

COMPARING STUDENT LEARNING IN ONLINE AND CLASSROOM FORMATS OF THE SAME COURSE

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ABSTRACT

This study examines student learning in two formats for the same course. Students in online sections and in-class sections were given the same assignments, test, and syllabus. The results reveal that test scores for students in online classes are not different from the students in the traditional in-class course sections. The online students overall had slightly lower final course grades, which can be mostly explained by participation.

INTRODUCTION

Online courses in colleges and universities and in professional development are proliferating. One can see promotions for degrees that can be gained from totally online formats in newspapers, magazines, and television commercials. As an instructor of online classes I am often asked if my online students really learn as much as those who are in a physical classroom. The answer to that question is not an easy one since there has been a paucity of research that directly compares student learning in courses offered in the different formats. A number of studies have examined how online learning is influenced by instructor, environment and student characteristics (Aragon, 2003; Bibeau, 2001; Lally & Barrett, 1999, Muilenberg & Berge, 2001; Perreault, Waldman, & Zhao, 2002; Stodel, Thompson, & MacDonald, 2006)). A review of education literature will provide an abundance of studies related to improving online course delivery as well. Allen, Bourhis, Burrell and Mabry (2002) performed a meta-analysis comparing student satisfaction with distance education formats to traditional classroom formats and found that students prefer, by a small difference, the traditional format but that satisfaction was no different.

Neuhauser (2002) compared students in an asynchronous online section of a principles of management course to those in a traditional face-to-face (f2f) classroom. She found no significant differences in test scores or final course grades. This study replicates some characteristics of her study in that the students self-selected online or f2f section and all assignments and tests were the same in both sections. This study was conducted in a strategic management that requires teams to perform case analyses, turn in written reports of those analyses and give a presentation. There was also one test given.

The purpose of this study was to replicate Neuhauser's results in a different kind of course and to confirm that online case format courses will result in students achieving similar levels of learning to those in a traditional f2f class.

METHODOLOGY

Students enrolled in a senior capstone strategic management course over one academic year were the source of the data used. One course each term was taught in a f2f format and another section was taught online by the same professor. The same syllabus was used in both sections with the same assignments and the same test. The test format was identical for both sections as well. The only difference in the two sections was the presentation. The f2f students gave oral presentation while the online students made online presentations of their case analyses. The course grade was based on the exam grade and the case analysis (3) grades and individual participation grades. The case analysis grades were partly based on the quality of the presentation. Both classes had traditional (those who matriculated straight from high school) and non-traditional students. Sample sizes 60 for the f2f classes and 67 for the online classes. Test scores and final grades were used to test the following hypotheses.

1. Test grades for students in the online class will not be significantly different than those of the f2f class.
2. Final course grades will not be significantly different for the two classes.

RESULTS

The mean test scores and final grades were compared using *t* tests. The mean test score for the f2f classes was 57.6 and the mean for the online classes was 57.1. These results support hypothesis 1. The means are so close they are essentially equal. Unlike Neuhauser's (2002) results, the online students in this sample performed very slightly worse on the exam. The final class grades showed slightly more difference for the two groups. The f2f classes had a final grade average of 78.33 whereas the online students' average was 76.1. This difference is almost large enough to reject hypothesis 2 with the *p* value being .07. Visual review of the data suggests the difference in the grades for the two groups is primarily due to participation grades. The author is currently exploring the lower class participation levels of online students since that is counter to anecdotal evidence from colleagues. Table one gives a summary of the results.

Table 1
T test Results

Class	Exam Average	Course Grade Average	Sample Size
Online	57.1	76.1	67
Face-to-face	57.6	78.33	61

DISCUSSION

The direct comparison of students enrolled in the two difference formats of the same course is one way to address the primary purpose of this study to find out if students enrolled in online classes learn as much as students in face-to-face classes. In this study the two samples were treated the same by the faculty member in terms of assignments, exams, and other course requirements. There is a great deal of room to examine and debate the merits of online classes when, as is frequently the case in the authors institution, the online class is held to different standards or grading schema. This study confirms what Neuhauser (2002) found in her study with the difference that in this study the online students performed slightly less well. The results here are also consistent with Allen, et. al., (2002) whose meta-analysis concluded that there is no significant difference in student performance in online and face-to-face course formats. This study provides further evidence to support the conclusion that online pedagogical methods can be as effective as a traditional classroom approach. One note that bears repeating is that Neuhauser (2002) and this author made deliberate efforts to make the courses delivered as similar as the methodologies would allow. That approach may or may not be the only one that will yield similar results.

Clearly further study is necessary that compares simultaneous course delivery with the same requirements of students. The author is continuing to collect data, including data from different courses with different pedagogical approaches that are not case focused.

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