REINFORCING AGRICULTURE COURSE CONTENT: LECTURES ON DEMAND

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ABSTRACT

Student performance was compared for two sections of a freshman agribusiness class. Section 1 was taught using traditional lecture format, while Section 2 was taught using a hybrid format that included traditional lecture and the ability to replay lectures using a streaming video server (Apreso Classroom™). All video and supplemental materials were delivered through a standard course management system (Blackboard). Students enrolled in Section 2 had the ability to review all classroom lectures including faculty and student comments from class. Demographics were similar for both classes. The final class average for Sections 1 and 2 of the agribusiness course was 79.39 and 74.70, respectively. Initial observations indicate that having video lectures did not improve student performance. Survey results indicated that only 65 percent of students with access to the digital lectures actually accessed them. While some students in the survey instrument noted bandwidth issues, it appears that indifference was equally prevalent with regard to accessing archived classroom lectures.

Key Terms: streaming video lectures, Apreso Software[TM], distance education

Introduction

Today's college students are entering universities with a strong background in computer technology. Most students have grown up with the Internet as their own personal library and study tool and as a result, some know little about library card catalogs and searching through the stacks for literature reviews. Many would say that this generation has little patience and expects information to literally be at their fingertips or a mouse click away. This instant access to virtually the entire world of information has resulted in many students expecting and demanding access to course materials at all times. Technology has been shown to benefit student learning (Duffy and Cunningham, 1996 Honebien, 1996).

University faculty members are faced with the reality that they are not the sole provider of knowledge for their students. Students are aware of the wealth of web-based information that exists on any subject from agriculture to physics, and faculty are increasingly having to deal with submission of "cut and paste" student writing projects. Now, where does all this change leave today's faculty member? Do we change our teaching methods and look to new paradigms that embrace technology and hope to catch up with our students?

Educators have lamented the fact that developing materials for online classes can be time consuming and require new techniques. Faculty faced with teaching online or wanting to provide supplemental online materials for students may say something like, "I just want to teach my material---I don't want to become computer technician." Today there are several tools available to assist faculty in creating digital content for Internet delivery. Screen capture programs such as Techsmith's Camtasia Studio™ and

Macromedia's Captivate^{TM} allow faculty to record lectures and post them to the Internet for students to access. These programs have been found to be useful in delivering quality lecture materials to students at a distance (Burcham et al., 2006 and Mehlhorn et al., 2004). Apreso Classroom^{TM} (Anystream, Inc.) represents a new method of capturing the entire classroom experience with little, if any, technical input from the faculty member. This software/hardware package records (digitally) the entire classroom experience (presentation slides, document camera, audio/video image of the professor, etc.) and posts it automatically to the institution's Course Management System (CMS, e.g., Blackboard or WebCT). Streaming video is not a new concept in education. Various programs and approaches have been used with varied degrees of success in the past (Chang, 2004; Ingebritsen and Flickinger, 1998).

Data and Methods

The University of Tennessee at Martin department of agriculture and natural resources has evolved from using simple "static lectures" for online courses and course supplemental materials to "voiced learning objects" to currently using Apreso Classroom^{TM} software/hardware to record in-class lectures for posting outside of class. Posting actual classroom lectures allows students to review any lecture. This has potential value for students and the instructors alike, as students can review all in-class lectures and the instructor has a ready reference resource.

In the fall 2006 semester, two sections of AGEC 110 (Introduction to Agribusiness) were taught to approximately 168 students. Both sections presented identical material and were comprised of approximately 85% first time freshman from a variety of backgrounds. All classes were 50 minutes in length, and taught in the morning

hours on Monday, Wednesday and Friday in consecutive time slots, in a traditional classroom with theatre-style seating. Class size was 83±1 students in both sections in the study. Section 1 (n = 85) was taught using a standard lecture-based format, i.e., students attending lecture with access to static PowerPoint course notes through Blackboard. Section 2 (n = 83) was taught using a standard lecture-based format, but a "digital capture" of each in-class lecture was made available to the students via Apreso Classroom (*ad libum*) through Blackboard. These lectures contained a video of the instructor as well as a recording of all digital materials used in the lecture, i.e., PowerPoint^TM or the document camera. In other words, Section 2 students had digital access to each class meeting throughout the semester. Both sections of the agribusiness class covered identical content, assignments, and examinations throughout the semester.

Discussion

Faculty and Student Acceptance Issues

The faculty learning curve for using the Apreso Classroom software was minimal. In order to record a digital video lecture session using Apreso, the lecturer simply had to attach a wireless microphone to their lapel. The Apreso software automatically recorded the lectures and posted the finished lectures to the course management delivery system (Blackboard^TM). The streaming video lectures contained a video feed of the instructor (the podium area), the instructor's voice (audio), and anything displayed on the lecturer's computer screen or the document camera. To facilitate better streaming in low-bandwidth situations, the student has the option of turning the video of the instructor "off." The inclusion of video of the instructor in the playback was not found to be of particular importance to students for this course. The students indicated that they didn't

need to necessarily see the professor; they just needed to hear their voice and see the PowerPoint slides being discussed. The instructor rarely utilized the standard dry erase board, hence turning the "video feed" of the professor "off" during playback did not impact information transfer. The video lectures were published within 10 minutes of the completion of class.

Hybrid Course Student Survey Results

The hybrid AGEC 110 class (Section 2) was surveyed regarding their use of the video lectures. A copy of the survey instrument is provided in Appendix A. Survey results revealed mixed results regarding access of the video lectures for the class. Two surveys were conducted to determine if students were accessing material. The results are shown in Figures 1 and 2. The October 1 survey revealed that 47 of the 72 respondents had accessed the video lectures at least once during the semester. The December 6 survey revealed that 40 of the 60 students who responded had accessed the video lectures at least once during the semester.

