

A Comparison of Learning Outcomes in Business Communications Courses Taught On-Campus, On-Line, and by Compressed Video

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ABSTRACT

The purpose of this paper is to investigate and compare the learning outcomes of teaching and delivering Business Communications courses via on-campus instruction, online instruction, and compressed video instruction. In addition, the benefits and limitations involved in the instruction (teaching as well as learning) will be discussed. The question which will be researched is whether there is a significant difference in the learning, which occurs in these three modes of delivery. The null hypothesis being tested in this study is that there is, in fact, no significant difference in learning between or among the three delivery methods. This null hypothesis will either be accepted or rejected. The methodology used in this study includes scores from written letters, scores on research papers, and oral presentation grades. The data collected represents classes taught in the spring semester of 2004. When comparing scores, only the students who actually completed all three segments were used as subjects. A review of the literature will be used to support or contradict the hypothesis. It will examine other similar studies and will promote ideas for recommendations and future studies related to this topic and the various delivery methods. Several issues will be discussed. Are the three methods of delivery measuring the same skills equally? How can it be measured? Are the comparisons objective or subjective? How can the assessment instruments used be made more uniform for the three delivery methods? The results of this paper will hopefully help us in the upcoming revision of this course.

INTRODUCTION

Technological advances have changed the way many organizations, including academic institutions, are currently operating. One cannot assume that a college student will be required to sit in a traditional, on-campus classroom 3 hours per week for every 3-hour course as they did years ago. Due to the “age of technology,” one can now expect that a student will have the opportunity to choose distance learning classes, such as on-line courses or compressed video (CV) classes. The compressed video (CV) class in this paper represents a face-to-face media-readied classroom on our main campus and remote classrooms simultaneously receiving course instruction at two branch campuses (similar to interactive television). These new instructional delivery systems, however, create a challenge to educators in determining whether students participating in distance learning education are learning as much as those participating in the traditional, on-campus classroom. This study is an attempt to measure learning among these three delivery methods.

While the researchers of this study were instrumental in developing several online and compressed video university courses, many challenges still exist which lead to questions about the learning outcomes university students experience. Do online and CV students learn just as much as on-campus students? What about a course such as Business Communications, where an oral presentation is required? What are the limitations?

This study compares the learning in a traditional on-campus class to an online class and to a compressed video class at three locations.

The course in question is a 2000 level “Business Communications” class, and each of the sections were taught during the spring 2004 semester.

Two traditional Business Communications classes were taught during the day-time hours on campus by the same instructor. The only technology used for the class consisted of a Web site syllabus, Internet assignments, and some homework turned in using e-mail. In addition, some students used Powerpoint slides to enhance their oral presentations.

The online section of this course was taught by the same instructor. The class was completely online using the eCollege course platform. Interactivity was achieved by threaded discussions. Some exams were taken online and some were proctored. A time limit was given to each exam and students were restricted to the time limit. The oral presentations were videotaped by the students and then mailed to the instructor, who viewed and graded them. In this instructional mode, the student used a computer (usually from home) to access a range of services. These include online registration, dissemination of course materials, access to online materials, and communication with instructors and other students via e-mail. Classes and discussion groups were conducted online and assignments emailed to the instructor or sent to a “Dropbox” for a particular unit.

A second instructor taught the compressed video class, which was offered during the evening hours at three locations including the main campus. The instructor taught classes from each location at least one time. Additional technology consisted of a Web site syllabus, Powerpoint presentations, and homework submitted and

returned by e-mail. A facilitator at each site proctored exams, and the instructor was not present. This interactive videoconferencing mode provides the opportunity for an instructor to teach a class in a classroom-type setting, while concurrently instructing two different groups of students in two other locations (branch campuses). This instructional method allows for live interaction and enables questions from all sites.

Since the SAT exams now include a written component, the researcher chose to study the learning outcomes using written and oral samples of graded work (a letter, a research paper, and an oral presentation).

REVIEW OF THE LITERATURE

Review of the literature provides an overview of the current research related to different methods of delivery of college courses. The emphasis is on distance education. The past decade has seen what could be called a revolution in education, particularly in the new methods of classroom delivery. Online courses (and even degree programs completely online) are becoming increasingly popular. Students are excited about the convenience and about not having to come to campus; however, some lack the necessary discipline and end up dropping a particular online class.

The institution where this study was done has been delivering courses and degrees by distance education for nearly a decade. Courses are being delivered as traditional on-campus courses, as compressed video courses, and as online courses. In fact, approximately 40 percent of our students are enrolled in at least one class that is either online or compressed video. In addition, since this institution is extremely involved in distance education, it is essential that program assessments include the distance learning activities, as well as the on-campus activities. Since assessment is so crucial in educational institutions today, it becomes important to find methods to measure the outcomes of the same courses taught using the different delivery systems and using the same evaluation instruments. The main research question is whether or not a significant difference in learning exists among the three delivery modes employed in this study. This question seems to be of great interest, according to a review of literature; however, there appears to be no universal agreement on the answer. Most of the studies reviewed compared two mediums of delivery, while the study being reported in this paper compares three: on-campus, on-line, and compressed video.

