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Interactive Distance-Independent Education

Challenges to Traditional Academic Roles

Howard Besser and Maria Bonn

Distance-independent learning environments will necessitate shifting roles for instructors, research assistants, libraries, administrators, and computer support personnel. This paper reports on a distance-independent class taught at the University of California and the University of Michigan, and examines the challenges this course posed to existing academic culture.

Distance-independent courses offered between universities pose an administrative nightmare. Academic calendars need to be adjusted (starting and ending dates, vacation and holiday periods, examination dates), different schools' student expectations need to be brought into line (workload, number of credit hours), and when an instructor teaches simultaneously at multiple universities new schemes for instructor compensation must be developed.

Multisite courses require a rethinking of course support services such as those provided by libraries, media centers, and computing facilities. Otherwise, a set of students at one site—with superior collections and other resources, different types of assistance, and different access hours—can gain an unfair advantage over those in other sites.

This paper draws upon the experience of one highly interactive course (which used two-way video over digital

phone lines) that attempted to address Multisite problems through a variety of methods: online course material, digital video interaction for office hours and student-to-student meetings, and support personnel in each site. The paper makes observations from this case study and points to challenges to academic cultures that will need to be managed in order for distance-independent learning to become more widespread.

Questions and Challenges Posed by Distance Learning

The implementation of distance-independent learning environments provokes changes in the university culture. The roles of instructors, research assistants, libraries, administrators, and computer support personnel all must shift in order to make distance-independent environments succeed. In addition, distance learning prompts a

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rethinking of the power relations between instructors, staff, students and administrators. Many of the challenges are logistical and involve administrative issues that will need to be addressed on a one-time, start-up basis. Other issues, such as those of curricular support and the nature of instruction, will need to be renegotiated on an ongoing basis as the technological infrastructure, and our use of it, changes.

Ann Arbor/Berkeley Experience

We can illustrate the challenges that distance learning poses to the culture of the university by looking at the experiences of a recent class taught simultaneously at the University of Michigan and the University of California at Berkeley. The course content focused on the impact of multimedia and networks, and its teaching employed a wide array of technological resources. The course examined the impact of new technologies from a variety of perspectives (including cultural, political, and social), and considered that impact upon daily life and upon social and cultural institutions (such as museums, libraries, and schools). Cutting-edge technologies were used to conduct the course in the two sites, and to provide text and multimedia resources to enrolled students and to the general public.

"Impact of New Information Resources: Multimedia and Networks," (popularly known as the "Impact" class), was an experimental, graduate-

level course. The experimental nature of the class lay in its distance education format. The class consisted of approximately twenty students in Berkeley and twenty students in Ann Arbor. The weekly lectures alternated between the two campuses. The instructor taught from the "live" site, while students at the "remote" site contributed comments, questions, and, later in the semester, presentations. The primary distance medium for classroom instruction was video-conferencing from specially equipped distance learning facilities over ISDN telephone circuits. Between class sessions, students used a variety of electronic media and resources to interact with the instructor and collaborate with other students.

In addition to standard class attendance and readings, students were expected to join a focus group which paid special attention to a particular set of issues related to the course, such as information retrieval, technology and creative arts, critical theory, or the possibility of virtual communities. Each of these groups met weekly and created and maintained an online news group, as well as a World Wide Web (WWW) page. Each student also created a personal Web page, reviewed a multimedia program and an online service provider, and did a major project or paper on some topic related to the class.

The instructor had taught this course content in Berkeley three previous times without the distance aspect. Each time the course was taught, student work from previous terms was

used for readings and other resource material, which effectively built up a set of resources in this domain. And each time the course was taught, more automation and online resources were added to those of the previous term.

Papers reviewing various aspects of the distance course as well as most of the WWW documents that students used in the course are available at <http://www.si.umich.edu/impact/Winter95/>. Content of previous versions of the course is available at <http://www.si.umich.edu/impact/>.

Logistical Issues

One of the earliest and most obvious lessons that can be drawn from the Impact class is that distance-independent courses involving students at more than one institution pose a variety of logistical challenges to the cultures of the different campuses. Scheduling presents the most obvious challenge; even if the institutions have similar academic terms (quarter or semester), it is very unlikely that these will start on the same date, end on the same date, have the same exam periods, and take the same dates for holidays, vacations, and breaks. Either the course at one of the institutions needs to adjust its schedule to that of the others, or the use of class time needs to significantly change by eliminating some class sessions or developing curricular content that can be used out of sequence.

Students in multi-institution classes frequently have disparate expectations as to workload and credit hours. These expectations will have to be negotiated with those of the different institutions, and the instructor, and one or all of the sites will need to make adjustments.

Faculty will also need to negotiate the value of their course for students. Departments may be reluctant to

authorize their own course credit (i.e., listed as a credited course in their own department) to courses taught by an instructor from a remote site, particularly if that remote site is regarded as an "inferior" institution.

Distance independent instruction also raises questions about workload and compensation for faculty. Teaching a two-site distance course is likely to involve more work than teaching one course, but less work than teaching two. How will this be evaluated in the assessment of a teacher's standard workload? Which of the two sites will compensate the instructor? Will the instructor be credited for the time-intensive struggles with technology that often accompany the instruction of such a course or for recasting course materials to work in such an environment?

Changing Personnel and Roles

More important than the logistical challenges posed by distance learning (which will eventually be worked out as distance learning becomes more institutionally entrenched) are the challenges of redefining the role of educational personnel. Moving from conventional classroom instruction to distance independent education is not a simple or cheap proposition. Generally, distance education will require new instructional support personnel, new roles for traditional instructional support personnel, and new tools for instructional support and collaboration.

First, the origination point of the distance instruction requires production support personnel. These are likely to be staff with audiovisual skills sometimes augmented with telecommunications training. Support personnel with technical skills must handle camera work and sound. In an environment where the instructor is interacting with students in real time, technicians also

Winter 1997

need to handle analog or digital connections between the sites and must respond quickly if and when those connections go down. In environments where the interaction is independent of time, technicians will often be required to edit the material so the delivery looks smooth, and there will need to be other types of personnel responsible for the logistics of distribution.

In a conventional higher education environment, the personnel who provide instructional support are usually either graduate students (in roles such as research assistants or teaching assistants), or employees of the library or computing center. A distance independent environment will often force these personnel to take on new tasks. The maintenance of online course resources is a significant task, one likely to be too big for an instructor to handle him/herself; it is likely that this task will fall instead to other traditional instructional support staff. Some schools are likely to experiment by having computer support personnel with instructional design experience provide at least some support for online course material. Others will see this type of support as being an extension of the services traditionally provided by libraries, and will assign library staff to work with faculty on providing this type of online course material. But ultimately, responsibility for providing and maintaining online course material will fall on the shoulders of those most directly at the disposal of the instructor—research assistants and teaching assistants. In their new roles, RAs and TAs will have to learn about converting file formats, organizing and presenting information, controlling access, and updating and maintaining a body of information. Student assistants may also find themselves with the responsibility for preparing course materials for class time display, and will be responsible for

learning some of the display preparation.

In real-time classroom situations, teaching assistants may also be called upon to operate cameras or choose who speaks at the remote site. This marks a shift from their traditional set of responsibilities, and will likely involve learning new skills both in facilitating interpersonal interactions and in operating equipment. In a fully interactive distance education environment, most two-way interaction is mediated by a camera person. The camera person at the remote site controls which students the instructor sees, and consequently which nonverbal cues the instructor views. The camera person also controls who the instructor is likely to call upon, because unless someone off-camera is extremely vocal, the instructor is likely to call upon only those students who she or he is able to see.

With various instructional support staff visible in distance situations, students tend to be confused about division of instructional responsibilities. All affiliated staff are seen as authority figures, and it is not unusual for students to address curriculum or policy matters to the camera person. To minimize this problem, it is important for the instructor to both be easily accessible and to clarify the roles of support personnel.

New Ways of Supporting the Classroom Experience

Distance-independent learning not only changes the culture of the classroom, it also changes the types of instructional support that take place outside the classroom.¹ Office hours, discussions between students at different sites, and reserve readings all create challenges for distance-independent instruction. Videophone and video-conferencing tools (such as CUSeeMe) have been

used successfully for office hours and small-group meetings, but often are poor substitutes for personal interactions in which the various parties can interactively explore a project. Collaborative tools such as shared whiteboards allow users at remote sites to mark up and interactively see each others' comments on the same page. Tools like ProShare and Timbuktu allow a user to run a computer application at one site and make this viewable by someone at a remote site. These collaborative tools used in conjunction with a videophone connection begin to approach the minimum functionality needed to substitute for certain types of face-to-face student-instructor or student-student meetings.

The distribution of reserve readings and other course materials poses difficulties for many distance independent courses. Students at remote sites often have inferior library services. And trying to distribute time-sensitive printed materials is difficult enough in a single-site environment; it is extremely difficult to maintain timeliness in distributing to remote sites. The obvious solution (only for material that can be easily converted to machine-readable form) is for the instructor to make this material available to remote students over the Internet. But converting and mounting such resources can pose logistical headaches and intellectual property problems. Elsewhere this author has documented the wide variety of difficulties in maintaining a WorldWide Web site as part of a distance education course.²

Libraries also need to consider how they may change their services to accommodate distant students. Until all curriculum support materials are available online, it will be impossible for libraries to offer a full set of services to remote students. As noted above, placing material online can pose copyright problems. And delivering material that is already online may force the library

to renegotiate vendor contacts (e.g., site licenses for indexing and abstracting services may not permit delivery to a distance learning student in another state). In some cases administrators may choose to treat remote students like some universities treat students not pursuing a degree—providing them with a lower tier of library services.

Many university libraries are exploring the use of electronically delivered reserve materials, which are likely to prove very useful for distance education. Others are experimenting with a more aggressive role (more akin to knowledge management), helping instructors organize online delivery of all curricular support material.

Multisite courses require a rethinking of course support services such as those provided by libraries, media centers, and computing facilities. Otherwise, a set of students at one site—with superior collections and other resources, different types of assistance, and different access hours—can gain an unfair advantage over those in other sites. These support services will have to be administered in new ways in order to guarantee that all locations can contribute and benefit equally from distance independent courses.

Changes in Power and Relationships

In the Classroom

The experience of the Impact class revealed that the distance-independent nature of the class led to a series of changes in the traditional relations of power and authority. Examining and understanding these changes will be crucial in the years ahead as distance-independent learning becomes increasingly entrenched in our educational process.

In the Impact class, the instructor alternated origination between the two

Winter 1997

sites. After an initial period of fascination with the new technology, 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. In this particular case it was clear that the physical presence of the instructor directly affected student attention.

The closer students are to the instructor (both in time and in space) the more control the instructor exerts. In a traditional classroom the instructor exercises significant control. In a distance-independent classroom, the instructor often cannot see if students are paying attention. And in most distance and time independent classrooms, the instructor cannot even tell whether the student has viewed the primary class material.

In a distance-independent setting such as the Impact class, the technicians wield a significant influence over who is seen or heard. The camera person's framing determines who the instructor will see, and consequently affects both the instructor's impression of student response (as seen in facial expressions), as well as who the instructor will call on during periods of student questions or interaction. Students who can get the attention of the camera operator are more likely to be heard than those who do not.

Moreover, a televised, interactive distance-independent class may well heighten many of the dynamics of traditional classroom discussion. In any class those who are most comfortable speaking tend to dominate the conversation. In the distance-independent class, this may be exacerbated so that only those who are comfortable with their presence on screen are willing to talk. Students who don't want to see their faces on the monitors may opt not to participate or will feel harassed by having the camera trained on them.

Between Administration and Faculty

Several issues of perennial concern for university faculty will have to be rethought in light of the implementation of distance education. Distance learning is likely to have a significant impact on the number and nature of faculty positions, and on the administrative role in determining curriculum and of the physical location of instructors.

For faculty, there may well be, quite simply, fewer jobs. Faculty could be asked to do double and triple duty across campuses or hired on a short term basis to participate in creating a distance-independent learning package in their area. As in many domains in the late twentieth century, the university could shift toward hiring more and more specialized experts to give competitive prestige to their distance-independent offerings.³ This shift would damage the careers of developing young scholars and faculty who are more devoted to teaching than research and publishing. Greater out-sourcing of teaching would also transform and perhaps end the tenure system. At its most extreme, out-sourcing would deprive the university of a coherent and permanent faculty to organize the curriculum.

Instruction delivered through communications media is more amenable to administrative control than instruction that takes place in real-time, real-place. Administrators could review and edit tapes; they could stipulate that syllabi be pre-approved before instructors are granted access to the technology necessary to conduct their classes; and they could easily replace undesirable faculty members by drawing upon the human resources of another campus, institution, even country.

As discussed by the authors elsewhere, widespread adoption of distance learning is likely to shift the balance of power between a fragmented faculty and a strong administration, in the same

way that new information technology in industry has already altered the balance between the employer and employee.⁴ Telecommunications technology and other forms of information automation have allowed management to shift pieces of the work process to wherever labor is cheapest, rather than completing the work in a single location. Only management has an overall view of the work process and employees are limited in their ability to get a big picture of the work place and work process (as well as having limited opportunities to express work-place grievances and to organize). As a result, employee challenges to management decision making are easily dismissed.⁵

Challenges to Education in General

Stanford President Gerhard Casper cautions that distance learning may eventually lead to the destruction of the residential university experience, and with it the elimination of the experience of socialization and peer interaction, as well as elimination of the experience of challenging traditional values and ideas.⁶ In the LIS context, physical proximity of students and faculty has been important because much of the LIS experience revolves around membership in a cohort of classmates, working together on projects, supporting each other, and in some way mimicking the work life that follows the MLIS degree. It will be a significant challenge to maintain quality interaction and socialization in a distance-independent program.

By allowing central control, distance-independent learning can also lead to a more centralized notion of the canon and of disciplinary boundaries. A handful of experts could determine for a large audience what the "right" texts and ideas are, and marginalized and dissident voices could be effec-

tively shut out by being denied access to the technological means to disseminate their ideas.

Distance-independent learning could also limit the opportunity for cross-disciplinary contact and stifle the cross-fertilization of ideas that comes from being on a common campus. University campuses already are difficult places to unify because different schools and departments have different goals and resources. The loss of a common physical location can only exacerbate this difficulty. This loss would not only diminish the possibility of collective action, but could well mean that there is less commitment to an institution. It's difficult to identify with something that's not there.

Because the skill-based curriculum is the easiest to teach in distance settings, this type of curriculum is likely to dominate. This could lead to an increasing vocationalization of university education, allowing the technological means to shape our educational ends rather than using our goals to determine the appropriate means of educational delivery.

Conclusion

As more and more universities and colleges move into distance-independent educational delivery, it is important to keep in mind that we are not just transferring traditional education to a new medium, we are designing a new kind of education. Accompanying this new design are rewritten roles and new relationships and forms of interaction for all players in the educational process. The act of design brings about a set of responsibilities and commitments. The players involved need to have a part in shaping their new roles. And the changing power structures need to be made clear to all those involved in the process.

Winter 1997

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