

DISTANCE LEARNING OF ENTIRE COURSES: FOUR MAJOR ISSUES

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ABSTRACT

Colleges and universities across the country have invested in distance learning technology in order to exploit its benefits and stem the rising costs of traditional classroom learning. Along with its benefits come monetary and non-monetary costs to students, faculty, as well as for courses and facilities. Proper assessment of those costs and benefits will permit higher education institutions to make wise strategic decisions concerning the extent to which distance learning should replace traditional classroom learning for their target markets.

INTRODUCTION

Distance learning as an alternative to traditional classroom learning has been used in education for many years (James and Wedemeyer 1959). The development of effective 2-way (interactive) television, and more recently the growing proliferation of personal computers connected through the Internet, has generated renewed excitement about the potential which these technologies offer for distance learning (Hiltz 1994; Holmberg 1995; Lockwood 1995; McClenahan 1997; Piirto 1993). Additionally, rising costs of higher education have motivated taxpayers, tuition payers and college administrators to find more cost effective learning methodologies by harnessing those technologies.

Besser and Bonn (1996) warn that many involved in higher education have pressured themselves to adopt distance learning without asking themselves beforehand whether they teach the kind of material to the kind of students with the kind of faculty resources that will lead all stakeholders to benefit from a shift to distance education. The purpose of this paper is to review four issues impinging upon the effective use of distance learning as an alternative to traditional classroom learning, and to share personal experience.

FOUR MAJOR ISSUES

Student Needs and Non-Monetary Costs

Most learning necessitates more than simply listening or observing. Especially applied learning, a critical goal of business schools (Porter and McKibbin 1988), requires skills like critical thinking

and understanding situational variables affecting the practical use of concepts. Those skills utilize visualization and constitute a higher order of learning (Zoller 1993). Such higher order learning, in turn, demands great motivation from each student, particularly from those not in the upper echelons of ability.

Motivation for education relates to the clarity of a student's educational goal. An investigation by James and Wedemeyer (1959) into reasons for non-completion of correspondence courses revealed the interrelated factors of motivation, clarity of educational goal and understanding of the self-discipline required by that type of distance education. To the extent those findings can be extended to current forms of distance education, successful distance learners must be clearly focused on the purpose for their education and must have developed self-discipline, possibly from prior educational experience, for study in a more independent, remote setting.

Magiera (1994) determined, "The telecourse student tends to be over 26 years of age, highly motivated, goal oriented, and unable to attend the traditional classroom setting" (p.274). Indeed, Clow's (1999) comprehensive study of interactive television (ITV) distance learning and its effect on student evaluations of instruction found that undergraduate students experienced many more problems with that instructional methodology than did graduate students. He recognized that student perceptions of the technology were salient.

Student participation, already difficult to generate in the traditional classroom among students with certain cultural backgrounds or personalities, becomes even more challenging with distance learning (Comeaux 1995; Pool 1996). Those students will be more reticent to speak when they must press a microphone button, possibly activating a camera image of themselves on the screen in an ITV distance learning environment.

Even if a healthy amount of student participation can be generated in distance education, it suppresses two benefits sought from that delivery format. As most who have taught ever-increasing class sizes know, more students mean more questions and student comments. The goal of cost effectiveness to reach greater numbers of students at distant

locations leads to an overabundance of student participation at the expense of breadth of concepts covered and excessive competition for recognition of individual participants. Additionally, the transcending-of-time benefit to students attending cyber-class or a recorded video class at a personally convenient time precludes student questions early in a class, to which timely response permits understanding of later portions of the material.

Faculty Capabilities and Convictions

Instructors proficient with computers and who enjoy utilizing cyber-based technology, or those captivated by ITV technology may be well suited as distance educators. Flaschner (1999) exudes such enthusiasm for cyber-education and the exhilaration of talking with students worldwide that he gave up a tenured position to join a start-up cyber-university. Two instructors, each at a different site team teaching with ITV technology, worked so well interacting back and forth and stimulating student involvement at their respective sites, that they volunteered to teach another distance learning course the following year (Comeaux 1995).

Conversely, some faculty members require the stimulation of face-to-face contact, as do many stage and concert performers, in order to be effective. Other instructors believe the extent of learning in certain courses from distance education does not justify the extra workload of teaching exclusively with technology. Those educators may be less eager to adopt that instructional method.

Instructors experienced in distance education agree that much more planning and preparation are necessary to keep students involved and participating at remote sites (Pool 1996). In two different studies, approximately 30% of the "experienced and highly trained" distance instructors did not want to teach another distance class, faulting amount of advance preparation required, poor transmission quality from the remote sites, lack of adequate training, lack of student interaction, and the perception of being under-compensated for ITV teaching (Barrett et al. 1995; Kendall and Oaks 1992).