A few studies have already been done comparing these three methods of delivery on a university campus. However, this unique study focuses on Business Communications as a university-required course in the Business Administration Bachelor's and Associate's degree programs. At this time, it is limited to data collected on the written and oral components of a good news letter, a research paper, and an oral presentation.

Existing literature comparing differences in learning outcomes in distance education and traditional classroom instruction is quite extensive. Since it is well beyond the scope of this study to complete an exhaustive literature review, the researchers decided that a representative review of other researchers' findings would be sufficient.

The past decade has been witness to what could be seen as a revolution in education, particularly in the new methods of classroom delivery such as online teaching and compressed video instruction. For example, in an introductory to psychology course two studies were done to compare student attrition, student performance, and student evaluation in classroom sections and

online sections (Waschull, 2001). No significant difference was found in the performance of the students in this course, but the online students tended to score slightly lower on exams and were more likely to fail. These online students also evaluated the course similarly to the on-campus students, and there was no significant difference in attrition.

In another study, an introductory psychology course (Bacon and Jakovich, 2001) was taught on instructional television and was also offered in a traditional classroom setting. Three groups of undergraduates were compared: one group received traditional classroom instruction, one group received instruction through instruction television (ITV), and one group received televised broadcasts in a remote classroom on campus. The instructional formats all resulted in similar outcomes in performance and no statistical difference was found among the three instructional formats.

As more and more students enroll in online classes, the questions of quality and comparability of such instruction with traditional classroom methods arise. In a study conducted at the University of Phoenix, achievement scores of online graduates were found to be 5% to 10% higher than graduates of competing on-campus programs at three Arizona public universities (Gubernick & Ebeling, 1999). Likewise, the University of Michigan concluded that computer-based instruction yielded higher average scores than traditional instruction (Vasarhelyi & Graham, 1997).

Along these same lines, Schulman and Sims (1999) looked at pre- and post-test scores of students enrolled in online and on-campus versions of the same class taught by the same instructors. Their study found no significant differences, which demonstrated that the learning of online students is equal to the learning of traditional on-campus students for the sample studied. In addition, it was found that the online students scored higher on pretests than did the on-campus students. This seemed to indicate that the students who select online courses may be better prepared for the course material than the students who select on-campus courses.

In a study to define distance education (Matthews, 1999), the many advantages of distance education were discussed. Some of those mentioned included increased access to higher education, flexible scheduling of time devoted to coursework, individualized attention by the instructor, less travel, and time to reflect on questions that may be asked by the instructor or posted in the threaded discussions.

Another study was done to determine the learning outcomes between live instruction and interactive television in a research course (Petrocchi and Patchner, 2001). Performance of the students was evaluated. The conclusion was that no significant difference was found in the students' performance when comparing the two groups. In addition, ITV was found to be a viable technological option for research courses.

Research on learning outcomes has been done in many disciplines, especially when comparing various delivery methods. One in particular studied the effects of the traditional classroom and distance continuing education (Umble, Cervero, and Yang, 2000). This study evaluated the effects of training between classroom and broadcast courses related to polio vaccination. No significant difference was found between the knowledge of those health workers who took courses in a traditional, on-campus course and those who took them by broadcast medium. The findings thus supported the incorporation of distance education in national public health training.

In a recent study (Tollison and Garrison, 2004), researchers compared learning among a traditional campus class, a compressed

video interactive class at three locations, and an online class. The course in question was a “Fundamentals of Supervision” class. After all of the students were evaluated, no significant difference was found in the performance of the students, and the null hypotheses failed to be rejected. However, one of the limitations of this particular study was that the measuring instruments were objective tests only. The current study will endeavor to remedy this limitation with the use of written criteria.

Still another study was done in an introductory psychology course (Poirier and Feldman, 2004), where the effectiveness of online instruction was tested when compared to large, traditional on-campus instruction. Students were randomly assigned from a group who had indicated that either instructional format was acceptable. Poirier and Feldman found that online students performed better on tests and equally well on written assignments. In addition, online students expressed greater satisfaction with the course than those students on campus. The results clearly support the concept that online distance learning courses are at least as effective as the traditional courses.

Many more articles which have investigated the performance differences of traditional classroom and distance learning students could be cited in this paper; however, for the sake of brevity, they will be discussed in future studies. The majority of studies find no significant difference when comparing the traditional on-campus classroom to distance education courses. If these differences do not exist, one might ask why investigators continue to do research related to the various methods of delivery. Many reasons exist, including the need to assess the relationship among the different delivery processes. Perhaps the most compelling reason is the belief that there are experiences in the traditional on-campus classroom that cannot be duplicated by distance education.

LIMITATIONS OF THE STUDY

It is important to recognize the limitations of this study, which include the following:

- ▶ The study was conducted at a single university.
- ▶ The study was conducted for a single course, Business Communications.
- ▶ The class sizes were relatively small.
- ▶ Subjective assessment was performed by two individual instructors.
- ▶ Data was collected for only one semester.

