

**COMPARING EFFECTIVENESS OF ONLINE AND TRADITIONAL  
TEACHING USING STUDENTS' FINAL GRADES**

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# **Comparing Effectiveness Of Online and Traditional Teaching Using Students' Final Grade**

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## **Abstract**

This study was conducted to examine the effectiveness of online education. Two sections of Information Management Systems (IST 483) -Real Time Captioning Technology (I) were compared. Comparison of the two sections was based on the students' final letter grades. The results of the two-tailed T-test show that there were no significant differences in the means of the final scores of both sections, concluding that there were no significant differences in the effectiveness of distance education and traditional face-to-face education. Thus, the null hypothesis was accepted; distance education was as effective as the traditional classroom education.

## **Introduction**

Higher education has been adapting distance education with the same enthusiasm as traditional education in today's educational programs. Online education has its advantages and disadvantages with the advantages being more appealing to many universities world wide many of which are offering full degree programs online. A major question that online education faces is whether online education is effective. This study was conducted to help add to the body of knowledge regarding whether online learning is effective. The approach that has been adopted in answering this question was comparing the overall students' letter grades (students' final grades are indicators of their success in that course) of two sections of a course offered at College of Applied Science and Arts (CASA) Information Management Systems (IST 483) -Real Time Captioning Technology I- offered by the department of IMS at Southern Illinois University at Carbondale (SIUC). This course has been designed to enable students to identify

concepts and terminology used with various computer programs, both operating systems and applications software. Using captioning skills, the students were able to create, format, edit, store, retrieve, and print different types of documents using computer-aided transcription software. Students were able to demonstrate advanced features of the computer-aided transcription software including real-time techniques and litigation support and were able to describe the functions of related applications software. The prerequisite for IST483 were IST 288 (Transcript Proceedings Preparation) and concurrent enrollment in IST 482 (Information Reporting Procedures).

One section was taught online using WebCT, an organizational and navigational delivery tool that includes the following capabilities: hierarchical structuring of content, connecting content to defined learning objectives, linking content to discussions, linking course content to glossary definitions, reference materials, and other related resources, reinforcing content with self-tests, and quizzes as a delivery system. The other section of IST483 was taught on campus in a classroom.

The purpose of this study was to examine the effectiveness of online education. Two sections of IST 483 were compared. Comparison of the two sections was based on the students' final letter grades. This study was based on students' final grades in the course as a measurement of the effectiveness of the course delivery system. The purpose of the comparison was to test the effectiveness of online education by reflecting on the traditional classroom education. If the students' final letter grades show no significant difference, we can assume that online education is as effective as traditional face-to-face classroom education. Students' final grades in both sections were collected, a two tailed

t-test was conducted, and a conclusion was stated based on the results of the two tailed t-test.

### **Literature Review**

Moore (2002) stated that community colleges are among the best sources of online or distance learning courses. Over 60% of community colleges offered distance-learning courses in 1998. Most often, classes are offered online and through video or cable TV viewing. According to Kennedy (2001), one-third of colleges and universities offered distance-learning courses, higher education is being forced to come to terms with intellectual property issues by updating school policies to address conflicts about online course copyrights.

Some colleges such as Fairleigh Dickinson had taken an unusual step of requiring students to take at least one course online each year. This requirement is required of all students including those who live on campus (Young, 2003). More and more two- and four-year colleges and universities have been using online teaching (Davey, 1998). Online courses offer learners supplemental courses in preparation for attending a university (Bickle & Carrol, 2003).

Faculty members in universities and colleges use computers and the Internet in traditional classrooms to efficiently perform ordinary tasks. Their concern was that of whether the technology was simple and reliable to use for more sophisticated tasks. According to Newman (2001), more and more faculties would depend on such software, and learning in all classrooms would be changed. Instructors also have to face many challenges as they begin to use new technology and means for teaching other than the traditional classroom meetings (Adam & Logan 2003; Paloff & Pratt, 1999).

Transitioning from traditional instruction to online learning can be a difficult change to make and requires making a paradigm shift (Bates, 1997). Adam and Logan (2003) argue that if instructors embrace the new changes and understand their strengths, weaknesses, and differences, this will lead to successful learning by the students.