An instructor's locus of control represents another cost of distance education. Knowing whether students are paying attention or if they are even connected to the host site persist as problems with many forms of distance education. Making eye contact with students in a conventional classroom setting permits an educator to change the pace of delivery in reaction to non-verbal cues from students, or to puzzled looks. Besser (1996)

alternated the origin of an ITV class between two sites, noting "students in the same classroom as the instructor invariably paid careful attention, while students in the remote site were constantly fidgeting and not as attentive." Comeaux (1995) noted the same phenomenon.

Faculty, who must adapt their teaching styles to the level of optimal intra-student and student-professor interaction for particular courses, must further adapt their pedagogy to the level of interactivity permitted by the technological infrastructure. "For example, one cannot try to teach a seminar if the infrastructure provides only the level of interactivity designed for a lecture" (Besser 1996, p. 817). Certain instructors may be unable or unwilling to adapt so extensively. Others might not possess the personalities, such as a sense of humor in dealing with technical problems and a relaxed interpersonal style generating student interaction and involving students personally in course content, deemed essential for effective distance education (Comeaux 1995).

Course Suitability

Massy and Zemsky (1996), directors of Institutes for Higher Education Research at Stanford and University of Pennsylvania respectively, believe that subject areas most able to profit from information technology delivery systems are those with large volumes of students, standardized curricula, content over which faculty are less possessive, and outcomes which can be easily delineated. They suggest remedial and basic math, general education courses and composition courses, with faculty monitoring student motivation and providing support at critical junctures. Courses containing many complex demonstrations also seem appropriate for cyber-based and interactive television learning technologies due to the need for close-up visual observation. Examples include systems design, health care procedures, computer programming, chemical processes and experiments.

Because of the widespread success of distance learning for training rather than teaching, Besser and Bonn (1996) suggest distance delivery is best suited for communicating a fixed and narrow set of skills and goals to students with a strong desire for those specific skills. Courses consisting primarily of behavioral concepts may be better learned through oral instruction in which students visualize in their own heads the motivations, conditioning, and environmental circumstances underlying the behavior. Portraying behavioral influences in a dynamic, visual mode like videotape or cyber

streaming video is difficult to accomplish in a timely way.

Facility Requirements

A key goal of distance learning is reducing the cost of education. By expanding reach to students and utilizing remote sites or students' own workstations, proponents suggest capital investment in classrooms and instructional cost per student will be lessened (Chow 1999; Massy and Zemsky 1996; May 1997; Pool 1996). While the former savings appear valid, considering costs to students and faculty explained above and costs of equipment, discussed below, it remains questionable whether cost per student will be lower while maintaining quality.

For ITV-based distance learning, classrooms must be equipped with expensive cameras, monitors, sound and artificial lighting. Natural light can lack uniformity, predictability, and can cause glare on monitors. Additional technology such as computers with PowerPoint capability, VCRs, equipment tying together and controlling all this apparatus, plus wiring and transmitters constitute necessary components. Frequent technological advancements warranting upgrades in the infrastructure must be recognized, as well.

Flaschner (1999) discusses the benefits and efficacy of cyber-based education including 2-way video and audio for case-based courses with 12 students. Each student and the instructor can be seen and heard by all parties by dividing the computer screen into multiple windows of rows and columns. Even if the instructor of such a minimal size cyber class can identify from those small windows non-verbal cues of one or a few students not understanding some material, the economies of scale sought through distance education are obviously precluded. Scale economies also become stymied by frequent interaction and collaboration among students and professor which emerge as essential in distance learning (Bailey and Cotlar 1994; Comeaux 1995; Kendrick 1998).

In reality, for distance independent learning to justify itself solely in dollar terms, it seems likely that either its potential for being individualized and interactive or its potential for reaching a large audience will be sacrificed (Besser and Bonn 1996, p. 881).

PERSONAL EXPERIENCE

The author taught two graduate, marketing management courses two years apart, employing

ITV technology, and utilizing a lecture-discussion format as recommended by Bland et al (1992). The facility used for these courses employed 2-way audio, consisting of one microphone placed between each pair of students at the host site on-campus, and one microphone shared among ten students one semester and six students another term at a single remote site. On/off switches controlled microphones at both sites.

Four cameras operated by a student assistant at the host site on-campus broadcasted the 1-way video to a large screen television receiver at the remote site. Two cameras in the back of the host classroom provided wide angle and close up images of the instructor. One camera in front of the classroom focused on each student pressing the "on" switch of a microphone. The fourth camera functioned as an overhead projector displaying hand drawn or preprinted images on a large screen television facing students in the host classroom, on the television at the remote site, and on a small television monitor for instructor adjustment of images. The instructor verbally directed the student assistant when to switch to the overhead camera, an optional video tape player, the back-of-room cameras, or a computer controlled by the instructor.

