

ARE ONLINE COURSES CANNIBALIZING STUDENTS FROM EXISTING COURSES?

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ABSTRACT

One of the reasons most often cited for the increasing number and popularity of online courses is the format's ability to provide access to students who cannot attend conventionally delivered face-to-face courses. Are these underserved students in fact the ones enrolling in online courses? Or are online course enrollees the same students who would otherwise be taking face-to-face courses? This analysis uses student registration information from six different online courses at two campuses of a Midwestern university to investigate how students taking online courses compare to the entire student population. In particular, this study addresses whether or not students take online courses to eliminate significant commuting time when they are located long distances from campus.

KEYWORDS

Student Demographics, Online Comparison, Student Location, Distance Learning

I. INTRODUCTION

As of February 2005, about 70% of all U.S. households have home internet access. The internet penetration rate has increased by 110.7% from 2000 to 2005 [1]. Mirroring the dramatic growth in the overall usage of the internet, similar growth has occurred in the number of online courses and the number of students enrolled in such courses in the United States. From 1998 to 2001, enrollment in distance education courses increased by over 100%, and the number of courses offered increased by more than 200% [2, 3, 4]. In the fall of 2003, nearly two million students took at least one online course, and over 90% of all public higher education institutions offered online courses [5].

A number of studies have investigated student data from online courses. Many of these studies have looked at student satisfaction and dropout rates. Researchers have found that students in online courses are equally satisfied and learn as effectively as students in face-to-face courses [6, 7, 8, 9]. The research concerning the dropout rates of students taking online courses has been mixed. A number of investigators have found that online courses tend to have higher dropout rates than face-to-face courses [9, 10, 11]. But retention rates are difficult to measure, and others have found the opposite result or have suggested that the comparison is not appropriate [12, 13].

Many researchers cite the advantages of online courses [14, 15]. A commonly mentioned advantage is the provision of access to students who either require the flexibility to take courses on irregular schedules or live a significant distance from campus. These courses are particularly appealing to working professionals, single parents, or those whose jobs require travel. Specifically, researchers have found that students choose to take online courses due to their flexibility [16, 17] and because of work or family responsibilities [18, 19]. Students taking online courses are more likely to be women [18, 19, 20, 21], older than other students [18, 19], and taking courses part-time and/or working full-time [21].

Although commuting time is often mentioned as a reason why students take online courses, little research provides evidence to support this supposition. In fact, Bocchi, Eastman, and Swift [17], in a survey of online MBA students, expected to find that the distance to campus from work or home would be an important reason for a student's enrollment. However, students reported that they were more likely to choose the online format for family reasons and greater flexibility with work schedules. The geographic distance to campus from work or home was found not to be relevant to the student's enrollment decision. This study focuses on this issue by analyzing directly the commuting time that online students have when traveling to campus. An analysis of registrar data is also performed in order to determine if the online students are similar or different in other characteristics when compared to the typical student profile. If the online students are significantly different from the typical student, and especially if they face long commutes, then it is unlikely that the online courses are cannibalizing students from the existing face-to-face courses.

II. BACKGROUND INFORMATION

This study uses the registration data of students who have taken six different online courses during the spring quarter of 2004 at Wright State University. Wright State University is a public university located in Dayton, Ohio, with an enrollment of approximately 16,700 students. Wright State University has one branch campus, the Lake Campus, located ninety miles north of the main campus with an enrollment of approximately 1,000 students.

As has occurred nationwide, at Wright State University the number of online courses and the number of students enrolled in those courses have grown rapidly. Over the past four years, the number of web courses offered has on average increased 84% annually. Only recently has this rate of growth started to level off.

During the fall quarter of 2004, approximately 60 courses were taught completely online. The sample used in this study consisted of six of these courses selected from different disciplines and colleges in order to be representative of the university's wide variety of online offerings. Two of the six were graduate level courses, and five of the six were taught by faculty located on the main campus. Students can take the online courses from either campus but typically take courses from the campus nearest to their homes. Four students, however, lived closest to the Dayton Campus but took the course offered by a faculty member from the Lake Campus, and fifteen students located nearer to the Lake Campus took courses taught by faculty teaching on the Dayton Campus. A total of 94 students enrolled in these six courses. Table 1 contains a summary of information about the courses used in this study.