HYPOTHESES

The null hypotheses for this study are:

1. There is no statistically significant difference in student learning among in-class students, compressed video students, and online students in business letter writing.
2. There is no statistically significant difference in student learning among in-class students, compressed video students, and online students in the writing of research papers.
3. There is no statistically significant difference in student learning among in-class students, compressed video students, and online students in oral presentation grades.

METHODOLOGY

This study used students in four sections of a Business Communications course. Two sections were traditional on-campus day classes, one section was an evening compressed video class incorporating three locations, and one class was an online class.

The two traditional on-campus classes consisted of a total of 38 students, all of whom met the criteria of completing the specific good news business letter, research paper, and oral presentation. Nineteen (19) of these students met on Monday, Wednesday, and Friday from 11 a.m. until 12 noon, while 19 met on Tuesday and Thursday from 11 a.m. until 12:15.

The compressed video (CV) class consisted of 17 students who completed all three assessment segments. The class was conducted for 1 and ½ hours, two evenings per week.

The online section consisted of 12 students who completed all three assessment segments. The eCollege course platform was used, and the instructor provided the content. Twenty-six (26) students started the course, 5 withdrew, and 9 did not complete all three assessment segments and could not be used in the study.

The same text was used for all courses. Graded exercises consisted of a good news business letter, a research paper, and an oral presentation. Directions for all segments were identical and were administered (and graded) to all subjects within a week of each other.

The mean scores, standard deviation, means squared, and level of significance were computed using SPSS version 7. Multiple Analysis of Variance tests were conducted on the data to determine if a statistical difference existed between the scores. A level of significance of alpha = .05 was established for this study.

FINDINGS

The information computed by SPSS includes the mean scores of the exams, the standard deviation, the means squared and the level of significance:

Combined Results					
		Mean	Std	Mean ²	Sig
Letter	Traditional	78.38	8.98	6,143	.000
	Compressed Video	93.06	5.46	8,660	.000
	Online	75.83	13.79	5,751	.000
Paper	Traditional	78.21	11.39	6,117	.000
	Compressed Video	80.00	12.67	6,400	.000
	Online	78.18	10.27	6,112	.000
Oral	Traditional	92.66	5.42	8,585	.000
	Compressed Video	83.12	11.13	6,909	.000
	Online	84.75	10.59	7,183	.000

Hypothesis 1				
Letter				
	Mean	Std	Mean ²	Sig
Traditional	78.38	8.98	6,143	.000
Compressed Video	93.06	5.46	8,660	.000
Online	75.83	13.79	5,751	.000

The mean score for the business letter for the traditional class was 78.38 with a standard deviation of 8.98. The mean score for the business letter for the compressed video class was 93.06 with

a standard deviation of 5.46. The mean score for the business letter for the online class was 75.83 with a standard deviation of 13.79. The mean squared for the letters were 6143.17, 8659.94, and 5750.69, respectively. The level of significance was .000; therefore, the study failed to reject the null hypothesis. There is no statistically significant difference in student learning between in-class students, compressed video students, and online students for the business letter.

**Hypothesis 2
Research Paper**

	Mean	Std	Mean ²	Sig
Traditional	78.21	11.39	6,117	.000
Compressed Video	80.00	12.67	6,400	.000
Online	78.18	10.27	6,112	.000

The mean score for the research paper for the traditional class was 78.21 with a standard deviation of 11.39. The mean score for the paper for the compressed video class was 80.0 with a standard deviation of 12.67. The mean score for the paper for the online class was 78.18 with a standard deviation of 10.27. The mean squared for the research papers were 6116.89, 6400, and 6112.4, respectively. The level of significance was .000; therefore, the study failed to reject the null hypothesis. There is no statistically significant difference in student learning between in-class students, compressed video students, and online students for the research paper.

**Hypothesis 3
Oral Presentation**

	Mean	Std	Mean ²	Sig
Trad	92.66	5.42	8,585	.000
Compressed Video	83.12	11.13	6,909	.000
Online	84.75	10.59	7,183	.000

The mean score for the oral presentation for the traditional class was 92.66 with a standard deviation of 5.42. The mean score for the oral presentation for the compressed video class was 83.12 with a standard deviation of 11.13. The mean score for the oral presentation for the online class was 84.75 with a standard deviation of 10.59. The mean squared for the oral presentations were 8585.49, 6908.54, and 7182.56, respectively. The level of significance was .000; therefore, the study failed to reject the null hypothesis. There is no statistically significant difference in student learning among in-class students, compressed video students, and online students for the oral presentation.

The investigators found an additional finding that was not a part of the original study. The number of course withdrawals for the online students seemed to be more than the other two sections.

CONCLUSIONS

There are many issues that surround the delivery of courses in a distance-learning mode. Clearly some of the concerns and issues

cannot be resolved here because they include such things as the non-informational type of learning, the interaction with other students in a classroom setting, and so on. However, the following conclusions were determined from this study:

1. Student performance is the same on written exercises regardless of media delivery.
2. Further research in this area is required that encompasses more courses, institutions, and media delivery techniques.
3. Further research is required to determine if there is a relationship between course completion and method of delivery because of the high number of withdrawals from the online course.

This study did not attempt to measure the value of teacher/student and student/student interaction. This could have an impact on the students' success after graduation.

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