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ABSTRACT

The essays in this collection focus on recent advances in instructional technology and their use in community colleges. The collection includes: (1) "Telecourses: Using Technology to Serve Distant Learners," by Leslie N. Purdy; (2) "Satellites Stop Beeping and Start Teaching," by Peter Vander Haeghen; (3) "Change through Cooperation: The NILRC Model," by Jack A. Weiss and Ralph G. Steinke; (4) "Access with Excellence," by John E. Roueche, George A. Baker, III, and Suanne D. Roueche; (5) "Copyrights Revisited," by George H. Voegel; (6) "Educational Technology in Multicampus Community Colleges: A Decade of Change," by Gloria Terwilliger; (7) "Limited Edition: Small Community Colleges Adapt to New Technologies," by Carl D. Cottingham; (8) "Technology for Education: Promises and Problems," by Kamala Anandam; (9) "Instructional Technology Mix: Some Considerations," by George H. Voegel; and (10) "Sources and Information: Instructional Technology at Community Colleges," by Jim Palmer. (EJV)

NEW DIRECTIONS FOR COMMUNITY COLLEGES

Advances in Instructional Technology

George H. Voegel, *Editor*

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George H. Voegel, *Editor*
William Rainey Harper College

NEW DIRECTIONS FOR COMMUNITY COLLEGES
ARTHUR M. COHEN, *Editor-in-Chief*
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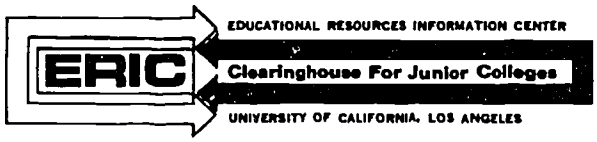

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Editor's Notes

Community colleges are still in the forefront on the use of technology for instruction. From the implementation of comprehensive learning resource centers (LRCs) that embraced a wide range of technology in the 1970s to the adoption in today's LRCs of such new technologies as telecourses and microcomputers, community colleges have to be able to adjust their finite resources in order to provide students with access to these instructional technologies. The purpose of this volume is to provide the reader with some perspective on the adjustments made to the use of technology in instruction since the mid 1970s.

Administrators should be able to find a range of ideas on the changes that technology has wrought in instruction, and they should also be able to take a reflective look through the information presented in several chapters about the rise and fall in the use of some specific equipment and software. Administrators should also be pleased to read about the beneficial effects of consortiums or cooperative membership on the cost of purchasing or leasing a variety of instructional materials now being used. Faculty should take heart from examples provided here which show that community colleges are still being flexible in their support of instructional technology for use in teaching. Such flexibility, in spite of the fact that resources are more limited now than they were a decade ago, is represented by the demonstrated ability of LRCs to change media formats (for example, film has given way to video), drop old technologies, and cautiously implement new technologies. Those concerned primarily with students and their learning will discover that many chapters display a very strong regard for the human qualitites of learners in the context of the application or use of instructional technology.

Some contributors discuss various aspects of the state of the art of the continuing evolution of the use of technology for teaching and learning. These authors give special attention to particulars within the wide range of the application of such technologies. Other authors draw the learner into their discussions by sharing concerns about the background level of the students involved. Cooperative approaches are the subject of one chapter and they are mentioned in a number of other chapters. Copyright issues are also examined. How large and small colleges are coping with technological change is described in some detail, and reflections on the implementation of technology are offered for consideration by the readers. The information, ideas, and suggestions presented in this volume on the use of instructional technology should help community college

educators to improve their understanding of the ways in which instructional technology can contribute to effective instruction and set new directions for the teaching-learning process.

George H. Voegel
Editor

George H. Voegel is dean of educational services at William Rainey Harper College in Palatine, Illinios. His responsibilities include a comprehensive learning resource service, adult education, tutoring, and academic computing services. His wide experience with instructional improvement programs, consortium work, and workshops on the appropriate use of technology in instruction and his service to numerous state and national organizations enable him to provide leadership to the community college field on the application of technology to the learning process.

Telecourses challenge faculty and administrators to produce quality materials that exploit the special features of television and to design new support services for students who can profit from this new form of instruction.

Telecourses: Using Technology to Serve Distant Learners

Leslie N. Purdy

Instructional television courses for adult learners are part of a movement in higher education to offer alternative forms of education in order to expand adult access to educational opportunities. The movement began in the nineteenth century with extension and other programs that made it possible for adults to study and receive credit for courses without having to participate in regular, on-campus classroom activities. One form of this alternative learning was correspondence courses, and they remain an established method for taking courses from universities in the United States and Europe. Now distance education comes in many forms. Instructional television courses, often called *telecourses,* are especially prominent.

Telecourses have been created in response to changes in the student population and to the need for lifelong learning. As the number of people wanting some form of postsecondary education has increased, enrollment in institutions of higher education has grown. Not only are increasing numbers of high school graduates seeking a college education, but the trend toward lifelong learning—education for adults at all ages—has also increased the demand for higher education, especially in the form of distance learning. Whether the motives for education are self-enrichment, vocational training or retraining, or a degree, adults are enrolling in all forms of distance learning because they do not have the time, resources, or desire to become full-time students on a campus.

