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Establishing a Virtual Learning Environment Using iPods in Social Work Research

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Introduction

One in five adults aged 18-28 owns an iPod or MP3 player; however, use of ubiquitous iPods and other portable media on college and university campuses is primarily for entertainment rather than for learning. In addition, there is little readily available guidance to instruct administrators, faculty, and staff on how they might develop a technical infrastructure and procedurally employ iPod technology for educational purposes. To address this need, a team of Norfolk State University (NSU) faculty, administrators, and students worked together to develop a business, logistical, and technical model that could be used for deploying iPod technology for academics at the university.

The School of Social Work has used learning technologies in the classroom for many years. Computers, videoconferencing, dual cameras, integrated sound systems, Internet connectivity, smartboards, and other equipment were already part of their local and distance learning programs. Consequently, faculty members were generally technology savvy and indicated an interest in becoming involved with even more innovative teaching methods. Of particular interest was an undergraduate course in research that could serve as a demonstration project for reinforcing complex materials in a virtual learning environment (Green, Bretzin, Lenininger & Stauffer, 2002; Royce, 2004). Students also demonstrated a need for more flexibility in fitting learning into their busy lifestyles, especially students who were employed or serve as parents (Donnelly, 2002; Windham, 2007). The School of Social Work began working closely with the university's technology division to conduct a project that would demonstrate that iPod technology could be an effective educational medium that would be available 24 hours a day for busy students.

The Literature

Researchers report that academic institutions are racing to incorporate emerging technologies into college and university curriculum, but this infusion of new technologies alone does not necessarily guarantee a more effective learning environment. An effective educational setting should be grounded in the pedagogic fundamentals and *enhanced* with complementary technology (Lightfoot, 2005). In addition, to be effective, academic materials presented on iPod technology should be relevant to the particular course and have a clear connection to the learning objectives (Windham, 2007). Students report that technologies that augment the traditional course content are most useful (Lightfoot).

A well-designed classroom environment should support a variety of presentation methods covering the major learning styles and be flexible enough to meet both course and student needs (Lightfoot, 2005). Current iPod technology supports a variety of student learning styles (Chickering & Gameson, 1987; Lightfoot, 2005); however, there are constraints in the amount of time and effort instructors can contribute to presenting their materials in multiple learning modes. Lazarin's research (2004) suggests the

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ease of using a particular technology is a primary contributor to its wide-spread adoption. Often, however, new technology creates uncertainty about perceived convenience and ease of use (Davis, 1989; Lazarin, 2004; Rogers, 2003). In this regard, iPod technology is useful since it is often already accepted by students. Moreover, it can help provide for diverse learning approaches including audio and video capabilities.

Ease of use, however, does not come without inherent costs. Instructors should be prepared to update their course design and materials when using the technology (Donnelly, 2002; Fabry & Higgs, 1997). The role of the faculty member becomes more complex and demanding as instructors are called on to perform dual roles (Donnelly, 2002). Faculty members must not only be expert in academic topics but also be familiar with technology that can be applied appropriately to teaching. Also, despite expectations, college educators may be faced with a surprisingly low level of student experience with technology. Typically, students who use technology often rely on the instructor as their first line of support; therefore, technology training becomes important for both the faculty member and the student (Donnelly). The teacher's technological skills and attitude become central to how effective technology is used (Donnelly, 2002; Fabry & Higgs, 1997).

Methodology

Title III grant funding for the project was secured, and NSU's Institutional Review Board (IRB) gave approval for the project to proceed. A daylong workshop was held with 35 faculty, staff, and students working to develop a plan called a Project Development Document (PDD). The PDD defined the goals and objectives, identified specific tasks, identified who would perform each task, and established an implementation timeline. Thirteen groups of tasks were identified, including defining business processes, identifying equipment needed, and developing course materials and training needs. This list of tasks served as a guide for proceeding with the infusion of iPods in the selected course as well as establishing a model for future deployments.

