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TEACHING FOREST MEASUREMENTS ONLINE: AN OVERVIEW OF THE INITIAL EXPERIENCE AT THE UNIVERSITY OF ARKANSAS-MONTICELLO

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ABSTRACT: A 3-credit, online forest measurements course designed for sophomore-level students was created and taught for the first time during Fall 2001 in the School of Forest Resources at the University of Arkansas-Monticello. Narrated PowerPoint® presentations saved in html format were used to deliver the lecture material. An overview of the course material, the time required preparing the course, and issues that should be considered by first-time online instructors are discussed. All things considered, the course was a success despite the heavy upfront workload and technical issues encountered.

INTRODUCTION

The forest measurements class at the University of Arkansas-Monticello School of Forest Resources consists of a 3-credit lecture class and an associated 1-credit laboratory. This sophomore-level course has trigonometry and dendrology prerequisites and is part of the core curriculum for both the forestry and wildlife management Bachelor's degree programs. The lecture course encompasses basic forest measurement concepts including introductory statistics, land survey and compass use, quantifying volume and weight of logs, standing tree and other forest measurements, wildlife population sampling, habitat evaluation, and fixed and variable radius plot sampling. The author taught the course twice in a traditional classroom setting prior to re-tooling the 3-credit lecture course as an online course.

During the Fall 2001 semester, the lecture portion of the course was taught online for the first time. This course was targeted for online delivery to serve three main purposes: (a) allow transfer students to take this course at another institution prior to transferring to the Monticello campus; (b) increase the frequency at which the course is offered on the Monticello campus from once a year to twice a year; and (c) serve as a leveling course for incoming M.S.-level graduate students in need of a forest measurements background. This paper outlines course development and implementation in order to assist others who may be entering the online teaching arena for the first time.

LECTURE FORMAT

Three formats were considered for presenting the online lectures: text- and image-based Web pages, streaming media, and narrated PowerPoint® presentations saved in html format. Text- and image-based Web pages, while easily designed, were not chosen due to the static nature of such presentation. It was felt that some actions, no matter how small, by the student were needed to maintain attention to the material at hand. Streaming media, while possible, led to technology-based difficulties: The same files would not behave similarly on various computers. In the absence of formal technical support, it appeared that streaming media, while efficient with respect to file size as well as Internet connectivity (modem versus Ethernet), was not a viable option in this particular circumstance. Therefore, narrated PowerPoint® presentations saved in html format were chosen as the method to use for lecture delivery.

PowerPoint® presentations are easily saved in html format within PowerPoint® via the "Save As" menu option. As long as the individual creating the presentations employs the built-in slide formats, the titles of each slide will appear in list format down the left side of the split-frame Web page that is created. This user-friendly format for switching from slide to slide (mouse click on the different titles) on the resulting Web page is automatically built via the software.

Audio files were created using an inexpensive Labtec® headset-mounted microphone and the Sound Recorder accessory standard in Microsoft Windows® and saved as .WAV files. If desired, Windows Media Encoder® is freely available to convert .WAV files to .WMA audio files for streaming. Again, streaming audio was not used in conjunction with this particular online class.

The audio files, each about 1 to 1.5 minutes in length, were linked to pictures within the PowerPoint® presentations as "Action Settings." The "Action Setting" option is a pop-up menu available by using the mouse to right-click on the image to which one wishes to attach the audio file. The audio file will be set up to play based on the mouse action chosen from the menu: either a mouse-over of the image or a mouse click on the image.

Each lecture was about 15-25 slides in length so as not to overwhelm the students in any given lecture. Each slide had its own audio file. A total of 46 online lectures were created from the course notes used when teaching the traditional classroom format. About 850 slides and thus 850 audio files were created in total. This led to approximately 1,275 minutes of audio associated with the online lectures. Interestingly, the traditional classroom version consists of 45 lectures (and 3 tests, thus equaling the 48 lecture meetings common to a 3-credit lecture course in a 16-week semester). Since each traditional classroom lecture features about 30 minutes of "talking time" (and thus 20 minutes of writing time), the traditional classroom version includes about 30 x 45 = 1,350 minutes of "talking time," or just about the same as the online version.

MANAGING THE COURSE

BLACKBOARD® software was used to manage the online class during its initial offering, though WebCT® will be used in subsequent offerings because of institutional policies. No recommendation of any particular program is offered. Rather, the importance of using such software is what should be stressed. The various features of any particular courseware package (discussion boards, announcements, e-mails, etc.), while obviously important to any online offering, are not covered herein. Readers are directed to the software itself for respective features and software-specific training.

Tests were not given online. Tests were taken in a traditional classroom setting. Institutional Web instability and concerns with respect to the potential for cheating led to this decision. Homework assignments were made available over the Internet and submitted to the instructor via e-mail attachments.

Institutional Web instability also led to providing the lectures to students on CDs in addition to their availability over the Internet. The lectures fit onto a 2-CD set (each lecture is about 25 MB in size). An Ethernet connection was required to efficiently view the lectures online; transmission via a modem was painfully slow because of the .WAV format of the audio files. Providing the lectures on CD to the students alleviated this issue.

KEEPING THE ONLINE LECTURES INTERESTING

Prevalent thought was to keep students engaged in each online lecture and to keep the lectures lively and interesting. Frequent interaction to keep the lecture moving and additional features, as outlined below, were added to ensure students would in fact continue to visit the lectures whether students were truly passionate about the material or not.

In order to keep the online lectures interesting, each lecture had it own theme with respect to color pattern, font, etc. An image of a character dubbed “Ranger Paul” appeared on the first slide of the lecture and was the image on which to mouse-click to hear the associated audio within that lecture. That image appeared on each slide of that lecture, and was located in different locations from slide to slide. An oddball slide was added from time to time to surprise students. Similarly, unusual audio was included from time to time to serve the same purpose.