Course	Campus Taught From	Course Level	Total Number of Students	Students on Other Campus
Macroeconomics EC205	Lake	Undergraduate	15	4
Administration and Supervision of Educational Technology EDT895	Dayton	Graduate	13	2
Modern Europe HIS103	Dayton	Undergraduate	27	8
Introduction To Nursing Informatics NUR210	Dayton	Undergraduate	10	0
Vocational Evaluation and Job Placement Techniques	Dayton	Graduate	12	0

undergraduates in this survey had a cumulative GPA of 3.45. For these online courses, the average grade was a 3.43. So the students received virtually the same grade from this online course as they had received in all courses they had taken up to and including this one. This relationship also holds true when the students are separated by class level (Table 3). This result is consistent with Wojciechowski [21], who found that older students and students with higher overall GPAs performed significantly better in online courses. For the graduate students, the average GPA across the university is not available. As was the case for the undergraduates, the cumulative GPA for the graduate students in this sample was 3.60, which is reasonably close to the average grade of 3.44 that they received in the online courses.

University Wide				Online Students		
Hours Taken	Status	Percent of All Students	Cumulative GPA	Percent of Students in Sample	Cumulative GPA	Average Course Grade
0-44	Freshman	33.9%	2.3	7.2%	3.33	3.20
45-89	Sophomore	19.4%	2.81	18.8%	3.53	3.31
90-134	Junior	18.8%	2.86	31.9%	3.21	3.27
135+	Senior	28.0%	2.99	42.0%	3.63	3.66
All			2.91		3.45	3.43
	Graduate	26.5%		26.6%	3.60	3.44

Table 3: Grade Comparison

IV. COMMUTING TIME

The online students tended to live farther from campus; they were less likely to live on campus; and they tended to take only online courses. For the sample, the average distance from the student’s address to the nearer campus was 39 miles. The average commuting time to campus was 48 minutes. Within the sample, 29 students, or 31%, were taking only online courses. The majority of these students were taking only one course, but eleven students were taking two online courses and three students were taking three online courses. Not surprisingly, the commuting time would have been significantly longer for these students. Thirty-eight percent of these students would have had a commuting time of over an hour in each direction.

Sixty-eight percent of all the students attending the university live within ten miles of campus. For the online sample, only 41% lived within ten miles of campus (Table 4). Seven students taking online classes lived on campus and therefore were assigned a zero for no commuting time. These seven students represent 7.4% of the total sample of online students. For the university as a whole, 16.7% of students live on campus.

	Percentage Located Within 10 Miles of Campus	Percentage Located On Campus
Online Students (n = 94)	41%	16.7%
University Wide (n = 16,700)	68%	7.4%
Chi-Square Test of Independence	$X^2 > 25$ $p = 0.00$	$X^2 = 5.83$ $p = 0.02$

Table 4: Summary Comparison of Student Location

It is entirely possible that online students living within ten miles of campus could have taken the courses on campus. The other reported demographic data, however, suggests that these students differ in many ways compared to the typical student. Are they taking these courses only because the courses are available online? Given this data there is no way to be certain; it could be just a coincidence that the students who enroll in online courses are significantly different than the typical students. For the 31% of the online students who were taking only online courses and therefore avoided significant commutes, the argument against student cannibalization is stronger. It is likely that at least some of these students, who differ in many significant ways from the average student and live a significant distance from campus, would not have taken the courses if they were not available online.

V. CONCLUSION

This analysis focuses on commuting time as a reason for students taking online courses and compares online students to the average student at Wright State University. There are, however, some significant limitations to this study. When making the demographic comparisons, the online students were included in all the university student population averages. Since only a small fraction of the total student body took courses online, the differences reported in this study would have been slightly larger if the online students were compared to the non-online students. More important, this investigation looked at one particular institution at one point in time. A more comprehensive study would include many different types of institutions across the country over a significant time period. Additionally, only the distance between the student's home and the institution is considered. The distance between the student's work location and the institution is also important when considering if the commuting time is a significant reason for taking the course online. Information concerning course dropout rates, students' technological experiences, and student course evaluations were also not investigated here but are important when comparing online students with face-to-face students. This data was unavailable.

Given these limitations, this study does provide evidence to support the argument that students taking online courses differ in many significant ways from the average student. Online students are more likely to be female and older and are less likely to live on campus. They live significantly further from campus and are more likely to be part-time students who often take only online courses. The online students have higher cumulative grade point averages than the typical student, and they receive grades in the online courses that are similar to their cumulative grade point averages. These courses appear to be reaching out to non-traditional but academically strong students that are unable or unwilling to take face-to-face courses due to long commuting times. Although attempting to determine why students take online courses is a complex issue, the results from this study indicate that it is less likely that online courses are cannibalizing a significant number of students taking face-to-face courses.

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VII. ABOUT THE AUTHOR

Joseph K. Cavanaugh is an associate professor of economics at Wright State University, Lake Campus. His research interests are in distance education and economic education. He has presented work in these areas at numerous state, regional, and national conferences. In 1990 he completed an M.A. in Economics from Miami University, Ohio, and in 1994 he received his Ph.D. in Economics from the University of Kentucky.