Professor and Student Performance in Online Versus Traditional Introductory Finance Courses

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ABSTRACT

According to a study by Gibson (1998), over 90% of colleges and universities with enrollments of over 10,000 offer distance learning. Although distance learning is ubiquitous, important issues regarding faculty and student performance remain unresolved. The results of this study show that students in the online section of introductory finance significantly under-perform students in the traditional sections of this course. The data shows that a professor earns significantly lower student evaluations in an online introductory finance course compared to the traditional finance course. This research provides important information for students, professors and administrators as they assess online courses.

Introduction

Distance learning is an expanding market segment in higher education. A 1999 AACSB sponsored study by Britt and Frand of 232 business schools in 11 countries, found 39% of surveyed business schools offer distance-learning programs. The data also indicate full-time faculty are deeply involved in these programs: 84% of respondent schools indicated full-time faculty have some level of responsibility for curriculum development and recruitment and 66% indicated faculty are involved in program supervision and governance. The authors report that in 63% of the responding institutions, full-time faculty taught all offerings of distance learning courses. Gibson (1998), in a broader study of universities and colleges, found that over 90% of those institutions with over 10,000 students currently provide some form of distance education offerings: as do over 85% of institutions with 3,000 to 10,000 students. Of the 14.3 million students enrolled in higher education, over 750,000 students were enrolled in distance education courses.

One reason these numbers are so large is because distance education has come to embody an extremely wide array of activities and delivery mechanisms. The recent AACSB Distance Learning Taskforce Report (1999) defines distance learning as any learning system where teaching behaviors are separated from learning behaviors. This definition encompasses any synchronous or asynchronous learning interaction that is free from traditional spatial and/or temporal boundaries.

The purpose of this study is to examine the relative performance of students and professors in online versus traditional courses.[2] The relative performance of students and faculty in online courses versus traditional courses has widespread implications for University administrators, faculty and students.

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[2] An online course is taught entirely over the Internet.

Literature Review

Proponents of online courses maintain that distance learners retain information better than students in traditional courses. There have been several studies in various disciplines that find that students in distance courses perform as well as, or better than, students in conventional classroom settings (Dillon, 1989; Johnson and Silvernail, 1990, 1991; Dominguez and Ridley 1999). These studies also note some factors which faculty cites as positive aspects of distance education programs: access for under-served populations, opportunities for professional development, and research/publication potential were all mentioned.

There have been several studies that focus on specific business courses. Pirrong and Latthen (1990) find that students enrolled in an interactive television section of financial accounting did not under perform students in traditional sections of this course. Seay and Milkman (1994) found comparable results for students enrolled in cost accounting courses.

Critics of online course argue that distance education does not offer the same rigor and quality as traditional courses, Lezberg (1998). There are several empirical studies that support this position. Shum and Chan (2000) examine the effectiveness of an interactive television course in principles of finance. The author's model controls for GPA, age, sex major, quantitative skill, and academic standing. After controlling for these variables they find that students in the interactive television course significantly under-perform students in the traditional course.

Terry, Owens and Macy (2001) examine student performance in online versus traditional courses. The authors find that students enrolled in the macroeconomics MBA course at West Texas A&M University received an eight percent lower score on the final exam in the online versus traditional course. The authors also find that students in the MBA corporate finance course at the same institution received an eighteen-percent lower score on the final exam compared to students enrolled in the traditional course. The results are tempered because the study examines only one semester of a graduate course at West Texas A&M University. The authors state that additional studies must be performed in finance and economics to make the conclusions more robust. In this study, we provide additional evidence about student performance in an undergraduate introductory finance course

Many professors have been slow to embrace online courses due to concerns about quality, workload and evaluation. Wilson (1998) maintains relative to traditional face-to-face courses, distance education offerings require four to eight times the amount of faculty time and cost three to four times as much. Hedberg and Alexander (1994) found the efforts needed to develop classroom-useable multi-media technologies equal that of traditional research, yet the status of the former is viewed as significantly lower by faculty. In spite of the faculty concerns, a nationwide survey of finance faculty indicates that 67% of finance faculty would be willing to teach an online course in the future, Farinella, Hobbs and Weeks (2000).

There is an extensive literature that indicates that distance courses change the role of faculty. In a distance course a faculty member often becomes a facilitator who is on the sideline rather than in the center of instruction. The faculty member must monitor and evaluate the work of learners instead of being the source of authority and knowledge. The instructor is not only the facilitator but also the instructional designer, subject-matter expert, and course manager. The role of the teacher is transformed in a distance course (Beaudoin 1999). An article in the Chronicle of Higher Education claims that online teaching redefines faculty members' schedules, duties, and relationship with students (Young 2002).

