesting. Prior to the assignment the instructor told the student that they could borrow a microphone if they did not have one, or use the studio on campus. The assignment was not graded but each student was required to listen to 6 podcasts and post a response to each one, on a class blog. Once again these were not graded. The participation was 19 out of the 21 students who were given the assignment. When the two students who did not participate were questioned, one student could not locate a microphone and did not have time to use the studio on campus. The other student said he already knew how to create a podcast and since it wasn't graded he felt it was a waste of time. The remaining students indicated that they found the assignment cool and that it used technology they thought was useful and therefore they did not even care that it wasn't graded.

The graded podcast was the group podcast. All students were strongly encouraged to use the on-campus studio since it provided a professional environment and used professional digital audio editing software, with several studio microphones. The podcast took the form of a lecture in which each member had to equally participate. The podcasts ranged in length from 15 to 30 minutes. On average each team spent an hour in the studio and an hour of editing. All teams used Audacity to edit their podcast. One team did not use the studio. This was due to lack of planning; instead they used a portable digital audio recorder. The quality of this podcast was inferior and it was hard to hear in several portions. This podcast was the lowest grade in the class, partly due to quality and partly to the lack of preparation. Each of the podcasts offered good information, and unique introductions and endings. Some started or ended with music while others changed voices using editing software.

All students were required to listen to the podcast and comment about it on the class blog. While everyone participated in creating their group podcast, only 75% of students commented on their fellow classmates' podcast. Everyone said they listened to these podcasts but they either forgot or did not have time to write a blog post. Ninety percent of the students indicated they enjoyed the assignment because of the use of new technology, but found the assignment rather dry.

Information Systems Course

The second experiment with podcasting occurred in the fall of 2009 in an Information Systems course. The course had 25 students and they were primarily sophomores. The class was broken into 7 groups of 3 and 1 group of 4. The assignment was based on the same premise: investigate a major software failure/project, break into groups and create a podcast. Once again the students received a lecture from the division of instructional technology, the students were randomly assigned groups and the presentations were spread throughout the semester. The students created a non-graded individual podcast prior to the group assignment, that was based on some part of the book *The World is Flat*[4]. This

time everyone participated. The big difference in the group assignment was it took the form of a news talk show with a host, guests, and sometimes call-ins and commercials.

The students on average spent 1½ hours recording and 2 hours editing. Not one student complained about the time they spent on the assignment. The reasons for longer times for recording were due to laughter, excitement, and retakes. Editing was longer due to the additions of commercials, editing music, editing out laughter, and voice alteration. As before all students were required to listen to each podcast and post a blog about it on the class blog. Only 60% of students posted comments about their fellow students' podcasts; however, everyone talked about the different podcasts in class after listening to them. The students would discuss the inventive use of commercials, voice editing, and the technology they used. Students primarily used Audacity, LAME (convert your audio to MP3), iTunes, Media Player and FTP for the assignment.

CONCLUSION

In both experiments students were more engaged than the previous years when a writing project on the same topic was assigned; however, the students in the Computer Information System course enjoyed creating and producing the podcast more than the Software Engineering students. Anecdotal evidence suggests that the use of podcasting got the students to see the big picture of software and how poorly designed software can have a major effect on people's everyday lives. In addition, students all claimed that they enjoyed the uniqueness of the assignment and were not bored creating or listening to the podcasts. This was much more evident in the Information System course because of the comments and feedback in each class after a podcast was released.

The instructor's perception is that the use of podcasts helped the students learn about the material in an engaging manner and freed up class time that might have been taken up by the students presenting this information as a PowerPoint "boring" presentation. In the future the instructor would mandate that the on-campus studio be used since the quality of the podcasts was far more professional.

Future investigation into the use of podcasting will continue in the fall of 2010 in the Software Engineering course. The author intends to give a survey prior to the podcasting assignment about the students' perception of podcasting and a post survey about podcasting and its effectiveness. Podcasting should never replace the classroom experience but if students can be engaged in what they perceive as a dry topic by creating a podcast about it, then you have a win-win situation.

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