Reasons for Non-Completion of Online Computer Software Course: A Preliminary Study

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ABSTRACT

Business majors are required to complete a course using Microsoft Office. The course is offered both online and in a traditional hands-on classroom setting. Students who enroll in the traditional setting have a completion rate of 97% while the online students have a completion rate of only 75%. All students complete the same assignments and take the same exams. Extensive online help is available for all students. Demonstrations of all in-class activities are captured in Microsoft Captivate and are available at any time. Demonstrations are created in two formats: with sound and without. The demonstrations with sound have the instructor showing the specific skill while talking through the skill. The demonstrations without sound have the same skill but have word balloons explaining the step. The two types of demonstrations are available to meet different learning styles and different computer hardware setups. The online students were surveyed to gather data on locus-of-control, self-efficacy, use of available course tools and demographic information. Preliminary results show a strong correlation between grade earned in a required prerequisite class and completion of this software class. A secondary predictor of success was self-efficacy.

INTRODUCTION

A required course for all business majors is a Microsoft Office software course focusing on business applications of Access and Excel. Six sections are offered each semester; four in a traditional on-campus setting with a computer for each student and two in an online format. All students complete the same assignments and take the same exams. Extensive online help is available for all students. Demonstrations of all in-class activities are captured in Microsoft Captivate and are available at any time. Demonstrations are created in two formats: with sound and without. The demonstrations with sound have the instructor showing the specific skill while talking through the skill. The demonstrations without sound have the same skill but have word balloons explaining the steps. The two types of demonstrations are available to meet different learning styles and different computer hardware setups.

While the online students have all the same material and instruction available to them via the online demonstrations as the traditional students have through in class instruction, the online students have a consistent withdraw rate of 25% and the traditional students have a withdrawal rate of 2% to 3% according to course data over the last six semesters. A study of undergraduate courses at the University of Georgia system found that 30% of the online students dropped by the end of the semester (Morris, 2005).

Historically students who complete the online version of this skill-based course have an overall average grade of more than 85% which is usually similar to the students in the traditional classes. However, during the fall 2006 semester, the final grade average was 68% for the online sections and 80% for the traditional on-campus sections. The students who withdraw from the online course frequently retake the course the next semester in a traditional setting, causing the students to pay for the course twice.

Students are not required to complete an assessment before enrolling in an online course to help determine if they are well-suited for online learning. Students are also not required to speak to the instructor before enrolling in an online course. The university does not survey students who withdraw from online courses to find out why they have withdrawn from the course.

A required pre-requisite (BE&O) to the course is a basic computer literacy course in which students are required to pass exams using Microsoft Word, Excel and PowerPoint as well as take exams over traditional computer literacy topics such as parts of a computer and computer networks.

PRIOR RESEARCH

Locus of control and self-efficacy are well established measures in predicting educational success as these examples of prior research demonstrate. Gifford, Bricefho-Perriott and Mianzo (2006) found that students with strong internal locus-of-control are have a higher GPA than students with strong external locus-of-control. Sisney, Strickler, Tyler, Wilhoit, Duke and Nowicki (2000) determined that locus-of-control and self-esteem were high predictors of success in college courses. Onwuegbuzie and Dailey (1998) found that locus-of-control was the best predictor of successful study skills. Elias and Loomis (2002) found that self-efficacy and need for cognition were both significant predictors of GPA for undergraduate students. Pajares (1996) found that self-efficacy was a predictor of math problem solving ability in middle school students, using a path analysis.

COURSE DESIGN

The course is required for business majors and focuses primarily on Microsoft Access and Excel used in business applications. Most assignments are drawn from the textbooks, however for most students; the textbook does not give enough information to successfully learn the required skills. To compensate for the lack of in-class practice and demonstrations, online demonstrations have been created for most skills in the course. Everything that is done in the traditional classroom has been transferred to online demos. The demos, created in Adobe Captivate, are short demonstrations of specific skills. Homework assignments are broken down into steps with each step having its own demonstration. Demonstrations are available with sound and without sound. In the sound versions, the primary instructor of the course verbally describes each step of the skills. In the non-sound version, the descriptions are in word balloons. Students are able to use the different versions based on their learning style as well as their ability to use sound. For example, no sound is available in the campus computer labs unless the students bring their own headphones.

Students also have samples of the finished homework available to them. They can see the finished Excel spreadsheet or Access query to allow them to match their results with the correct answers. Between the demonstrations that take the students through the skills step-by-step and the graphic of the finished results, the students are given as much help as possible to encourage successful completion of each assignment.

Assignments are due on the same day and time of each week. The instructor sends the students a weekly email letting them know what skills they should be working on that week, what online demos are best suited to help learn the skills, what assignment is due next and when the next exam will be. For several semesters, the instructor offered online office hours from 9-11 pm on Tuesday nights using Macromedia Breeze. In the last several semesters, only one or two

students took advantage of the online office hours and thus, the option was not offered the Fall 2006 semester.

Nearly all of the online students are on campus at least three days a week for other classes and can attend regular office hours. Email is used extensively to answer student questions and often students attach the file they are working on to allow the instructor to see exactly where the problem area is. The instructor then replies in email how to do the skill or formula correctly and the student is able to successfully complete the homework. All homework is submitted through Blackboard. To allow immediate feedback, quizzes have been created over each of the homework assignments. Students are expected to have completed the assignment before taking the quiz and can take the quiz two times with the higher score being recorded. The instructor checks the submitted files for a pattern of problems and addresses widespread problems in an email to all students. Individual students receive emails to address particular problems observed in the submitted files.

Discussion boards are not used in the course. In the past, threaded discussions were attempted hoping students would discuss with each other problems and solutions they had found. However students did not use the tool and it has been discontinued.

PURPOSE OF THE STUDY

Because so many online students drop the course and retake it in a traditional on-campus course, a study was started to determine if factors exist to predict if students will be successful in the online version of this skill-based course. Because the university does not require any self-assessment before enrolling in online courses, there is no institutional data as to who is successful in online courses. And because most online courses are in upper level courses, no institutional attention has been given to online course retention at the freshman level.

Our first hypothesis is that students who did not take advantage of the online demonstrations do not do as well in the course. Our second hypothesis is that students with a high level of self-efficacy will have a better outcome in the course than those who do not. Our third hypothesis is that those with a strong internal locus-of-control, compared to those with a strong external locus-of-control, will do better in the course.

METHOD

Procedure

Students in the Fall 2006 online version of the course were surveyed. The survey included four main sections: self-efficacy (an adapted version of Bandura's (1977) concept), multidimensional locus-of-control (an adapted version of Rotter's (1966) original construct and of Wallston's (1978) adaptation for multidimensionality), course tool use and demographic data. The survey was approved by the university human subjects committee and was administered using the university's online survey tool. Students were given fifteen points to encourage participation. Students could skip any question on the survey. Because of the lateness of starting the study and time required to obtain human subjects approval, the survey was not administered until after the last day to drop classes. Students who had already dropped the class were emailed and encouraged to take the survey, however only one such student completed the survey.

Participants

Twenty-one of the 45 undergraduate students originally enrolled in the course completed the survey with an average age of 25.9 (SD=8.7) and consisted of a primarily white/Caucasian sample (88%).

Analysis Plan

We will run an exploratory multiple linear regressions predicting final grade in the online course that includes all variables in the dataset using the forward method. We will also run a multiple linear regression for the variables that objectify the web demonstrations with voice forced into the model. Variables that are in the final model, those that are significant, will be considered for future analyses.

RESULTS

We conducted an exploratory multiple linear regression predicting final grade in the online course that included all variables in the dataset using the forward method and the final model was significant $F(3,17) = 24.30$, $p < .001$. Individual predictors that were significant were BE&O grade ($\beta = -.529$, $p < .001$), self-efficacy ($\beta = .389$, $p = .003$), and number of assignments completed ($\beta = .364$, $p = .004$).

We conducted a second multiple linear regression predicting final grade that included BE&O grade, web demonstrations, and number of assignments completed and the model was significant $F(3,18) = 8.66$, $p = .001$. Individual predictors that were significant were BE&O grade ($\beta = -.580$, $p = .002$) and web demonstrations ($\beta = .316$, $p = .054$).

DISCUSSION

Success in the prerequisite course was the highest predictor of success, followed by self-efficacy, and number of assignments completed. Because the course is a computer skills and literacy course, possibly the prerequisite course grade is a better predictor of success than overall GPA. Possibly this applies even more in this course because the prerequisite course required the students to use Blackboard and portions of Microsoft Office. In addition, those that were confident in their abilities (self-efficacy) to do several tasks that were required for the course did better in the course. Dupin-Bryant (2004) found that students who have adequate computer training in relevant computer technologies are more likely to complete the online course because the technology will not impede the process. The level of activity in the course by the individual also seemed to play a significant role, which can be inferred from the number of assignments completed and the number of times a web demonstrations was used (which was found significant when using the enter method and self-efficacy was removed).

Our primary hypothesis that students who did not use the online demonstrations would do worse in the course was confirmed, with exceptions. Our secondary hypothesis that self-efficacy would predict course outcome was confirmed. Our tertiary hypothesis that different levels of locus of control would predict course outcome was not confirmed.

IMPLICATIONS AND LIMITATIONS FOR FURTHER STUDY

Because this study was started late in the semester, most of the students who dropped the course did not complete the survey and most who stayed in the course but failed it also did not complete the survey. In future semesters, the survey will be offered early in the semester when most students are still participating in the course. A possible result of the study could be that only students with a specific grade in the prerequisite class are eligible for enrolling in the online section. Another outcome could be that the university would require an assessment before students are allowed to enroll in online courses, especially the students at freshman and sophomore level courses. A limitation of the study is reaching students who have dropped the course because they have no incentive to complete the survey. The still-enrolled students are given points for completing the survey. In the future, the survey must be done early enough for more students to want to complete the survey to obtain the extra points given for completion.

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