Students cited several reasons for not accessing video lectures. The slow download time for viewing the streamed lectures was a common complaint. This problem was minimized when students accessed materials from the university laboratory computers, i.e., computers with high bandwidth T-1 connections. Many respondents indicated that they were not willing to devote time outside of class to review the lectures. Most were content with simply having copies of the lecture notes and using them to study.

Students were also asked: "what would cause them to access the course materials?" As one would expect, students who were very interested in the material or

were grade conscious were more likely to take advantage of the available video lectures. A common answer was: "I would more likely access the course recordings if I missed class." This was anticipated, since students were reminded that lectures were available if they missed class. Another common theme revealed by the survey was a linkage of viewing the lecture videos with extra credit.

Results and Implications

An obvious question to consider is: how can video "on-demand" lecture materials impact one's teaching? The results of this study showed that students with on-demand access to video lectures for every class meeting did not make higher grades than those without access. The average final grade for the section with video access (Section 2) was 74.70 compared to 79.43 for the traditional lecture (Section 1). Surveys revealed that many students with video access privileges did not view any of the lectures. The use of video lectures cannot guarantee student success, but it can potentially provide an environment for success. In the end, collegiate success is still largely determined by the effort the student puts into the course.

Potential for Success

The use of video lectures could impact the classroom environment, student performance and faculty in several ways. First, students would have asynchronous access to lectures 24 hours per day, 7 days a week (24/7). However, as this study indicates, this does not guarantee that students will take advantage of the opportunity to review past lectures. Secondly, faculty can use these digital lectures for enhanced distance education in either a synchronous or asynchronous environment. This potential can be utilized most effectively in courses that have minimal content change over time. For instance, some

materials in the AGEC 110 course are timeless, and do not require frequent updates.

Another use of "classroom capture" is to provide a portfolio documenting faculty-

teaching performance in the classroom. Faculty peers and administrators can review

actual lectures without spending large blocks of time visiting classes during the day. This

review can be used by both faculty and administrators to enhance faculty-teaching

performance.

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Appendix A: Hybrid Course Survey

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AGEC 110
Blackboard Survey
Fall 2006

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Please answer the following questions regarding your use of Blackboard for this course. All comments are voluntary and you should not include your name.

<u>Check the response that fits your activity</u>

1. How often do you access the notes on Blackboard for this course?

_____ 1 to 3 times per week   _____ 4 – 5 times per week

_____ Never   _____ Once to download notes

2. How often do you review the voiced lectures (classroom recordings) from class?

_____ 1 to 3 times per week   _____ 4 – 5 times per week

_____ Never   _____ Every posted lecture

3. Do you feel that the recorded lectures from class have improved your grade?

_____ Yes   _____ No   _____ It would if I used them

4. What reasons keep you from accessing the classroom recordings? (check all that apply)

_____ Don't think it will help my grade   _____ Too slow to download

_____ Don't have time   _____ Don't know how to download recordings

_____ I prefer to study my own notes   _____ Takes too long

_____ I can't survive another lecture   _____ Not worth the effort

5. What grade to you expect to receive in this course?

_____ A   _____ B   _____ C   _____ D   _____ F

6. Did you access the classroom recordings? (check all that apply)
_____ Before the first exam   _____ Before the second exam   _____ Never

_____ Before the third exam   _____ Before the last exam

7. What would cause you to want to access the classroom recordings?

Figure 1: Hybrid course student accessing video materials on October 1, 2006

October 1, 2006
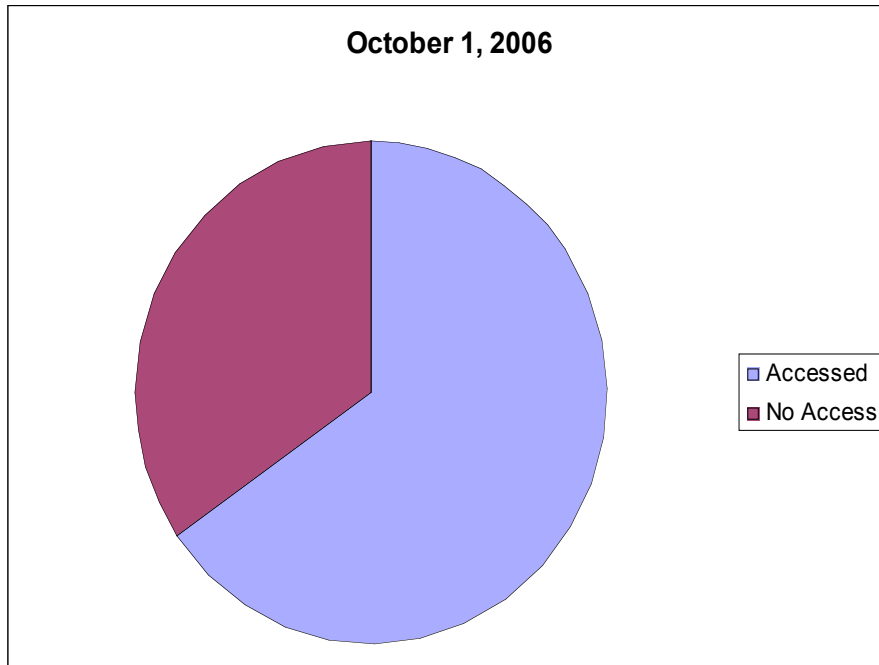
Accessed
No Access

Figure 2: Hybrid course student accessing video materials on December 6, 2006

December 6, 2006

Accessed
No Access