Surprisingly, in spite of the fact that there is a long literature that points to differences in faculty roles in online and traditional courses; many institutions still rely on traditional faculty evaluation mechanisms in online courses. Park University of Parkville, Missouri, has 45,000 enrollments and is second to the University of Phoenix for online enrollments according to U.S. News & World Report. Park University has developed a new faculty evaluation system for online courses. The system consisted of faculty mentors reviewing the distance course throughout the semester. Professors are evaluated on their ability to set up the course, additions to the basic course shell, feedback to students and responsiveness to suggestions, (Mandernach 2006).

Popovich and Neel (2005) surveyed deans at AACSB schools on sixteen factors relating to distance education programs offered at their institutions. Unfortunately, none of the sixteen factors related to the performance of faculty in distance versus traditional courses. In fact, in their conclusion the authors note

that more studies are needed in this area. To date, the existing literature does not examine faculty performance in online versus traditional finance courses. This issue remains unresolved and is directly tested in this study.

Methodology

The first question addressed in this study is if students in online courses perform as well as students in traditional courses. To analyze this question data is collected from an online and a traditional introductory finance course at the University of North Carolina at Wilmington (UNCW). To control for variations in professor quality, the same professor taught one online course and one traditional course in the Spring 2001 and Fall 2001 semesters. The sample consists of four courses, two online courses and two traditional courses.

Davisson and Bonello (1976) specify a production function for learning where the inputs are human capital (GPA), utilization rate (study time) and technology (lectures, classroom demonstrations). Becker (1983) shows that this production function reduces to the following estimated equation:

$$Score = \beta_0 + \beta_1\ Ability + \beta_2\ Net + \beta_3\ Age + \beta_4\ Effort + \mu \qquad (1)$$

The *Score* represents the grade on the final exam for the course. Each semester the students in the online course and the traditional course take the same final exam on campus. *Ability* is a control variable that represents the GPA of the student. The GPA is a 4 point scale and represents the students most recent GPA. *Net* is a dummy variable defined as 1 for an online course and 0 for a traditional course. The *Net* variable is the variable of interest in this model. This variable will provide information about the relative performance of students in online versus traditional courses. *Age* represents the age of the student. The existing literature suggests that distance education is more suited for more mature and self-motivated students, Okula (1999). *Effort* represents the class participation grade given to each student. In a traditional course the *Effort* grade reflects class comments and homework. In an online course the *Effort* grade reflects comments posted on the bulletin board and homework. An ordinary least squares regression is performed to estimate equation (1).

The second issue examined in this study is if faculty performance is the same in online versus traditional courses. The data used to measure faculty performance is student evaluations of the professor. The University of North Carolina system requires each student to fill out a student perception of teaching (spots) at the end of each semester. The questions from the spots are provided in the appendix. For each question the student can circle poor, below average, average, above average, and excellent. In the analysis, the variable poor = 1, *below* average = 2, average = 3, above average = 4 and excellent = 5.

The mean response for each of the six courses will be calculated and a nonparametric Wilcoxon test will be performed since the data does not follow a random distribution. A prior, the mean response from the online course is expected to be significantly lower than traditional courses. This reflects anecdotal evidence that many students do not enjoy, or learn as much in online versus traditional course.

Empirical Results

The results are presented in Tables 1 – 3. Table 1 contains descriptive statistics of the date. Panel A and B show the results for students enrolled in traditional and online introductory finance courses, respectively. The mean score on the final exam for students in the traditional course is 64.26 compared to a 46.97 score for students in the online course. The cumulative GPA of students in the traditional course is 2.73 compared to a 2.92 for students enrolled in the online course. The age of students in the traditional course was 23.17 years compared to 25.58 years. This is consistent with the notion that older students tend to enroll in online courses. The mean class participation grade for students in the traditional course was 104.2 compared to a 95.27 for the online course.

Table 1
Descriptive Statistics

Panel A: Traditional Course (N = 103)	Mean	Standard Deviation	Minimum	Maximum
Score on Final Exam (*Score*)	64.26	13.57	27.00	*91.00*
Cumulative GPA (*Ability*)	2.73	0.49	1.10	*4.00*
Age (*Age*)	23.17	1.85	21.00	*34.00*
Panel B: Online course (N=33)				
Score on Final Exam (*Score*)	46.97	16.10	21.0	*85.0*
Cumulative GPA (*Ability*)	2.92	0.62	1.92	*3.93*
Age (*Age*)	25.58	6.58	21.0	*47.0*
Participation Grade (*Effort*)	95.27	25.29	25.0	134.0

The first issue examined is student performance in online versus traditional sections of introductory finance. Table 2 provides the results from the ordinary least squares estimation of equation (1). The *Net* variable is significant at the 1% level and has a coefficient of -21.13. This variable indicates that the average student enrolled in the online introductory finance course received a 21.13 lower score on the final exam than a student enrolled in the traditional section of the same course. The *Ability* variable was significant at the 1% level. The coefficient indicates that a 1-point change in *Ability* results in a l6-point higher final exam grade. The r-squared for the model is 50.54% and the F-value is significant at the 1% level.

