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Using Streaming Technology and Tablet PCs for Teaching Information Systems

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Abstract

The delivery of educational content via a web browser over the Internet anytime and anywhere is emerging as a new education channel. Today's rapidly changing technological environment demands that faculty maintain technological currency. Computer based and other tutorials have demonstrated success in helping faculty maintain technological competence and currency in the academic arena in the past. So, this tutorial on streaming technology and Tablet PCs is offered to address the teaching and instructional component of the academic mission. The technology focus of this tutorial is the use of steaming video and Tablet PCs. Attendees will be provided presenter prepared instructional material, URLs for each of the steaming video viewers, URLs for streamed video examples, PowerPoint slides from the presentation, and material on Tablet PCs.

Keywords: Tablet PC, SMIL, streaming video, entity relationship diagram (ERD), data modeling

Streaming Mode and SMIL for an MBA MIS Course

The two modes of transmission of video over the Internet are the streaming mode and download mode. In the streaming mode (video streaming), the video content plays simultaneously while parts of the content are being received and decoded. A streaming video can be created with a raw video source such as a video camcorder or videotape, a PC and encoder (e.g., Real Producer or Media Producer). The synchronized multimedia integration language (SMIL) enables simple authoring of interactive audiovisual presentations. SMIL allows a user to display graphics simultaneously with the video component. A SMIL file allows placing images and a PowerPoint file on different parts of the screen (Shim, 2003). Thus, the user views both the video and PowerPoint presentation simultaneously. The video streaming and the SMIL-aided approach provide more stimulation and productivity for both students and instructors (Shim, 2002).

Tablet PCs for a Database Course

Computer Technology Research (1992) found people retain 20% of what they see and 30% of what they hear. However, people will retain 50% of what they see and hear. Further, people will retain as much as 80% of what they see, hear, and do simultaneously. In information systems courses in general and specifically in database courses there are numerous topics that are complex to understand and unfamiliar to students. As such, students often wish to reinforce the concepts covered in class. Two such concepts are data modeling and ERD creation.

We will use a junior/senior level database class to present the specifics of data modeling to MIS majors. Following the traditional PowerPoint presentation of textbook material related to data modeling, the students will be placed in groups and given several small data modeling projects to be completed via pencil and paper. The instructor will then pick one of the groups to present the group's data modeling exercise to the remainder of the class. The group will (after a brief explanation of how to use the Tablet

PC) be given the task of recreating the data models on a Tablet PC that is connected to a live classroom overhead projector. Once the group has completed the data model via the Tablet PC, the results will be digitized and stored on the Web so that the in class exercise that is created by the students will be available to the class.

A final part of the initial evaluation of the Tablet PC will be for all class members to 1) review the web presentation and then to refine the data model diagrams based on specific instructions that are tailored to the problem, and 2) to participate in an exercise to evaluate the use of the Tablet PC in class and to brainstorm and generate creative ideas in which a tablet PC might be used for IT professionals. The results of the student evaluations and brainstorming session will be available at the conference.

Tablet PCs are similar in form to laptop computers. However, there is one major benefit of using Tablet PCs rather than laptops, that of the pen and "digital ink". Another, benefit is that of wireless sharing of information. The concept of network externalities dictates that as more people adopt a given technology, the more valuable that technology is to its users (Afuah and Tucci, 2001). At this point, there are very few students who bring tablet PCs to class. In the future, as tablet PCs grow in popularity; students will be able to have immediate access to the files created with digital ink.

Implementation

Tablet PCs are an excellent tool to be used in demonstrating the creating of entity relationship diagrams (ERDs). The ERDs are then saved, using digital ink technology, and made available via the course web site. Comprehending, conceptualizing, and creating ERDs are particularly difficult tasks for many students. In the past, I would have the "shell" of the ERD created and using the mouse and pen feature in PowerPoint create the relationship lines and cardinalities. However, using the tablet PC, I am able to create the ERD freehand and save it using digital ink. SMIL technology can be used to incorporate voice description of the ERD creation process and that adds additional understanding to the concepts.

The presenters strongly believe that video streaming, SMIL technology, and Tablet PCs should not be used to replace basic classroom teaching of fundamental principles. Rather, they should supplement class materials, so that students understand concepts, theories and applications better. Our tutorial is structured along this line of reasoning. We make use of classroom demonstration material combined with SMIL technology and video streaming for viewing out of class.

References

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