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A COMPARISON OF TRADITIONAL, ONLINE AND HYBRID METHODS OF COURSE DELIVERY

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Abstract

With the availability of the Internet as a learning tool educators are faced with the challenge of whether to use this tool for course delivery and, if so, to what extent and in what manner it should be incorporated into the curriculum. This study takes an empirical look at course design and delivery factors that impact student perceptions of learning and course satisfaction. Students completed surveys addressing a variety of issues as they relate to traditional classroom courses, Internet courses and a hybrid of the two. Results of the study suggest that the use of hybrid methods of course delivery -- incorporating elements of both the traditional classroom and web-based instruction -- may provide an optimal "mix" for student learning. Implications of the results are discussed.

A Comparison of Traditional, Online and Hybrid Methods of Course Delivery

Introduction

As we enter the new millennium, educators are facing a challenge unlike any that has come before. Just as the internal combustion engine changed the world, the World Wide Web (WWW) has forever changed the way in which we teach our students at all educational levels. Despite the rapid advancement of web-based learning in today's institutions of higher education, however, it would be naive to assume that new teaching technologies available via the web will find widespread acceptance (Leidner & Jarvenpaa, 1996). Many faculty members still view the computer not as an extension of their classroom, but as a foreign object taking up desk space. Few are able to use software packages beyond their basic functions, and many still do not know how to e-mail. This philosophy of sticking with the old and proven methods of educating may obliterate some universities from the face of the educational map (http://horizon.unc.edu).

Despite the variety of teaching paradigms available to educators today, the primary goals of higher education remain the same regardless of mode of delivery of educational content (Teaching Tips, 1998). These enduring goals include creating a learning environment in which the student is comfortable yet intellectually challenged, providing current and relevant subject content in a professional manner, fostering the concept of life-long learning and leading by setting examples of high standard. The question today is how best, given the new technologies available to us, can educators accomplish these goals.

Traditional classroom. Traditional classroom teaching focuses on a number elements including lecture, case studies, team projects, and so forth. Learning is conducted in a synchronous environment, meaning that the students must be in the same place at the same time in order to learn. The traditional classroom has the major advantage of face-to-face interaction between the student and educator as well as between the students themselves. Students derive motivation from the teacher as well as from the other students. In this environment, "learning is enhanced when it is more like a team effort than a solo race. Good learning…is collaborative and social, not competitive and isolated. Working with others increases involvement in learning. Sharing ones own ideas and responding to others' reactions improves thinking and deepens understanding." (Chickering & Gamson, 1987). Particularly in small classes, the educator has the opportunity to know and motivate each student on an individual basis. It is this belief in the "human contact" element of teaching that leads many skeptics to discount the possibility that online learning can be as effective as the traditional method of information delivery (Benson, 2001).

Online classroom. Online learning environments occur in an asynchronous mode, meaning that students have the opportunity to learn independently from anywhere at any time. From a learning perspective, one advantage of this mode of educational information delivery is that students can set learning to their own pace. In addition, online modes of course delivery offer the student access to the WWW. In this environment, students can take virtual tours of organizations being studied, view streaming video clips, hear audio tapes of CEOs, and interact with people from all over the world. Furthermore, online environments transcend the need for the "real" classroom, allowing the student to operate in a virtual reality. This opens up the chance for students, who otherwise would be unable to attend a university, to gain a higher education by facilitating the busy schedules with which we are all encumbered. It also reduces university constraints due to limited classroom space and limited funding. Although not all educators see virtual classrooms as a viable option (Noble, 1998), many believe the benefits outweigh the drawbacks.

Hybrid classroom. The hybrid classroom incorporates characteristics of both the traditional and online classroom settings. Thus, learning occurs in both synchronous and asynchronous modes. In hybrid courses, it is up to the teacher to determine what aspects of the course are best suited to presentation via the various delivery modes. In the ideal, hybrid courses offer educators the best of both worlds. Online material is viewed as an extension of the classroom, and traditional lectures may be linked with virtual tours of organizations being studied. Students receive the benefit of face-to-face interaction with faculty and students while at the same time being exposed to web-based learning paradigms such as virtual real-time information, maps, pictures, streaming video and audio clips. Hybrid approaches may also extend to providing students with both "real"

office hours and "virtual" office hours, working in both face-to-face teams and virtual teams, and so forth. The key to successful hybrid classrooms is to analyze course material, determine how well existing material will translate online, creating new approaches to communicating with students, and evaluating and rebuilding the course as problems arise. Table 1 presents the pedagogical characteristics of the three modes of course delivery.

Methods

Subjects. One hundred and sixteen students enrolled in courses at a small university in the South were asked to complete a survey designed to assess their satisfaction with three modes of course delivery. These delivery modes included (a) Internet course delivery (b) traditional classroom course delivery, and (c) hybrid course delivery (a combination of traditional classroom and online learning). Approximately one-third of the students had taken an Internet course (N = 41), all of the students had experience with a traditional classroom course (N = 116), and approximately one-third had experience with hybrid course delivery (N=45).