Table 2
Empirical Results

Variable	Coefficients (p-values)
Intercept	42.745 (.0744)
Net	-21.127 (.0001)
Ability	16.480 (.0001)
Age	-00.340 (.2332)
Effort	00.028 (.5708)
R-squared	50.54%
F-value	34.970 (.0001)

Table 3
Faculty Performance

Question Topic	Traditional Course Mean	Online Course Mean	Wilcoxon Statistic (p-value)
Workload	3.25	3.55	368 (.05)
Hours worked (week)	2.4	2.56	280 (.19)
Expectation	3.36	3.50	305 (.25)
Presentation	4.07	3.33	167 (.03)
Learning	4.00	3.00	188 (.01)
Stimulating	3.93	2.88	U8 (.01)
Organization	4.18	3.60	216 (.07)
Assignments	3.82	3.50	229 (.12)
Relevance of Assignments	4.2	4.0	227 (.21)
Feedback	4.09	2.82	137 (.01)
Concern for Students	3.93	3.70	234 (.20)
Accessibility	3.95	3.20	175 (.03)
Fairness	3.89	3.40	209 (.06)
Knowledge	4.77	4.25	136 (.01)
Enthusiasm	4.49	3.83	91.5 (.02)
Overall Rating for Course	3.91	2.80	158 (.01)
Overall Rating for Instructor	4.11	3.50	148 (.04)

The next issue examined is faculty performance in the online versus traditional section of the introductory finance course. Table 3 contains the mean responses and the Wilcoxon statistic for the traditional and online course. This information is provided for each of the 17 relevant questions from the spots, the complete questions are listed in the appendix. The first three questions provide information about the workload in the course. On average students believe the workload is significantly higher in the online course.

The last fourteen questions examine issues directly related to faculty performance. In general students perceive the instructor as being superior in the traditional course compared to the online course. In regards to: presentation, learning, stimulating, feedback, accessibility fairness, instructor knowledge, instructor enthusiasm, overall rating of course and overall rating of the instructor students in the traditional course rated the professor significantly higher than their online counterparts. The last question addressing the

overall rating of the instructor is often the most important evaluation criteria at the University of North Carolina Wilmington. Often a professor's merit salary increases, and promotion and tenure decision hinge on this question. The professor received a 4.11 in the traditional course that would place him in the top 50% of the department. In the online course the professor received a 3.5 that would place him in the bottom 10% of the department. This response is not only statistically different but also usually economically different

for the professor. A professor's student evaluations are a significant part of the review process and lower evaluations in online courses could impact a professor's salary. The results of this study support the notion that alternative faculty evaluation techniques such as the one used at Park University of Parkville, Missouri may be needed for online courses.

Conclusions

A primary finding in this study is that students enrolled in the introductory online finance course earn an average of 21 points less on the final exam relative to students in the traditional introductory finance course. This evidence is in direct contrast to similar studies that evaluate accounting courses and courses in other disciplines. However, these results support other studies in finance that show students in online MBA finance courses perform significantly worse than students in traditional finance courses. It appears that the performance of students in online courses varies across disciplines and finance is not a fruitful venue for online courses.

The second issue examined in the paper concerns faculty performance in online versus traditional sections of introductory finance. The results indicate that a professor who teaches an online section of introductory finance can expect to earn significantly lower student evaluations relative to a traditional section. This is particularly important to recognize since many Universities base salary, promotion and tenure decisions partly on student evaluations.

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Appendix

The following is a summary of the survey that was used to gather information regarding Professor performance. At the end of each semester students answer the following questions. Students can select from the following likert scale for each question: (Question number 3 has a different scale)

Poor,   Below Average,   Average,   Above average,   Excellent   Cannot Rate

1) **Workload.** Work required for the course was:

2) **Expectation** (re: level of performance). Instructor's expectations for this course were:

3) **Workload**: How many hours per week did you devote to this course outside of class?
    0-2   3-5   6-8   9-11   12 or more

4) **Presentation**. Presentation of material was:

5) **Learning**. Course as a learning experience was:

6) **Stimulating**. Instructor's ability to stimulate interest in the subject was:

7) **Organization**. The organization of the course was:

8) **Assignments**. Instructor's explanations of assignments were:

9) **Relevance of assignments**. Relevance of assignments to course was:

10) **Feedback.** Feedback on assignments from the instructor was:

11) **Concern for students.** Instructor's concern for students was:

12) **Accessibility.** Accessibility of the instructor was:

13) **Fairness.** Fairness of grading policies was:

14) **Knowledge.** Instructor's knowledge was:

15) **Enthusiasm.** Instructor's enthusiasm for the subject was:

16) **Overall rating of the course.** Rate this course compared to all of your other University courses:

17**) Overall rating of instructor.** Rate this instructor compared to all your University instructors: