NEW WAYS OF THINKING ABOUT MULTIMEDIA AND ONLINE TEACHING IN HIGHER EDUCATION

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Abstract

The advocates of online education emphasize its positive aspects and understate the kinds of communicative and technical capabilities and work require by students and faculty. There are few systematic analytical studies of students who have experienced new technologies in higher education. This paper reveals a topic that is ignored in much of the distant education literature written for administrators, instructors, and prospective students: students' periodic distressing experiences (such as frustration, anxiety and confusion) due to communication breakdowns and technical difficulties. The intent of this paper is to enhance the understanding of the instructional design issues, instructor and student preparation, and communication practices that are needed to improve web-based distance education courses. The paper also introduces a new hybrid distant education method.

Introduction

Virtual education has a long history worldwide. Sopova [7] examined the British Open University, which has been granting degrees for nearly twenty-five years. As new technologies have developed, new institutions have grown to take advantage of the desire for students to get away from the traditional higher education paradigm. This led to the creation of tens of commercial educational brokerages and virtual universities. Nationally, schools such as the university of Wisconsin, the University of Massachusetts, and Penn State are conferring B.A., M.A. and Ph.D. degrees along with continuing education and elective courses. Among the leaders in virtual learning are Nova Southeastern University, the University of Phoenix and the New York Institute of technology. Jackson [6] suggested that traditional universities have to move away from a strict reliance on classroom delivery of instruction. This idea could be problematic but he argued that the change is inevitable and universities need to prepare themselves for it. The survival of many traditional institutions may depend on how they do so.

In current years, many researchers have studied the effectiveness of virtual learning and its delivery methods. Willis [8] studied distance-learning effectiveness by exploring elements such as student demographics, motivation, cognitive style, gender, and achievement. Palloff [4] studied the differences between distance learning and traditionally delivered instruction. Their study shows that virtual learning could be as effective as traditional instruction if the delivery methods were based on the background and experience level of the students.

Omoregie & Jackson [6] used variables such as age, gender, environment, educational level, experience, computer usage, graphic presentations and video presentations to determine the effectiveness of virtual learning. They concluded that the student environment and lifetime experience have an important role in the planning and organization of an effective distance learning delivery system.

Garrison [1] examined the impact to the student in audio teleconferencing. He concluded that dialogue, negotiation, and validation of knowledge must be used in order for this tool to be successful in a virtual learning environment. Research suggests that the success of virtual learning relies on a number of key players: Students, faculty, facilitators, support staff, and administration. Research also agrees that the learner and the instructor are the most important factors in virtual learning.

The Opposition

There are many traditional universities that have strong opposition to virtual learning. These universities claim that change should be driven by need rather that opportunity, or just because technology allows them to change does not mean they have to. McManus [3] outlined their arguments into four basic categories:

First, virtual learning programs do not offer the same intangible benefits as traditional programs. These intangible benefits include social networking that the student engages in with professors and peers as well as the participation in extracurricular organizations and activities. David Upton, an associate professor at Harvard once said, as a student you should "feel the hot breath of the instructor on your face".

The second objection to virtual learning programs is their quality. DISC Committee argued that distant learning might degrade the reputation of the institution, which grants them. Their argument based on that students with virtual learning will have a greater choice of where to obtain their degrees and may opt to convenience over quality. This means that virtual universities may give rise to more diploma mills and marginal institutions. The initial cost of creating a virtual learning program is the third objection.

Many surveys showed that the costs of creating a distance infrastructure and of developing curriculum are very high. These costs could be better spent on improving the faculty and facilities at the institution.

The fourth and final objection to virtual learning is that it creates and promotes unnecessary competition between universities. An X state university may offer virtual degrees, which may be obtained by students living in other cities or states, and then this X University will create competition with local universities and community colleges for the students living in that location.

The Supporters

Those who support virtual learning argue that there are several reasons for a university to make the effort to change. One important characteristic of distance learning is that it is asynchronous and asyntopic. Asynchronous means that it is not occurring at the same time. Asyntopic means that it is not occurring in the same place. Based on my experience I found out that my students could be anywhere and ask me a question when it is of concern to them. They can access the material through the Internet any time they wish. When a professor is off campus, he or she can log in from anywhere, access the account, and respond to the students' requests and monitor the discussion via the electronic conference.