Survey. The survey included items pertaining to demographic characteristics of the students, mode of course delivery, evaluation of instructor performance and overall satisfaction with the course. Other than demographic items, all survey items were measured using a five-point Likert-type scale, ranging from 1 (Strongly Agree) to 5 (Strongly Disagree).

Table 1
Pedagogical Characteristics of Course Delivery Modes

	Internet Course	Classroom Course	Hybrid Course
Primary Mode of Communication	Asynchronous (e-mail, threaded discussion) and synchronous (virtual classroom for entire class as well as for individual groups) online	Asynchronous (e-mail) and synchronous (face-to-face)	Combination of all modes
Course Delivery Method	Internet Only - Some use of Videotapes	Lecture Only	Combination
Percentage of Course delivered via the Internet	100%	0%	Approximately 50%

Dependent Variables. The two dependent variables used in this study were student learning and satisfaction with the course. Student learning was measured using a five-item scale with items focusing on individual performance, team performance and perceived level of knowledge gained. Factor analysis results indicated that all items loaded onto a single factor at .72 or higher. Course satisfaction was measured using a six-item scale focusing on course quality and the likelihood that the student would prefer to take another course in that specific course delivery mode in the future. All items loaded on a single factor at .76 or higher (refer to Table 2).

Independent Variables. Perceived usefulness of the course delivery mode, perceived ease of use of course materials and perceived flexibility of course format were the independent variables used in this study. Perceived usefulness was measured with a four-item scale, with all items loading on a single factor at .67 or higher. Perceived ease of use and flexibility were measured using six-item scales. Factor loadings were .71 and .64 or higher respectively (refer to Table 2).

Table 2

Dependent (D) and Independent (I) Variables (V) and Factor Loadings

Variables	**Factor Loading**
Student Learning (DV)	
I learned a great deal of factual material in this course.	.88
I gained a good understanding of the basic concepts of the material.	.98
My team learned to identify the central issues of the course.	.76
My team was able to communicate clearly about the subject.	.82
I improved my ability to integrate facts and develop generalizations from the course material.	.72
The quality of this course compared favorably to my other courses.	.89
The quality of the course was largely unaffected by the method of delivery.	.76
This course was more difficult than others I have taken at TECH.	.92
Satisfaction With the Course (DV)	
I was very satisfied with this course.	.90
I am satisfied with the amount of time required for this course.	.86
I would recommend this course to a friend.	.78
Usefulness of Delivery Mode (IV)	
The way in which course materials were delivered enhanced my learning of course material.	.83
Added flexibility to my schedule	.71

Was convenient.	.88
Enhanced team effectiveness	.67

Ease of Use of Course Materials (IV)

Materials for this course were readily available.	.76
Discussion assignments were easy to follow.	.71
Course materials were arranged efficiently.	.79
Supplemental materials for this course were easy to obtain.	.91
Testing methods were easy to use.	.89
Video presentations were easily accessed for test review.	.75

Flexibility of Course Format (IV)

Attending team meetings was easy.	.91
It was difficult to work on assignments with other students.	.72
I was able to complete much of my course work from home.	.89
In this course it was easy to communicate with people from around the world.	.81
I rarely discussed the ideas/concepts with the instructor.	.64
I actively participated in scheduled discussions	.73

Results

Descriptive Statistics. Approximately half of the students were male (53%) and half female (47%). The majority of the respondents were classified as having either junior (41%) or senior (44%) class standing. Seventy-two percent were traditional students, ranging in age from 18 to 22 years. Ninety-four percent of the respondents were Caucasian.

Means, standard deviations, and correlations are shown in Table 3. The relationship between perceived ease of use and course satisfaction resulted in a correlation of .77. A relatively strong correlation also resulted for ease of use and satisfaction with the mode of course delivery (r = .53).

Table 3

Means, Standard Deviations, and Correlations*

Variable	Mean	SD	Student Learning	Course Satis.	Course Mode	Flexibi-lity	Ease of Use	Age
Student Learning	4.28	1.33						
Course Satis.	4.35	1.49	.69					
Course Mode	4.82	1.84	.19	.23				
Flexibi-	3.99	1.30	.29	.17	.31			

lity								
Ease of Use	4.29	1.66	.08	.77	.53	.07		
Age	27.66	5.89	.09	.03	.11	.04	.00	
Gender		.34	.02	-.01	.04	.00	.02	.03

* Correlations above .16 are significant at p<.05

Results of regression analyses using course satisfaction and student learning are presented in Table 4. Findings indicate that course delivery mode was significantly related to perceived learning. Course delivery mode, usefulness, ease of use and flexibility were significantly related to course satisfaction.