Heiens and Hulse (1996) suggest the offering of distance learning as an alternative to more traditional on campus instructional delivery systems in order to meet the needs of a growing cadre of part time university students which has doubled from 1970 to 1991 according to Wayland and Swift (1995). Heiens and Hulse (1996) conducted a study that explored differences between distance learners and their on-campus counterparts in terms of age, gender, overall academic performance, and performance in a specific interactive course. The findings suggested that online or distance learning was more likely to favor older students, especially among the female population. There was no significant difference with respect to overall academic performance between online classes and on campus classes. This suggests that there was not any drop off in academic performance due to problems with the technology.

Pirrong and Lathen (1990) examined the use of two-way interactive television for university level business instruction. Of the sample population, 34 students were located at the originating site, and 16 students took the course across three remote locations. They examined the test scores for the fifty students and found that there were no significant differences between conventional classroom students and remote-site students. In fact, their study showed that remote-site students scored higher on exams than their on campus counterparts. Also Seay and Milkman (1994) reported that 15 remote-site students significantly outperformed 18 on-campus students on each of three exams in the course

of Principles of Cost Accounting. In addition, Arndt and Lafollette (1991) found no statistically significant difference in student performance between conventional classroom and remote-site students on the basis of average ending GPA and on the American Assembly of Collegiate Schools of Business (AACSB) and the Business Core Curriculum Assessment Exam.

### **Method**

This study was conducted with two groups that had completed IMS 483 offered by the Information Management Systems department at Southern Illinois University at Carbondale in the Fall 2003 semester. Secondary data, students' final grades of a 400-level captioning specialization university course were collected. Permission to access the students' final grades in both sections of the course was granted by the instructor of the course. After obtaining the final grades of both sections, a two tailed t-test was conducted, and the mean scores of both sections were compared.

Null Hypothesis is stated as "Is distant education as effective as traditional education?"

The main challenge in this study was obtaining additional information about the students such as their economical and educational backgrounds, genders, and age. The subjects' demographic information would have strengthened the validity of the study by accreting the similarities between the two groups and thus attributing any significant difference to the delivery method. Further information was unobtainable due to the fact that even though the course was offered during the semester prior to conducting the study, no documentation of such information was available.

### Limitations/Delimitations

The study was delimited with the small sample size of both groups. Yet, both groups were to an extent equal in size and 100% of both groups participated in the study. Students' demographic information such as their economical and educational backgrounds, age, gender, and so on was not obtainable. Examining the students' background information would have increased the validity of the comparison of the two groups by insuring the groups' similarities, and thus controlling for external variables. The final letter grade achieved as the only indicator of success in the course. Other possible indicators would be in-class and take-home assignments, quizzes, and midterm and final exams. However this information was not available as well.

### Evaluation

The final letter grades of both sections were obtained, and a two tailed T-test was conducted. Based on the data collected, two variables were identified: the dependant variable was students' final score, and the independent variable was educational delivery system.

Figure 1. T - Test

Group Statistics

GROUP	N	Mean	Std. Deviation	Std. Error Mean
GRADE distance students	3	3.8333	.28868	.16667
traditonal students	5	3.2200	.71204	.31843

Figure 2. Independent Sample Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed test)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
GRADE	Equal variance assumed	18.226	.005	1.389	6	.214	.6133	.44168	.46742	.69409
	Equal variance not assumed			1.706	5.64	.142	.6133	.35941	.27972	.50639

The results of the two tailed t-test show that there were no significant differences in the effectiveness of distance education and traditional classroom education. Therefore, the null hypothesis was accepted; distance education is as effective as traditional classroom education.



## **Summary and Recommendations**

This study addresses the effectiveness of online education. For most of the research on the effectiveness of online education, the result has been the same, online education is as affective as traditional classroom education. Some studies even conclude that online education is more effective than traditional classroom education. However this study was conducted to assess the effectiveness of online education in the IST program, Captioning specialization at SIUC. Limitations of this study include: small sample size of both groups, lack of additional information of the sample to insure similarities between the two groups, and the limitation of achievement data being only the final scores.

Online education is effective and overcomes many restrictions which particular students might have whether geographical, economical, social or personal. Further recommendations for future research are to conduct a study at the beginning of the semester the course is being delivered. More collaborative data could be collected for a better comparison, and an additional survey or test would give more insight to the overall progress of the students. Further recommendations also include treatment of prior software application knowledge, students' age and gender, and its relation to online learning as suggested by Heiens and Hulse (1996). In addition, further research could include the scores given to homework assignments and examinations in each class and whether or not assessment differs in either class.

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