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Technology is pervasive in a contemporary university; it broadens the classroom and embraces individuals and groups who are at a distance from the university. The University of South Florida is a leader in delivering long-distance instruction to the citizens of Florida. Through a variety of programs emanating from several campuses and distant sites, the university provides wider access to its time-constrained student populations. This article will review four programs currently being offered at USF that utilize distance learning as an essential component in the delivery of educational courses.

A President's Perspective on Telecommunication

Today's students are different from the students of earlier decades. They are often part-time students who are employed full time and who may also have family responsibilities. They may not have the time or resources to travel to a distant campus in order to take the courses they need to remain up-to-date in the workplace or to build a career. With courses available in the workplace or at home, students who have many responsibilities and limited time have opportunities for higher education that they might not otherwise have.

Coupled with these changes is the way technology is transforming teaching. It allows us to bring the resources of the world to the individual and the classroom; it further permits us to expand the classroom to include individuals and groups who are at a distance from the university. Through telecommunications, courses can be offered on public television and via Instructional Television Fixed Service (ITFS). Through the use of computing technology, a wide range of computer-aided instruction programs is available to the student. In addition, courses can be transmitted via videotape and are available to any student with a VCR. New applications and combinations of technology in support of distance education appear regularly. Distance education has also opened new opportunities for the physically challenged who may not be able to travel to campus.

The University of South Florida (USF), a leader in distance education, utilizes a variety of means to deliver instruction to the citizens of Florida. Four instructional delivery systems will be described in

this article: (1) Open University (courses are available through the university's two television stations); (2) Execudocs Long Distance Learning (an MBA program for physicians that uses a combination of computers with modems, videotaped lectures, and on-campus seminars); (3) USF Lakeland Campus (courses are delivered from a main campus to branch campuses); and (4) the Florida Engineering Education Delivery System (a program that services engineering students at university and industrial sites).

Open University

From the large and extremely successful Open University of the United Kingdom to smaller but equally successful Open Universities throughout the world, distance learning is a significant, cost-effective means of meeting the needs of today's students. Research confirms that courses delivered via media are as effective as those delivered in traditional classrooms, and documented data indicate that such courses can be delivered much more economically. One major university concludes that 15 percent of the tuition dollar is spent on classroom heating, cooling, cleaning, and maintenance; for many universities this percentage would make distance learning largely self-supporting.

The Open University at USF provides a representative picture of one aspect of distance learning. In a sense, the term "distance learning" is a misnomer when applied to USF since a substantial number of students live near or on campus. Moreover, because USF is comprised of a large number of part-time students, their concerns about time constraints are often equal to concerns about distance. Although the concept that students can receive a high-quality education at sites other than a traditional classroom is not a novel one, what is relatively new is the wide variety of delivery systems now available for instructional purposes and the increasingly large number of students who are taking advantage of them.

The USF Open University program began twenty years ago with sixty-eight students enrolled; in 1991-92, the annual enrollment will exceed nine thousand. Further, the percentage of enrollment growth of Open University has consistently exceeded that of the university as a whole, which is a clear indication of the need for distance instruction.

The Open University, with a staff of three, uses a variety of media to deliver telecourses. In addition to print materials (syllabi, study guides, and text), Open University uses broadcast television, the student low-power radio station, audio- and videotapes, cable television, and videodisc.

USF's designated service area approximates the size of the Netherlands, with five campuses strategically located throughout the region. Students enrolled at any campus can receive Open University telecourses from one of the two university UHF television stations. The Open University offers twenty or more courses each semester, adding substantially to the number and variety of courses available to students on all campuses, particularly to students on the smaller regional campuses.

Execudocs Long Distance Learning

The MBA Program for Physicians at the University of South Florida is a twenty-one-month, fully accredited degree program designed to meet the unique needs and demanding schedules of physicians who want to gain the management and business skills necessary to significantly increase their personal and organizational effectiveness. The students commit to a schedule that includes six 14-day residency sessions and an executive preceptorship that takes place during the summer between the third and fourth trimesters. The thrust of the residency sessions is to provide an opportunity and atmosphere that encourages the students to immerse themselves in the coursework, while providing the informal opportunities for the professors and students to meet and exchange views on the business problems they face in the health care industry. The resident sessions at the beginning of each trimester are designed to introduce the range of topics and issues to be covered and to provide concentrated instruction in selected disciplines. The sessions are held at the National Study Center for Continuing Medical Education located adjacent to the university's Tampa campus.

