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ABSTRACT

This paper is a case study of the development of the "Using Information Technology" computer literacy course at East Tennessee State University. The paper follows the transformation from the previous traditional model of instruction to the present model that incorporates online training and testing. It focuses on the problems with the previous model, the need for a new method of instruction, the implementation of the new method, problems encountered with the new method, and future plans. (Author/MES)

Case Study:

Using Information Technology at ETSU

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Abstract:

This is a case study of the development of the Using Information Technology computer literacy course at East Tennessee State University. It will follow the transformation from the previous traditional model of instruction to the present model that incorporates online training and testing. It will focus on the problems with the previous model, the need for a new method of instruction, the implementation of the new method, problems encountered with the new method and future plans.

Case Study: Using Information Technology at ETSU

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Model 1: Traditional Teaching Methods

In 1995, the General Education Core at ETSU was changed. One of the changes was that every student in the University would be required to take the CSCI-1100 Using Information Technology course prior to completing 33 credit hours at ETSU. This requirement resulted in an increase in student enrollment in CSCI-1100. Our enrollment has steadily increased since that time to approximately 1400 students during the Fall 1999 Semester.

Since it was a two credit hour course, the students were required to attend a two-hour lecture and one-hour lab each week for ten weeks. The lecture sections had approximately 240 students per section. The lab sections had approximately 30 students per section. The computer concepts portion of the course was covered in the weekly lectures, presented using PowerPoint presentations and software demonstrations. The hands-on portion was the lab hour in which students learned to use a word-processor, Internet and e-mail.

Need for change

With increasing enrollment, it became very hard to ensure that every student was getting the hands-on experience that the course was intended to offer. The lectures were also becoming increasingly inadequate in teaching students computer concepts. The lab sessions were spent leading students through a series of steps teaching them how to use a word processor. With 30 students and one instructor, this model was not very efficient.

Upon evaluation of the current method of teaching, the department realized a need for change. The purpose of the course is to teach students how to *use* information technology. In order to stress the *use* of the computer, we needed more effective hands-on instruction and a different method for teaching the lecture material. Another factor considered was the number of students who entered ETSU with enough computer knowledge to test out of the course.

Model 2: Self-Paced Online Instruction

The result of the course evaluation and changes was a new model that was intended to accommodate every student, regardless of their previous computer experience.

Course Description

CSCI-1100 now meets one hour a week for 15 weeks. Each section has a maximum of 30 students and meets **only** in the lab environment. It is now being offered as a partial distance education course, which means that the other hour of instruction (lecture portion) is received online outside of class.

Most of the instruction is through online training packages, including NetG's SkillVantage and Asymetrix Librarian. Both packages have testing software that allows for the tests to be taken online in the classroom.

Through SkillVantage the students learn how to use Microsoft Word. They are required to complete four different units in the Microsoft Word 97 Proficient User Module. Each unit has both interactive training and testing. The students are encouraged to go through the training at least once. They can go through it as many times as they need to and have the option to go through the complete unit or just certain topics that they need extra work on. Once they have completed the training, they are encouraged to practice the test at the end of the unit. This is the same test that they would take when they come to class on test day. SkillVantage randomly generates the questions so they will see different questions each time that they attempt the test. Upon completing the test, SkillVantage will help them to recognize the areas in which they need more practice. Students who take advantage of this feature have a better understanding of the subject matter and consequently score higher on the tests. Students have access to all of the SkillVantage

tests throughout the entire semester.

Librarian is used to teach computer concepts through online books. The books that we present to the students in Librarian were created jointly by an Instructor and a Graduate Assistant in the Computer Science Department. The content of each book focuses on different computer concepts. Topics include, but are not limited to: an overview of the computer and how it works; computer terminology; the Internet and how it works; e-mail and how it works; WWW; computer viruses, security and ethics. Each book has a corresponding quiz that the students can practice repeatedly. The quiz has questions similar to those that they would see on the Librarian portion of the test.

Class time is used for both instruction and testing. The current format allows each student two attempts to take each test. The weeks in which no tests are given are used to teach students how to use their campus e-mail account, search online information resources (such as the Internet and ETSU's online library catalogs) and other topics of interest.

Four tests are given throughout the semester. Each test is comprised of: 1) word-processing portion - given in SkillVantage; 2) computer concepts portion - given in Librarian; 3) application portion - having students perform such tasks as sending e-mail or searching an online information resource for information on a particular topic.

A website has been setup for the course. It includes course information such as the syllabus, policies, office hours, and a list of instructors and their e-mail addresses. It also includes links to SkillVantage and Librarian. Other resources include links to popular Internet search engines, ETSU's library databases, and the ETSU homepage. This offers students a central place where all resources needed for this course can be found.