Business Processes

Two major business processes were developed for the project: a content management process (*Figure 1*) and a checkout process for the students to obtain iPods. The content management process involved the tasks necessary for the instructor to create new videos and PowerPoint materials, procedures for loading those materials onto the project's servers, and techniques to allow students to download resulting materials onto their iPods via iTunes and Blackboard. The detail process was consisted of the following steps: (1) instructors provided content such as PowerPoint files and screen captures via electronic transfer to a recording editor; (1a) the instructor records video or audio media to be combined with course content in the studio or a stand-in performs voice-over audio in an audio booth; (2) video experts process and combine the video and audio files, perform any necessary editing, and transfer the completed files to the appropriate server; (3) the instructor is notified by e-mail of completion of the tasks and the name of their file; (4) the instructor appends a course-specific Uniform Resource Locator (URL) to the file name (e.g., http://ipodplass/swk416/filename.mp4) and posts an external link(s) to the Blackboard course site; (5) students access the course content by downloading the files in Blackboard to their PCs, importing them to iTunes, and uploading them to an iPod. Dedicated computer lab stations are provided throughout the campus; and (6) both iPod and non-iPod project participants can view the course materials on Blackboard via the Internet.

Videos were also created for the faculty to personally introduce themselves and the course information to students. These were professionally produced in NSU's TV production studio against

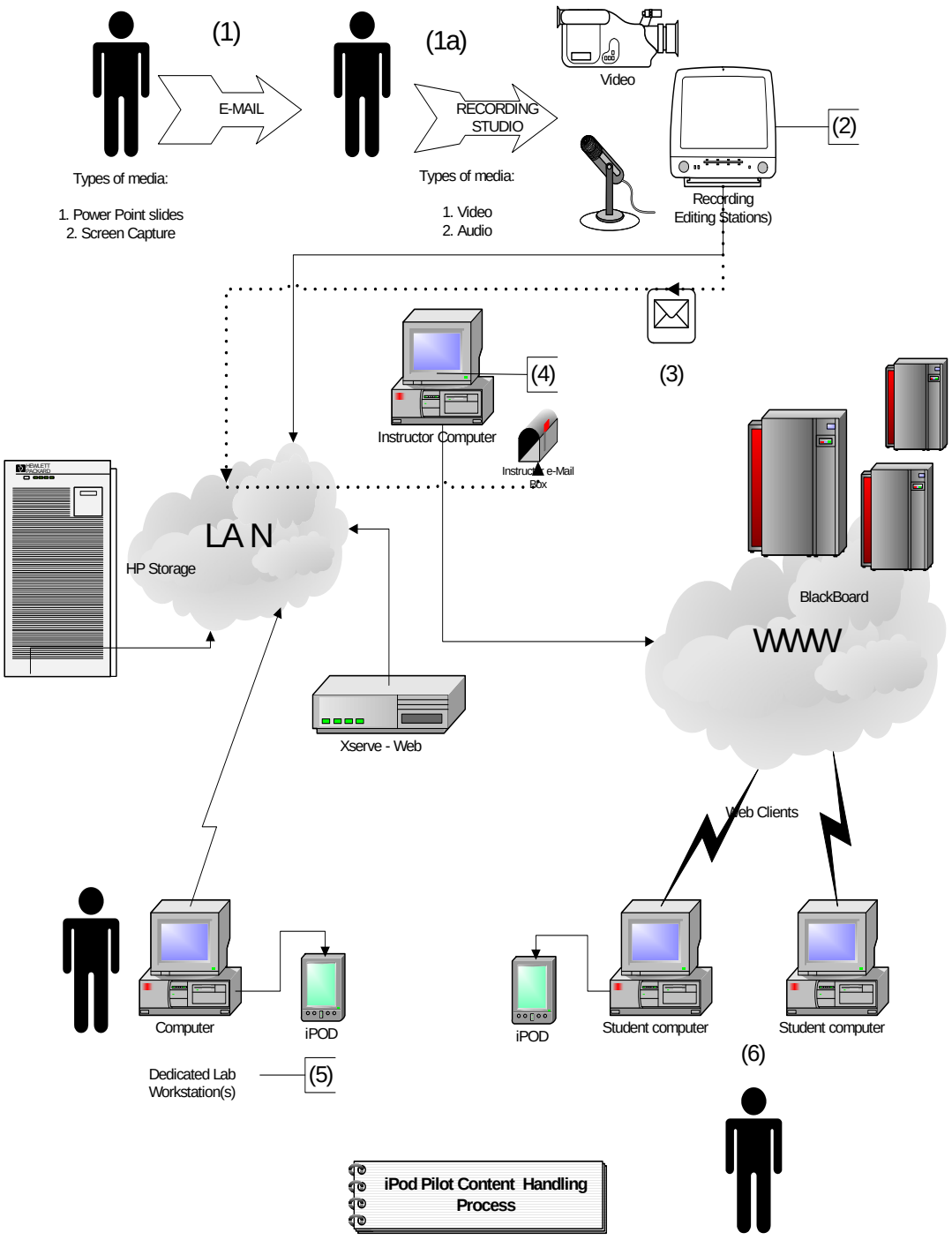
(1)
E-MAIL
Types of media:
1. Power Point slides
2. Screen Capture
(1a)
RECORDING STUDIO
Types of media:
1. Video
2. Audio
Video
(2)
Recording Editing Stations)
(3)
(4)
Instructor Computer
Instructor e-Mail Box
HP Storage
LA N
BlackBoard
WWW
Xserve - Web
Web Clients
Computer
iPOD
Dedicated Lab Workstation(s)
(5)
iPOD
Student computer
Student computer
(6)
iPod Pilot Content Handling Process