During the major portion of the twenty-one-month program, participants are at their home sites, completing coursework while continuing their regular work responsibilities. Program activities, including readings, problem sets, case studies, and other written assignments along with telephone conferences require at least fifteen hours per week. All program participants are required to have access to an IBM or IBM-compatible computer and modem at either their work sites or their homes. A specially designed course, "Decision Support Tools," is scheduled during the first resident session to ensure that all participants are comfortable with the basics of using personal computers and computer-based communication systems.

The physicians' computers are tied into an E-mail system in the College of Business. This system allows the faculty and students to communicate with each other on a twenty-four-hour basis. The system also allows the students to form study groups with participants located in various parts of the country. The advantage of the electronic modes of communication is that students are constantly interacting with the faculty and with each other during the periods that they are not on the campus.

The program also utilizes another piece of electronic equipment, the VCR. In order to use the on-campus time efficiently and to cover material in-depth, the program utilizes a series of videotapes produced by the faculty who are teaching in the program. They call it "jump-starting." The purpose of the tapes is to introduce the subject matter, terminology, and basic concepts of the course. The tapes also complement the initial reading assignments. Jump-starting enables faculty to begin the course at the third- or fourth-week level.

USF Lakeland Campus

The University of South Florida Lakeland campus was designed to bring the best of the university's faculty and resources to the citizens of outlying counties. From its inception in 1984, the campus was planned with a vision towards the future. This vision included the use of instructional technology supported by a small, highly specialized staff assigned to the campus. Such a focus would give the citizens in an emerging metropolitan area access to a larger number of faculty, an extensive academic advising system, the extensive computer resources of the Tampa campus, and resources of the USF library. A variety of instructional delivery systems including telephone, television, videotape, and computer technologies support distant learning. Course delivery options include:

- courses delivered live through instructional television received in businesses, homes, and schools;
- preprogrammed television courses received at home;
- videotape courses offered to businesses or homes;
- computer-assisted courses offered to those at home;
- independent studies courses that frequently incorporate any of the above.

One-fourth of all the courses offered at the Lakeland campus each term incorporate one or more of these different instructional technologies. The course catalog lists the method of instruction for the course and indicates if alternate time frames, different from the typical three hours per week for a sixteen-week term, are used. At present, instructional television has become the nontraditional method of choice at the Lakeland campus.

Instructional television includes live broadcasts by professors at the Tampa campus to the Lakeland campus and to a distant site, or from the Lakeland campus to a distant site. Students at the site view the professor on a television set that may be in a school library, an industry conference room, or a hotel meeting room. While the course is in progress, students have two-way, interactive audio communication with the professor via telephones.

This type of instructional delivery presented, by its nature, the following management challenges: (1) Courses had to be developed by faculty interested in television instruction; (2) Distant sites had to be found and equipped; (3) A technical team to run studio operations had to be assembled; (4) Staff to transport materials and coordinate activities at the sites had to be hired and trained; and (5) The university procedures for registration, fee collections, and student services had to be redesigned. In addition, distance education had to be introduced and marketed to students and the community, not only to secure more sites, but also to educate future students about these methods of instruction.

During its first two years, campus faculty focused on the research, development, and implementation involved in creating and testing courses using instructional television. Twenty-six courses were developed in the following subject areas: literature, English, engineering, education,

business, criminology, history, and international studies. A technical team consisting of the ITFS manager, a broadcast engineer, and production staff was assembled. The ITFS manager coordinates all studio activities with a broadcast engineer, specifically focusing on the technical aspects of the system. The production staff operates cameras and also tapes programs for the campus video-course library. This library provides students with circulation of tapes for viewing as well as a place for reviewing past lectures. Upon request, the technical staff also provides faculty with training on how to make effective presentations on television. All media services to the traditional classrooms on campus are provided by the technical staff as well.

Distant site locations were chosen based on the range of the televised broadcast center and student convenience. In addition, businesses and industries that placed a high priority on education for their employees were contacted for potential sites locations. The addition and/or deletion of distant sites each semester, due to changing needs, creates a continuing management challenge.

Each site is run by a site coordinator, who registers students, sells books, and assists students during each scheduled class period. The site coordinator reports each day to the Lakeland campus, picks up handouts or tests, and returns assignments and tests to the professor for grading. Thus, the site coordinator also serves as the liaison between the students and the home campus and professor.