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Another factor in the development of new forms of distance education has been the discovery and increasing sophistication of communication technologies. In this century, radio, television, and computers have been added to the printed and spoken word as modes of communication, and educational institutions are exploring ways of utilizing these technologies for purposes of distance learning.

In the United States, examples of distance learning institutions that use television and other new technologies are plentiful. Rio Salado Community College in Arizona and Coastline Community College in California represent nontraditional, two-year colleges established to serve adult distant learners. Dallas County Community College District has been producing and offering high quality telecourses for more than ten years. Empire State College in New York and the LearnAlaska Network of the University of Alaska are four-year institutions that stress distance learning and flexible education programs for adult learners.

Colleges have often cooperated to produce and offer telecourses, and several large consortia now exist for this purpose. Examples of such alliances include the Southern California Consortium for Community College Television, the Bay Area Television Consortium in San Francisco, the Northern Illinois Learning Resources Cooperative based in the Chicago area, and the Eastern Educational Consortium, which covers several northeastern states. Canada has several open learning institutions, such as the ACCESS Consortium in Saskatchewan and the Knowledge Network in British Columbia. The American Association of Community and Junior Colleges has formed the Instructional Telecommunications Consortium to serve as a research and information-sharing agency for schools that offer telecourses. In recognizing the exploding interest in distance and media-based learning, another important national organization, the American Association of Higher Education, publishes a newsletter entitled *Telescan: The Digest of the Center for Learning and Telecommunications*, which reports on articles, books, and speeches on educational uses of telecommunications.

But, while the use of telecourses has become common in the United States and in distance learning institutions throughout the world, criticisms of this form of higher education have been expressed. For many, especially college faculty members, the greatest problem with telecourse instruction is that it tends to separate the teacher from students and students from other students, thus impersonalizing the educational process. Not only does the lack of human interaction offend believers in the traditional pattern whereby a teacher personally delivers instruction, but critics feel that it also threatens faculty control of the curriculum and instructional processes. Telecourses, as used in the United States, are often produced at one institution and then acquired and offered by other educational institutions. Thus, both the technology and the delivery mechanisms appear to bypass local instructors.

Surveys of telecourse students reveal another perspective on this form of instruction. Students praise telecourses because they provide greater flexibility than do campus-based classroom courses. Part-time students can take one or two courses at a time, view programs and study at home, and have some independence in learning whatever seems useful and interesting to them. For these students, classroom instruction is perceived as a closed system that is heavily dominated by individual instructors' points of view and styles of instruction. The opportunity for student autonomy, even anonymity, that telecourses offer is especially appealing to adult students who may feel uncomfortable in a classroom with younger students, who are seemingly more willing to accept the instructor's point of view and teaching styles (Feasley, 1983).

Which view of telecourses is accurate? In order to answer this question, we need to understand the intent of telecourse producers and designers and the assumptions that they have made about the students who take the courses. We also need to consider what if any difference the technology of television makes in the teaching and learning process. This chapter addresses these topics.

Some Theories of Learning Relevant to Distance Education

Producers of distance learning education base their work on a number of educational theories rather than on any one philosophy. These theoretical positions have not always been well articulated by distance learning practitioners, who are often preoccupied with the day-to-day problems of implementation and management.

In general, distance education and telecourses have been built on an individualist theory of knowledge and education. "According to the traditional, Cartesian theory of knowledge, a person can quite effectively learn alone. All we really need in order to learn is a source—a teaching instrument—which may be a book, a television screen, or nature itself" (Bruffee, 1982). According to this perspective, education requires a communication process, but communication does not always need to take the form of discussion with other people. While social relations, such as those involved in discussions, are often useful, they are not essential to learning.

When this theory is applied to televised instruction, it suggests that "Televised programs, both educational and commercial, are designed to convey knowledge in much the same way as a lecture conveys it. Television is a source. As a teaching instrument, it transfers information from the television screen to the mind of the individual viewer" (Bruffee, 1982, p. 27). One implication of this individualist theory of learning is that it expands the possible sources of learning. For adult learners, this seems especially significant, since adults tend to learn from many sources throughout their lives. It also directs study about the learning process to the individual learner instead of restricting it to the teacher.

Developments in psychological research and learning theory have also encouraged educators to consider the individual involved in the learning process. One observer has summarized the impact of this change of focus: "Although the class is the model for education in most schools, there is increasing emphasis on the centrality of the individual learner. The old single-stage model of learning . . . has been abandoned [for] the multistage model with the idea of an individual, idiosyncratic coding or mediation between the stimulus and response . . . The multistage mediational learning concept exposes the delusion that learning is an event of social interaction (Holmberg, 1981, p. 34).