Figure 1: Process of moving course content from the author/instructor to the student.

Hardware and Software

Procurement and installation of equipment involved two servers: an APPLE Xserve server and an HP DL-365 G5 server with dual 2.00 GHz Processors and 800GB of storage. The servers were installed in the university's data center and used to store course materials as the materials were developed. Three IMAC workstations were also installed—one in OIT, one in the School of Social Work, and one in the Office of eLearning—to develop videos and tutorials. The 80GB iPods were tested, and an AppleCare protection plan for iPods was loaded onto each iPod. A tracking system was created on Microsoft's SharePoint for the storage of all documents related to the project and was made available to the project team members at all times.

Software tasks included loading audio (Mp3) files, video files (Mp4), and movies (M4v) into Blackboard and onto the iPods. The latest compression techniques compatible with Apple/ Quicktime formats were used. All course materials were made available on Blackboard and could be downloaded to student computers as well as their iPods.

Training

iPod training was provided by OIT. A new iPod web site was developed on the university's web site for use with this and future iPod courses. Web-based training tutorials were developed for both students and faculty members and loaded onto the iPod website, the Blackboard site, and the students' iPods. OIT trainers developed an iPod training course that participating faculty and students attended on a volunteer basis. In addition, the instructional guide on how to use the iPods was developed and distributed to each of the students and faculty involved in the project.

The Students

NSU has about 6,000 students, of which about 200 are undergraduates majoring in Social Work. The population for this project was an undergraduate class of mostly African-American students taking a senior level research course in the school of Social Work. The enrollment in the research course was fourteen students, eleven of whom volunteered to participate in the project.

Discussion

A rapid increase in the use of multiple media over the past decade has led to changes in the ways young people gather and process information. There has been a generational shift between past and present students toward the use of more mobile devices. The authors observed over time and during this study that only lecturing to students is not optimal, and current learning systems may not be enough to fully engage students, nor do these learning systems offer sufficient flexibility in their studies. It is important, therefore, to provide a technologically rich environment for in-depth learning and understanding.