Another important characteristic of virtual learning is that it allows universities to reach a broader audience and provides educational opportunities to those who might otherwise not have them. I believe that virtual learning prepares students to function in the information age. Several researchers argued that distance education would prove cheaper and more efficient than classroom-based instruction in the long run.

Another strong factor that is driving the move towards virtual learning is competition. New technologies allow universities to compete across the world. For example at National American University where I teach virtual courses, I usually have students from

at least ten different cities from here, plus several from other countries. Countries like Italy, Nigeria, and the United Arab Emirates. These students are staying in their homeland while they are earning degrees from an accredited university in the United States.

The Study

This study, which was conducted in 2000-2001, compared traditional face-to-face education, distance education, and a new hybrid distant education. The course used for this study is CSIS 217 Web Development. CSIS 217 is an undergraduate course at a major university. The course shows you how to develop applications using Internet open standards and technology in the context of the global Internet and corporate Intranets. The enabling technologies introduced include HTTP and HTML, CGI and Perl, JavaScript, Java and Java Beans, ActiveX, CORBA/DCOM, and SSL/SET. The prerequisite course is Web Publishing and Design or equivalent experience. The required books are Webmaster in a Nutshell and Dynamic HTML: The Definitive Reference. Additional supplementary texts include JavaScript: The Definitive Guide, 3rd Edition and HTML: The Definitive Guide, 3rd Edition. Topics include: Client server and open systems standards; Web and HTTP services; Proper role of programming languages such as Perl and JavaScript; Developing objects for the Web using CORBA/Java and DCOM/ActiveX.

Methodology

Research participant were twenty undergraduate enrolled in the course. Fourteen lived on campus while the other six lived off campus. Twelve have part time jobs on campus and off campus. Five had full-time jobs off campus. While the remaining three students did not hold any jobs. Seventeen of them completed the course. All of them had experience with computers. Six of them had a distance education course before. The author taught the course. The author also taught this course before as a distance education course and as a face-to-face course. The class was offered for the first time in complete form during the regular spring semester of 2001.

My goal was to eliminate the classroom as the focus of teaching and make it possible for a heterogeneous group of students to participate on their own schedules, while maintaining a lively intellectual interaction between the students and me. Papers and homework exercises were also dealt with over the web.

The class was scheduled to meet three times a week through out the semester. Using this hybrid approach, the class met once a week during class time. During this meeting we devoted classroom time to discussions of recent research results, problem sets, questions, and all the topics that only human can address. The class also met twice more for formal examinations.

At the end, most students were quite enthusiastic about the experience, in particular about the freedom they has to study on their own schedules and to interact closely with me, through the internet. In addition, there was no indication from student performance that the semi-online students were at any intellectual disadvantage because of their nontraditional experience.

What this approach did not do was to save me, or the students any time. I spent 25% more time than the usual in teaching, mostly in interactions with the students through web-based discussion or through email. I strongly believe that the course was more interactive and more personal than it would have been had it been presented traditionally. I also believe that it would be virtually impossible for one professor to deal with more than twenty to thirty students in this way, simply because this approach requires more time.

From a pedagogical standpoint, I found that this approach of teaching could be improved steadily, screen-by-screen and lecture by, lecture, and thus grow in effectiveness and quality each year in away that simply does not happen in traditional format. In addition, guest lecturers can be easily incorporated, so that a truly version of a course can be built up over several cycles and then still be available for students even if the originating professor goes on sabbatical or needs a break.

Problems

Technological problems: Many students reported frustration with technological problems and the absence of personnel to provide technical support. One student indicated three areas of frustration, the biggest of which were with the technology and the inflexibility of the course schedule. One student emailed me the following message: "First of all, inappropriate prerequisite statement. For example, there is nothing to say that you should know HTML, but our first assignment was creating a web site. Fortunately, I knew it. I'd explored learning how to do HTML by myself. If I didn't know, I just cannot imagine how to get through. Secondly, this course is very time specific. The course I took before, I could go in anytime and finish anytime. However, this course is very specific in terms of time. For example, I got into the class a week late and you sent me e-mail saying that we had already started. As an old learner, I felt so intimidated. I felt pressure to catch up. Third, accessibility to technology. This is related to the prerequisite. There is nothing that says we should have access to a web server. However, when we developed the web site as an assignment, we had to have the server access. Since I work for a school, one of the technical people helped me to connect to the web server. If I didn't have these resources here, I would have dropped this course."