Despite rather extensive investment in facilities, numerous problems affected students and instructor. Frequent reminders throughout the semester to host-site students to utilize their microphone switches so they could be heard at the remote site broke continuity, impeding the free flow of dialog. Exacerbating that impediment, students at the remote site wishing to speak were required to get up from their seats and walk over to the microphone. The high cost of equipment to tie multiple microphones together precluded buying additional microphones. Additionally, distinctly hearing students' comments from the remote site was problematic (also see Comeaux 1995).

Surprisingly for graduate students, classroom decorum at the remote site posed another problem. An undergraduate student assistant with responsibility to monitor the remote site's classes and examinations did not command sufficient respect to minimize frivolous conversations.

Those problems and various technical difficulties resulted in decreased material covered and increased distractions from effective learning—and speak directly to the high cost of ITV facilities. Students raised with the Muppets, MTV and sophisticated television programs including the news expect fast, smooth-running presentations to hold their attention with that medium. Yet such

presentations require hundreds of man-hours from numerous production specialists to develop just one hour of programming. If extensive human resource and technical equipment expenses were unnecessary to maintain viewer attention, would profit-seeking television programming companies invest so much?

Due to small sample sizes of distance learners, focus groups were conducted at two on-campus meetings of all students each semester. After refinements based on prior meetings' feedback, the majority of **host site**, on-campus students found the technical difficulties and interruptions of continuity irritating and distracting. Most stated they did not wish to participate in another ITV class. Except for one student each semester who complained about classroom decorum, all **remote site** students praised the ITV format for its convenience and stated they would definitely enroll in another ITV class.

Anonymous, end of semester, student evaluations and final grade point averages provide a different perspective. Figure 1 shows that **remote site** students earned slightly lower GPAs than their **host site** counterparts both semesters. The **remote** learners also rated their instructor slightly lower than **host site** students' evaluations of the same instructor.

Interestingly, **remote site** students rated their instructor the same or lower than **host site** learners both terms on each individual evaluation question except one in Spring 1999. That semester **remote site** students rated putting "sufficient effort" into the class slightly higher than their **on-campus** counterparts. "Instructor was helpful," "Gave good examples," "Prepared for class," "Gave relevant assignments," "Knowledgeable in field," and "Explains materials well" emerged as items rated slightly lower by **remote** learners even though all students were taught by the same professor at the same time in the respective semesters. Having the instructor physically present had a positive effect on student evaluations of the learning experience.

CONCLUSION

Tradeoffs between traditional classroom learning and various forms of distance learning must be carefully analyzed before a higher education institution commits to distance learning as an alternative to on-campus classroom learning. New forms of information and video technology offer great potential for enhanced education, including reaching students at distant and more convenient locations than traditional classroom settings. Further

study of costs and the true extent of benefits actually realized from replacing face-to-face classroom learning with cyber-based or interactive television (ITV) learning technologies must clarify the circumstances and the extent to which utilizing those technologies for distance learning will optimize stakeholder goals.

The preponderance of studies to date demonstrates that distance education satisfies some needs of a significant segment of post secondary students. Several course specific studies indicate no significant differences in exam performance between distance education students using ITV technology and students taking classes using traditional methods. Mixed and conflicting results from existing distance learning studies, coupled with issues concerning caliber of students in those studies and whether self-selected distance learners constitute a biased sample, call for further study.

This author's findings and those of Clow (1999) indicate that the physical presence of the instructor has a positive effect on student perceptions of the learning experience. Certainly **remote site** students' perceptions of distance learning constitute salient information as they affect alumni support and national rankings of schools (e.g., Business Week). The perceptions of distance learning by **on-campus** students attending the host-site classroom from which a distance education class originates also represent important considerations.

As the engines driving education delivery, faculty must believe in the efficacy of distance learning and in their potential to utilize it effectively. Success with distance education partly depends on having a sufficient number of discipline specialists who are willing and possess personalities capable of properly re-engineering their pedagogy to adapt to the technology.

Further study of student performance and of the type of courses best suited for distance education, combined with student perceptions of distance learning, an institution's assessment of its own faculty's abilities and personalities, plus accurate monetary and non-monetary cost analyses constitute information necessary for determining tradeoffs. That complex set of information will allow a higher education institution to make a wise decision about the extent to which distance learning should supplant that institution's traditional classroom learning, given its unique characteristics and goals.

References Available Upon Your Request.