The Florida Engineering Education Delivery System (FEEDS)

The Florida Engineering Education Delivery System (FEEDS) is a cooperative effort among all of the institutions in the State University System of Florida. The Colleges of Engineering with approved graduate programs (USF is one of four) are designated as primary centers and these primary centers make courses available to engineers throughout Florida. The other universities in the State University System of Florida are designated as cooperating centers and make space available for local engineers to attend classes supplied by one or more of the primary centers. In addition, some companies elect to support an in-plant industrial site with internal private resources.

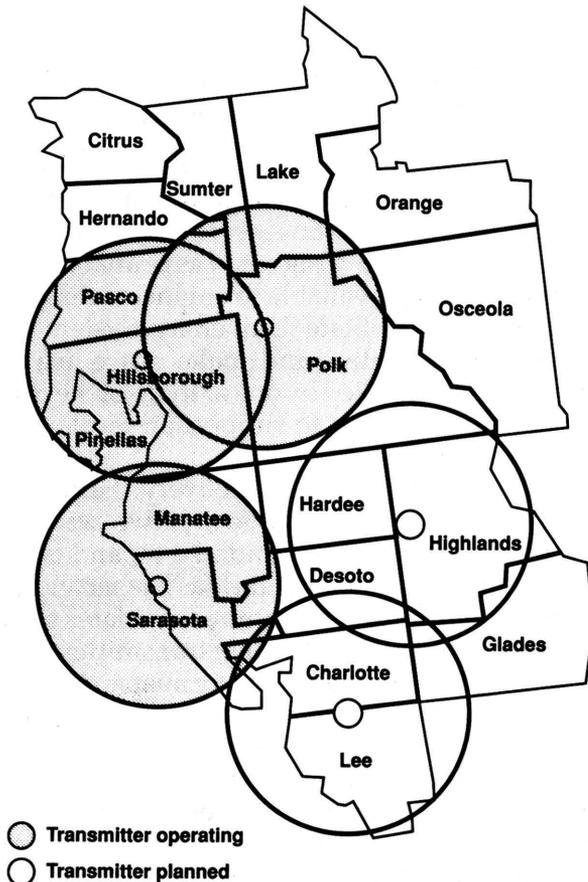
FEEDS utilizes two primary modes of delivery: the first is an interactive live television system with one-way video and two-way audio and data links. This delivery method has been initiated at, and is currently used exclusively by, the University of South Florida. The second delivery mode is videotapes, which are recorded on campus and later shown at remote industrial sites beyond the reach of the live transmitters.

The purpose of FEEDS is to provide a transparent delivery system and communications link between graduate faculties located on campus and graduate students who are employed by Florida companies in an engineering capacity. This link is technology-based and supports business, industry, and professional engineers anywhere in the state. The programs offered and their delivery system make Florida a more attractive environment for businesses and upwardly mobile technical personnel.

The USF live system currently operates three ITFS transmitters, which cover a large portion of west central Florida. Figure 1 shows the extent of live coverage. The shaded areas are operating transmitters, and the clear areas are planned additions. The live signal is also sent to a number of sites via a propriety fiber-optic network belonging to the Florida Power Corporation. The ultimate goal of the USF College of Engineering is to have a statewide network that delivers live bi-directional services to any engineer from Pensacola to Key West. Since the system began to deliver programs, engineers representing well over one hundred different companies have taken courses delivered through the FEEDS live and taped network.

The graduate program taken via FEEDS is identical to the program available on campus. Admission and performance criteria are identical for those on and off campus. The University of South Florida now has over twelve hundred engineering enrollments a year, and more than two hundred engineers in Florida have earned a master's degree from USF through network services. Further, approximately 45 percent of the graduate full-time equivalent credits earned by the college comes through the two specially equipped student classrooms.

Figure 1: USF ITFS Coverage Map



Each of the four delivery systems discussed in this article has strategically impacted USF and can be modeled by other universities. The Open University enrollment has, over its history at USF, exceeded that of the university as a whole. The Execudocs Long Distance Learning system allows physicians to gain needed management and business skills, which they could not easily obtain otherwise. The USF Lakeland Campus connects university resources to citizens of outlying counties. And FEEDS uses telecommunications to link graduate faculty at institutions in the State University System of Florida and graduate students employed in an engineering capacity by Florida companies. The FEEDS provides support to Florida businesses, thus creating an attractive business environment.

These technological vehicles for course delivery are the first steps in bringing the university to the home and to the workplace. In earlier years the student was required to come to the university, and those who were unable to do so simply did not benefit from higher education. Today we are involved in a revolution in higher education made possible by innovative faculty and the supporting technology. This, indeed, is an exciting and challenging time to be a university president.

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