Complexities of Working Alone: Much of the distance education literature emphasizes the convenience of this educational medium. In practice, this convenience translates working at different times in different locations. While often valued, this also leads to certain stresses. For example, in a web-based distant education course, students do not see each other or their instructors unless they use video-link. CSIS 217 had no video support and the absence of physical cues led some confusion and anxiety for the students. Mary, a student in the course once emailed me the following message: "I am not always sure that

if I am contributing enough or not. In fact, I have not gotten any feedback about my contribution. I can't tell from the email. You can tell from the classroom what the professor think about you from the body language and the way they talk. So, I am not feeling that I am getting enough assessment. I have not gotten any grade for this class so far."

Pedagogical Issue, Ambiguous Instructions: Much of human communication is inherently ambiguous. But people can often adequately resolve key ambiguities when they are face to face. When the primary communication medium is written text, resolving ambiguities may be more difficult for many people as indicated in the following email message from John: "Ahmad ~ though I understand each sentence and word in the email that you sent us, I don't know how to use the instructions to compose the programming. I can follow step 1 and 2 but then I can't follow step 3 and 4. So I go back to the beginning and start over."

Conclusion

There is no end to the development of distance education. We can see from history that there were always learners who whatever reason could not or chose not to physically attend local institutions. As our local societies turn into global communities and nationalistic barriers fade, there is a new global student body which inherently requires the use of distant education for learning, and the Internet is the perfect vehicle for providing this service. This is not a futuristic possibility; this is a present day fact and educators throughout the world need to move ahead in providing educational opportunities in this steadily growing global student body through the use of online distance education.

Some people are dismayed by the fact that distant education is a growing phenomenon. They believe this signals the end of traditional classroom education as we know it. Other fear that once a course has been converted for use online the need for faculty will disappear. I don't believe that distance education will replace the traditional classroom. However, it continues to appeal to nontraditional students for a number of reasons, the main one being that the structure and confines of the traditional classroom simply do not work. Electronic pedagogy doe not advocate the elimination of faculty in the delivery of online courses. In fact, just the opposite is true. Faculties need to acquire new approaches and skills so that their teaching is this medium might be more effective. Electronic pedagogy is not about fancy software packages or simple course conversion. It is about developing the skills involved with community building among a group of learners so as to maximize the benefits and potential that this medium holds in the educational arena.

From the interviews and observations I found two important factors of students' distress in distant education. The first factor was technological problems, and students without access to technical support were especially frustrated. The second factor involved the course content and my practices in managing the communications with the students. Students reported confusion, anxiety, and frustration when they wanted prompt feedback from me and when they found ambiguous instructions on the web and in email messages.

While students felt frustrated with the course, I was also frustrated. Overall, the students' evaluations of me were positive. All the students appreciated the support from me. Some students even sympathized with me because I had to handle so many technological problems in this course.

One should caution against emphasizing only the virtues of distant education. Most of the publications about distant education that are written for practitioners (i.e., administrators and teachers), and potential students emphasize the positive opportunities presented in distant education.

I believe that in some of these studies, students may not have opportunities to express their confusions and anxieties with web-based distant education. At the end of the semester, students might make positive comments about the courses because of a relief of finishing a course and concern about grades and hurting instructors' feelings.

I strongly believe that students should be given periodic evaluations in courses like CSIS 217. Pratt [5] suggested two forms of evaluation: Formative and summative. Formative evaluation is an ongoing process that can occur at any point throughout the course; it can surface gaps in course material or in learners' ability to grasp that material. Formative evaluation gives the instructors a way to shift focus if the course is not proceeding according to plan. Summative evaluation assesses the completed course and is most often the model of evaluation used in academic institutions. Harasim [2] in reflecting on the evaluation of online courses, state: " In keeping with a learner-centered approach, evaluation and assessment should be part of the learning-teaching process, embedded in class activities and in the interactions between learners and between learners and teachers" (page 167). Harasim is describing an ongoing formative evaluation process that is built into the class structure.

Summary

This paper fills various needs for the purpose of showing the effective application of online distance education. Educational administrators, instructors, and the public need to know whether or not the online distance teaching is a valid and proven instructional method. Furthermore, administrators and instructors need to know what to expect when planning and teaching in an online virtual university. Through careful planning and operation, combined with quality online teaching, educators and the public will know that they are participating in an effective method of instruction, one that will be accepted by both traditional and nontraditional educational establishments.

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