Requiring the student to actively mouse click from slide to slide and to actively click on pictures to hear the audio engaged the students to keep the lecture flowing. Frequent subject-matter-based problems were provided to students within the lectures to allow them to assess their understanding of what was presented. Answers to some of the problems were provided; others were not but could be obtained from the instructor.

COURSE ACCEPTANCE

The online version of forest measurements lecture was extremely well received by the small class size enrolled in its initial offering. Initial enrollment was limited to a handful of students due to the vast number of unknowns that potentially could have occurred during the initial offering. Students appreciated the chance to review lectures time and time again when needed to comprehend the material. Class size will not be limited in the future now that the initial offering was successful.

Students enjoyed the variety of lecture themes offered to them based on the various images of the Ranger Paul character. In fact students would refer to the individual lectures based on the image of Ranger Paul rather than the subject matter, so a connection was obviously made.

From an instructor’s perspective, traditional stumbling blocks with regard to certain subjects within the course were avoided. Students seemed to comprehend these specific subjects better once given the opportunity to review the lectures. Also, students tended to ask better phrased and more informed questions in conjunction with the online version (when compared to the traditional classroom version) indicative of a better basic understanding of the material afforded by the online lectures.

WORKLOAD

While the course was indeed successful, it did not come about without a price. About 350 hours were required to re-tool the forest measurements lecture course for online delivery. Each traditional lecture took about 7-8 hours to convert to the online format. Nearly 250 digital images were taken (Sony Mavica® and Kodak DC200 Plus®

digital cameras were used) with respect to course content in addition to the Ranger Paul images. It is hoped that the workload required to develop the course will be recouped with respect to traditional classroom lecture time saved based on future offerings.

SUGGESTIONS AND OBSERVATIONS

A variety of suggestions and observations are offered with respect to this initial online experience. They are provided in list format below in no particular order.

1. Remember that delivering online lectures is more than just providing notes—there should be interaction to keep the student engaged.

2. Providing students with the option to review lectures improved comprehension level. A traditional lecture is a one-time event; an online lecture can be viewed repeatedly without overburdening the instructor.

3. Keep the online lectures interesting, perhaps in ways unrelated to the subject matter. Doing so will ensure students will look at all lectures regardless of their level of passion with respect to the subject matter. Having fun is advisable.

4. Scripts were originally written and then read when recording the audio. However, trial and error eventually led to recording audio sentence by sentence and not using a set script. Each sentence was reviewed prior to proceeding with each .WAV file recording. It was simply more time efficient to employ this technique as opposed to reading the written scripts. As a result, a microphone with an on-off switch is highly recommended.

5. Audio files were linked to images using the “mouse-click” rather than the “mouse-over” option. This method was chosen to reduce the chances of accidentally starting an audio file while viewing an online lecture.

6. Frequent course related problems should be provided to students to give them the opportunity to assess their knowledge before proceeding with the same or another lecture.

7. About 250 digital images were taken in conjunction with this course. In retrospect, more were probably needed. The more images, the better.

8. A general rule of thumb is that it takes about 6 months to create an online course.

9. Try not to create and teach an online course in the same semester. Granted, this may be unavoidable.

10. Try to strike a balance between fanciness (bells and whistles) and monotony. In the absence of structured technical support, “simple but effective” is a good motto to adopt.

11. After this initial experience, the author now has a viable way, namely online lectures, to cover classes when out of the office at research conferences.

12. Creating online lectures with narration forces the instructor to examine every word he/she speaks and how it might be interpreted. This will undoubtedly improve the instructor’s teaching ability with respect to all classes.

13. The techniques used to develop these online lectures are easily transferable to research, extension, and continuing education duties.

14. Within the online lectures, keep external references to entities that might change (Web addresses, text references, etc.) to a minimum. This will decrease the future workload when such entities indeed change. Such information can be provided on an associated course Web page where it is easier to monitor and/or modify.

15. Have at least two people review the online material. Be sure that at least one person is familiar with the material and the other is not. The former will assess content; the latter can provide insight into things never considered by the instructor. For example, he/she might see something in an image that seems confusing. Often, this issue is trivial to the instructor based on years of experience with the subject matter. However, if someone unfamiliar with the material notices this point of confusion, students probably will as well.

CONCERNS

Several issues of concern remain after the development and initial offering of the online forest measurements course in the University of Arkansas-Monticello School of Forest Resources. For example, institutional Web stability remains a concern. If the material is made available on a platform that is unstable, students, and the instructor, quickly become frustrated.

Every time a textbook is changed or updated, chances are various aspects of an online course will need to be changed. Granted, if external references are kept to a minimum within the lectures, this will not be too daunting of a task. However, some changes will have to be made, as it is virtually impossible to eliminate all external references.

If an institution goes through a curriculum revision, the subject matter assigned to a given class will most likely change. In such a scenario, will some of the work in creating the original online class be in vain? This is especially important if the course is developed just prior to a curriculum revision.

Whether intended or not, the instructor becomes the focal point of all technical support questions. In the absence of a structured technical support arena with experts available for consultation, frustration levels in students and the instructor quickly rise.

SUMMARY

The development and initial offering of an online forest measurements course at the University of Arkansas-Monticello School of Forest Resources taught many lessons and opened some new avenues with respect to offering courses. The tremendous frontloading of the workload (350 hours in this case) will hopefully be recouped as the online course is repeatedly offered over time.

Student evaluations of this initial online course were extremely positive and the author is confident the students learned the material. Experience in the online arena has most definitely been gained and is now transferable to other faculty in School of Forest Resources as well as others via this paper. It is hoped that thoughts and observations presented in this paper will assist other first-time online instructors as they develop and offer their courses.

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