

Internet and Self-paced Instruction at Columbus State University

Tena F. McQueen, Associate Professor of Computer Science, and Robert A. Fleck, Jr., Professor of Computer Information Systems, Columbus State University

Introduction

The depth and scope of the technology revolution has caused a dramatic increase in the number of course delivery alternatives. Many colleges and universities are using the Internet to deliver degrees, courses, or course components. If colleges and universities are to remain competitive in the higher education market, then it is imperative that professors and administrators consider this viable option. Developing and implementing alternate methods of course delivery, such as distance learning via the Internet, helps meet student needs by providing more flexible scheduling and 24-hour, 7-day-a-week access to course material. Internet courses can also reduce travel time and minimize conflicts between job and home. However, the traditional model of a University, where the professor lectures and the student listens, is not congruent with the Internet model of content delivery. Therefore, new course management tools are needed.

Columbus State University currently provides instruction for selected courses via the Internet. These courses include Technological Solutions and components of certain courses, such as the Introduction to Computer Information Systems. Software developed by the National Education Training Group (NETg) and Course Technology (e-Course, e-Test and CyberClass) were adopted for delivering online instruction.

NETg

NETg is a Web-based interactive, self-paced tutorial in a simulated environment. Preassessment and end-of-unit mastery instruments are available for each unit. The material presented in the tutorial is modified based upon the student's weaknesses identified in the preassessment process. Students complete each unit at their own pace, receiving immediate feedback to responses made through simulated conditions. Their progress is tracked electronically; therefore, it is accessible any time by the student or professor using the proper password. The Course Manager tracks the student's end-of-unit test scores, as well as, the number of times accessed and the amount of time engaged.

Course information is disseminated via a Semester Class Schedule Booklet, the CSU Web site, and through advisors and other students. The URL is printed in the Class Schedule Booklet beneath the course listing. Students contact the professor either by e-mail or telephone to request the proper procedures for accessing the course and log-on.

An orientation session addresses access problems, especially for students not familiar with downloading files from the Internet. The NETg screen is discussed with refer-

ence to performing the task as directed and the small area for clicking on a "hotspot."

One of the biggest frustrations in operating an Internet-based course is student anonymity. Since it is possible for a student to register and take a course without ever personally contacting the instructor, students may feel less responsible for their actions. Students often register for classes, but never accessed the course material. Such students receive failing grades at the end of the term.

Mid-term and final examinations are given online and students complete tasks in live- not simulated- programs. Working in the active environment challenges many students, especially those who have not practiced this type of application. In addition to the active environment, the examinations are problem-oriented, not task-oriented. In view of this, professors should provide problem-solving situations throughout the semester or quarter, preferably in a live program.

If a student withdraws from the NETg Internet course, a questionnaire is sent to identify the reason(s) for withdrawing. The most often cited causes for course withdrawals were:

1. Lack of adequate computer hardware at home
2. Job or family responsibilities
3. Underestimating the amount of time needed to complete the tutorials

Course Technology

The College of Business at Columbus State University requires that all students be computer literate and proficient in Windows 95, the MS Office 97 Suite, Internet and Web use, and automated library software. For a number of terms, this course was taught using a traditional lecture-discussion-"lab" format.

In recent years, students came to the class with a wide range of skills, which frustrated attempts to define a common starting point. Program growth was draining resources as more and more faculty were being allocated to the skills course and away from other tasks and courses. It was in this environment that alternative methods and tools were sought.

Course Technology's solution, e-Course, using the textbook, Microsoft Office - 97 Certified with Microsoft Windows 95 (ISBN 0-7600-7224-8) was selected. The textbook includes a CD-ROM with tutorials for each of the MS Office 97 products and Windows 95. The tutorials on the CD can be loaded on a local machine or run from a server. If loaded on a local machine, the tutorials can either be installed with minimum disk space (which requires that the

tutorial CD be present in the CD-ROM drive) or fully installed, which places all files on the hard drive. Similar functionality is available for server installations. Selected server installation was used because of minimum disk space requirements. This means that students must place their tutorial CD in the drive to access and use the program.

e-Test

Another objective was that testing modules provide sufficient breadth and depth to permit testing at various time periods without compromising test integrity. In addition, the system should have some form of pre-assessment methodology.

The e-Test, by Course Technology, uses a simulated environment which has the look and feel of a real desktop environment. The testing module has adequate security features and tests are immediately evaluated. Regrettably, those taking the test cannot use the help functions in the software package and the instructor cannot turn off the exam once a student has started it. Those wishing to limit the amount of time a student can spend taking an exam cannot do so. Each exam however was usually completed within 40 minutes.

CyberClass

CyberClass is a software package developed by the HyperGraphics Corporation (www.cyberclass.com) to support Internet-enabled delivery of course material. Templates are easy to use and content can easily be modified. Our first experience required about one hour to create a working Web Site. A password is required to access the site or chat area. A hardcopy of the course syllabus and calendar were distributed in class to reduce the cost of printing, and because students clearly did not want to continuously log on to review calendars and assignments. The online submission of assignments by students worked well, however, grading e-mail assignments was difficult and inconvenient.

Evaluation

Internet and self-paced instruction are viable alternative course delivery methods where technology is a driving force. All methodologies presented have advantages and disadvantages. The key to successful selection, adoption, and use of any of the tools discussed, begins with a clear assessment of institutional needs, student capabilities, resource requirements, and instructional objectives.

Interactive Electronic Laboratory Reports for Freshman Chemistry

Myung-Hoon Kim, Professor of Chemistry, Georgia Perimeter College

Background

The importance of experiments in a laboratory class in science and engineering curriculum cannot be over-emphasized. Unlike in lecture classes, in which students are mostly passive, listening and taking notes, lab classes provide students an excellent opportunity for full class participation in the lab activity; hence, they can benefit from active learning. Laboratory classes are also excellent in promoting collaboration among students, when an experiment is carried out as a team effort. Providing laboratory classes occasionally presents a problem, especially in a smaller college setting where resources are rather limited. One particular problem is that both writing and grading of lab reports are often tedious and time-consuming processes. This is particularly evident when the analysis of data involves extensive calculations, because examining data and calculations is often the slowest part in the grading process. In major universities, man-power to process lab reports is not a problem because of availability of graduate assistants. In a smaller college setting, however, faculty/staff members have to spend about eight to ten hours (a

full day of work) per week grading 40 to 70 laboratory reports. Therefore, an electronic method of grading can be very beneficial because of its speed. Such a method has recently been developed and presented here.

Organization and Grading Method of the Electronic Lab Report

At the Georgia Perimeter College (Dunwoody Campus), students can take an electronic lab report interactively with any of the sixteen cluster computers in an open computer lab on campus. The computer program for the Electronic Lab Reports (ELR) is organized as follows:

Part I asks for a name, an ID number, and a lab section ID of a student.

Part II asks questions on basic concepts, fundamental principles, methods employed, and related mathematical formulas and chemical reactions regarding that particular experiment. Credit is given for each correct answer.

Part III asks for entry of raw data, several intermediate results of calculations, and key results from calculations.