Students in this study indicated that the mobile devices offered flexibility and fit with their learning needs and digital lifestyles. Students noted that this particular learning technology allowed them to learn conveniently while being away from their computers and classrooms, thus changing the traditional landscape of learning. At the same time, it challenged educators to provide innovative technologies, effective learning designs, and domains of learning that benefit contemporary students.

When using iPods in the learning and teaching

process, an identification of educational goals must be the overriding consideration. Educational iPods should be used to enhance the student's experience in the learning and teaching environment rather than being seen as a replacement for other learning and teaching activities. However, in order to exploit the potential of iPod technology, educators need to understand how the process of producing material for an educational iPod will be influenced by the very nature of iPod itself and the way students interact and engage with that technology.

Additionally, feedback from the students and the research team supports the assumption that multiple methods of delivering course materials helps in support of students with disabilities, such ntageous to work with faculty and administrators who are flexible and innovative in the acceptance of technology. This particular component also greatly assisted in the developmental process, and other faculty will be able to benefit from their contributions during later deployments.

The establishment of effective business processes was particularly important in this initial step. The process of developing new course content and the handling of the files worked very well, and all indications are that this process can be applied university-wide. Logistical unknowns, such as how to best deploy iPods to hundreds of students, were effectively determined by this trial-and-error testing in a controlled environment. All students in the research class followed the guidelines and returned their iPods at the end of the course. Training materials were essential for the efficient use of the iPods, and face-to-face training and support was particularly effective.

The PowerPoint slides, audio, video, and movie resources produced for the project were of a very high quality and contributed to the overall success of the project. Since course materials were unique to the instructor, and there was a desire to attain the highest quality presentations, the process was labor intensive. These materials, however, are now available for use via Blackboard and on iPods. One aspect of the project was that not all course materials were ready for pre-loading on the iPods prior to the student checking out their iPods, and students demonstrated a tendency not to download materials to their iPods themselves. This concern will be addressed in future applications.

Future

As result of this project, several faculty members, including those from other disciplines, have already requested to use iPods in their classes. A user satisfaction survey has been designed and is in the process of being deployed to assess overall user satisfaction. To help with the preloading of materials on the iPods, a Bretford PowerSync Cart for iPods has been purchased so that files can easily be loaded onto 20 iPods simultaneously. Additional data will be collected in upcoming semesters, and the next step of the project will focus on the analysis of the learning styles inventory data and user satisfaction data.

An unexpected byproduct of the project is that the faculty not only created new high quality course materials for use on the iPods, but since the files are located in Blackboard, the new materials will also be used in distance learning courses. A larger library of iPods is in the planning stage. These will be available for checkout to students enrolled in courses that use the podcasting capabilities available in Blackboard Building Blocks. Podcasts are essentially downloadable broadcasts to which listeners subscribe and automatically receive updates. Some classroom sessions at NSU are already being recorded and stored on Blackboard, and these can also be loaded onto iPods to be played and replayed at the student's convenience (Educause, 2006).

Conclusion

There is an unlimited potential for using iPods and portable media players to enhance teaching, learning and professional development activities for social work students and working profession-

als (Johnson, 2006; Young, 2005). However, much effort is required to take full advantage of the available capabilities. It is important for faculty and administrators to keep revisiting the use of iPods (and other portable media devices) as a tool for learning since this technology is changing rapidly (Windham, 2007). As with so many technologies, once the tool becomes ubiquitous, new uses unfolded quickly.

For students, the innovative technology provides more options in their learning experiences; for faculty, the technology means developing skills in preparing, using, and formatting fresh course materials. iPods have the potential to help educators build even more stimulating learning environments, appeal to different learning styles and different generations of learners (Young, 2005). For continuing education, the iPod format provides professionals a new platform for obtaining quality and convenient continuing professional education and development activities in a mobile and timely manner away from their desks and computers. It also responds to the changing, fast-paced world of the adult learner by utilizing new and evolving technology with the opportunity to learn anywhere, anytime. Life-long learning becomes truly portable since individuals do not need to have a computer or arrange to attend a live session to enhance or update their knowledge.

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