T-test comparing the modes of course delivery on the dependent and independent variables indicated that significant differences exist on a number of variables. Specifically, the hybrid method of course delivery had significantly higher values for usefulness (t=2.74, p<.05), flexibility (t=3.86, p<.01), perceived student learning t=3.31, p<.05 and perceived course satisfaction (t=4.51, p<.01) than did either of the other two modes of delivery.

Table 4

Regression Analyses: Student Learning and Course Satisfaction

Variable	Student Learning	Course Satisfaction
Age	.00	.01
Gender	.08	-.03
Course Mode	.11	.49**
Usefulness	-.06	.41**
Ease of Use	.02	.31**
Flexibility	.29**	.64***
F	53.91***	8.89***
Df	9,573	9,573
R-Squared, adj.	.36	.09
Change	.31***	.17***

** p<.05
*** p<.01

Discussion

Of note in this study is the finding that the independent variables were all predictors of student perceptions of course satisfaction, and that flexibility of course design was strongly related to student reports of perceived learning. In addition, the hybrid method of course delivery, in which both in-class and Internet approaches to learning were used, was highly related to student learning. This suggests that students enrolled in hybrid courses perceived the combination of classroom and Internet course delivery modes to be superior to either Internet- or classroom-alone modes. While these findings are not causal, they do suggest that variation in course design, delivery of course materials, availability of Internet resources, and so forth do impact on student learning and overall satisfaction with the course. As such, these findings present some interesting implications for educators struggling with issues of course design and delivery.

With the availability of the Internet as a learning tool, teachers are faced with the challenge of whether to use this tool in course delivery and, if so, to what extent and in what manner it should be incorporated into the curriculum. The idea of teaching a group of students without the ability to hear and see them may be overwhelming for some. The inability to use raised hands and quizzical looks as barometers of student understanding definitely poses a challenge. Yet, proponents of online learning argue that such disadvantages can be overcome by the advantages of electronic formats (Lant, Net.Learning, www.pbs.org/netlearning/home.html). Learning via the Internet allows students time to compose their ideas, which may result in a higher quality of discussion than could be attained in a traditional classroom setting. Furthermore, students who would be reticent to contribute in a face-to-face setting are just as -- or more -- likely to participate in an online discourse as are the most gregarious of students. This belief is echoed by Harasim, et. al. (1995) who indicates that educators with years of teaching experience report that computer networking enhances high quality interaction and sharing that is at the heart of education, and that the characteristics of online courses often lead to superior student contributions as compared to what educators have come to expect in face-to-face situations. Such enhancement, however, is contingent upon skillful facilitation of networking activities. In this sense it is imperative that the teacher compensates for the lack of physical cues found in the traditional classroom setting, monitors students to ensure that all are participating and understanding the material to be learned, and communicates about online communication by performing such functions as remedying problems associated with the online communication mode and summarizing discussion occurring in an asynchronous mode (Feenberg, 1999; Harasim, et. al., 1995). Furthermore, online tools that allow collaborative learning are supported by the theory of constructivism, which suggests that improved learning occurs when the material to be learned is the result of a situated construction of knowledge (Bonk & Cunningham 1998; Cobb, 1994).

In some cases, a picture may worth a thousand words and animation may be worth a million. The responsibility, however, for determining when to use that picture or animation resides with the teacher who must learn to be a content specialist. It is critical that the determination of delivery mode for course material rests on the question "Will this enhance student learning?" All too frequently, the addition of online material to a traditional classroom setting only functions to create information overload for the student. A careful analysis of the course material must include determining what content can be used online. Such items as syllabi, lecture notes and

assignments can be made conveniently available to the student when placed online. Whether or not a discussion of the strategic implementation of marketing strategies can be grasped by the student in an online-only environment, however, is another question. In addition, analysis of course material should be founded on the question of what will actually be learned. If online offerings primarily provide an entertaining diversion for the learner, then they are of little educational value. Identification of those concepts and themes hardest to grasp will help to guide the faculty member in his/her decision of mode of delivery.

Keeping in mind such issues as "What are the objectives?" and "How are the objectives to be met?" will also facilitate the decision regarding the best medium to use. Different instructional strategies may or may not result in the achievement of course learning objectives. Once decisions as to which delivery mode is most appropriate have been made, the material must be organized in such a way as to enhance learning. This may mean throwing away some current practices and replacing them with new approaches to teaching that will meet the needs of your students. Evaluation and rebuilding of the course is essential. Asking yourself "What needs to be changed?" "Have the objectives been met?" "What are the students' reactions?" and "Was the content clear and did it enhance learning?" will provide a basis for rebuilding the course if necessary.

Developments in flexible modes of course delivery are making increased use of the World WideWeb. While there is much experimenting going on with web-based course delivery, there is a need for specifically focused research to develop an appropriate pedagogy for both hybrid and web-based modes of delivery. Teachers are just scratching the surface of online learning and factors such as course content, student characteristics and teacher characteristics will no doubt play a significant role in the successful implementation of flexible delivery modes.

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