An office has been setup specifically for this course. The UIT Office is open 5 days a week approximately 8 hours a day. Students can go to the office for individualized help or to take tests if they are testing out early or need special accommodations during a test. The UIT office can also help students with account management if they have forgotten their user-id or password. All instructors for the CSCI-1100 course spend their office hours in this office.

Model 2: Evaluation

After having the new model in place for several semesters, we were able to look back and evaluate both the advantages and disadvantages of the new model and identify any major problems. Both the advantages and disadvantages are discussed below. While it may appear otherwise initially, the advantages have greatly outweighed the disadvantages in this new model. We will build upon the positive aspects and make adjustments as necessary to keep improving the course in the future.

Advantages

The fact that all of our training is internet-based has proven to be the biggest advantage. Students have the convenience of accessing the training and tests from their own computer rather than having to sit for hours in one of the campus labs.

Allowing access to the tests so students can practice them multiple times has also proven to be a big advantage. The students who practice the test more than once score significantly higher on the tests.

However, not all students take advantage of this opportunity.

With the new setup, students can advance through the course at their own pace. Students who are familiar with all or most of the material taught in the course may choose to complete the course as quickly as possible. This frees up class time for the instructor to spend with those students who need more help in grasping the concepts being taught.

This setup has also helped the process in which we allow students to take a proficiency test to opt out of taking the course. We can create the accounts they need, point them to the website, show them how to practice and allow them to come back when they are ready to take the test. By using the SkillVantage and Librarian tests, we take advantage of the automatic grading. Students also like this because they can spend as little or as much time as necessary in order to feel assured that they will pass the exam.

Disadvantages/Problems

This new model has proven more effective than the previous model of instruction. However, there are still some problems. No single model can fit the learning style of all students.

While the changes implemented were intended to accommodate the learning styles and abilities of all students, there have been a few exceptions. This format is excellent for the student with prior computer knowledge and experience. It even works well for many students with little or no previous computer experience. The students for whom this model seems difficult are those students who have *never* used a computer and are very apprehensive about learning how to use one. A lot of our "non-traditional adult" students fall into this category. The first few weeks are used for account creation and familiarizing the students with the training packages. This tends to be very overwhelming for the student who has never touched a computer before. This can be very discouraging to a student who knows that they have to successfully complete this course in order to graduate.

Account management has also been a disadvantage in this new setup. Students are required to have four different computer accounts for this course: a SkillVantage account, a Librarian account, an e-mail account and an NT account for access to the campus computers. Management of all of these accounts is not an easy task. Our department manages the first two accounts, while the Office of Information Technology on campus manages the other two. Students have a hard time keeping up with four different accounts, despite efforts by the instructors to set them all up with the exact same user-id and password.

It has also been confusing to the students to use one training package for word-processing and a different package for computer concepts in general. Each test requires access to both accounts.

There were technical problems as well. With the large number of students that could be accessing the system at once, system response was slow at times and sometimes unresponsive. Problems were encountered several times when a classroom of students accessed the Librarian accounts all at once.

Another problem that we faced was the fact that the training for Microsoft Word is actually simulated rather than in the application. This has caused minor problems in that students may know multiple ways to perform a task in Microsoft Word, but there is only one correct answer on the test. This is more of a problem for students who already have word-processing experience.

The Future of UIT at ETSU

Because of the confusion of having two different training packages, we made the decision for Spring 2000 to consolidate the training by using the SkillVantage software for both areas: word-processing and computer concepts. Students now only have to access SkillVantage for all of the online training and now only have to keep track of three accounts. We will evaluate the effectiveness of this change at the end of the semester to determine if we want to continue with this method.

In order to accommodate the non-traditional adult students and those students who need more in-class contact with an instructor, we are experimenting with a new model. For Spring 2000, we are offering a special section of CSCI-1100. Students must be permitted to enroll in the section in order to ensure that there are enough seats for the students who really need it. It meets twice a week for an hour at a time. This section also has two instructors. These two things together benefit the students by offering more individualized attention. Based on the success of the section thus far and feedback from students and advisors, we are offering two of these special sections for Fall 2000.

We are currently developing another special section of the course which will be a strictly "distance education" course. In response to increasing requests by students to take this course without attending class, we are developing a section that will be taught completely online. It will require that students only make one or two trips to campus to take a midterm and a final. Projects will be submitted online through e-mail communication. We do not plan to teach all sections of the course this way.

Conclusion

While there are still some changes to be made, we feel that we have made great strides towards improving this course. The main purpose is to teach students how to use information technology so that they can use the knowledge as they progress through their university curriculum.

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