The focus on the individual in the learning process has been an especially productive direction for research on how adults learn, since higher education usually deals with complex types of learning. Often called *cognitive psychology* or *information-processing theory*, this area of psychology has been concerned with "the existing cognitive structures that individuals bring to the learning situation" as well as with the nature of the subject being taught (Wildman and Burton, 1981). Thus, the assumption can be made that, when learning occurs, it is a result of information's being designed and presented in a way appropriate to the learner's cognitive framework. There is no bias toward the delivery of instruction by teachers in classrooms or toward any other single instructional format. Rather, the focus is on the correct design and preparation of the instructional materials and accurate identification of the learning characteristics of the learners, two central precepts in the development of distance learning materials.

Telecourses and distance learning are also indebted to another psychological school of thought, B. F. Skinner's behaviorism. From behaviorism come some of the techniques that have been used in the design of telecourses. Often referred to as the *systems approach*, these techniques have attempted to make instructional design more orderly and scientific by combining what is known about students, the teaching capabilities of the medium, and the structure of the subject matter to produce effective multimedia courses. It is important to note that application of the techniques of the systems approach to the production of distance learning materials does not indicate adoption or acceptance of Skinner's stimulus-response model of learning. Nevertheless, the techniques themselves have proved to be useful and effective both to students and to producers of telecourses.

The two systems approach techniques used in many telecourses are identification of the target group and organization of the course around specific instructional objectives stated in terms of demonstrable student performance (Purdy, 1983). Description of a target group involves studying such things as students' educational background, their motives for taking telecourses in general and a specific course in particular, their age, sex, and family and employment situations. With this information, course

developers can choose appropriate teaching strategies and formulate content that is at the students' learning level. Specifying instructional objectives has several advantages. First, objectives help to provide a focus for the lengthy and complex task of producing television courses. A statement of course goals and instructional objectives also provides a vehicle for the organization of course content as well as an objective system for evaluating the effectiveness of a telecourse in reaching its goals. Finally, when given to learners, instructional objectives can help to direct attention, study, and review throughout the course. Regarding the use of objectives, Holmberg (1981, p. 38) observes that "it is natural to regard demonstrable behaviour not as the total effect of learning but as a sign indicating the probability that the desired learning has or has not, taken place." The practices of identifying target audiences and specifying student learning objectives are being adopted in all forms of education, not just in telecourses. Even if these practices do not guarantee good instruction, they provide a means for identifying weak and ineffective instruction.

In summary, the theoretical origins of telecourses are to be found in several disciplines and schools of thought. Yet, they provide the concepts that are central to this form of instruction. Holmberg (1981, p. 38) concludes that, "While . . . the behaviourist school has exerted a strong influence on the practice of distance education, principles emphasized in cognitive learning theory as well as principles from motivation and personality theories and social psychology are evidently decisive for much of what is achieved in this type of education."

The Role of Various Media in Telecourses

If looking at theories of learning helps us to understand more about the learner's side of the learning process, then it is equally important for us to look at the other side, the "source," or, in the case of telecourses, the media used to present the course information. Here, too, there are some basic theories or assumptions about the teaching capabilities of the various media used. Telecourses are not only innovative because they are a form of distance education but because they utilize new communication technologies.

When we study telecourses, it is easy for us to forget that television is but one of several media used to deliver content. In addition to television programs, most telecourses use print media in the form of textbooks and study guides and instructor interaction in the form of correspondence and telephone or face-to-face discussions. Other media can include audiotapes, computers, and newpapers. Of these, the print materials, especially the textbook, carry the bulk of the content of the course. Most telecourses used in American higher education utilize commercially available textbooks that are respected by faculty members for classroom instruction and that

have received high marks from students for readability and interest. It is generally accepted that the print medium can present some kinds of information, such as detailed and complex explanations, lists of facts, complex graphic displays, and routine drill and practice, much better than other media can (ITV Center, 1978).

The role and strengths of the print medium for the presentation of information are well understood and accepted. But, while the textbook is an important part of telecourses, it is not the whole course. "A textbook gives all relevant facts, and if it is a good textbook, it does so in a clear and logical way, but it does not guide or teach. That is to say, it does not induce the student to learn . . . A distance-study course guides and teaches by giving complete explanations with elucidating examples, by providing exercises of various kinds, and by constantly referring to what the student has already learned to master" (Holmberg, 1981, p. 56).

The functions of the whole course identified by Holmberg are accomplished in a telecourse by the study guide, the television programs, and the instructor. Thus, it is important to understand that telecourses, as multimedia systems of instruction, are designed so that each of the media used handles specific instructional activities. Further, the media are designed to be coordinated and integrated so that each medium (or component) reinforces the information presented in another component. For example, in one lesson in a course on child psychology ("The Growing Years," 1982, Lesson 13, "Preschool Mental Development"), the textbook may present in some detail the experiments and reasoning that led psychologist Jean Piaget to his theory of conservation as an aspect of cognitive development. The accompanying television program shows reenactments of these famous experiments that vividly demonstrate the theory and show how children of different ages have quite different mental abilities regarding conservation tasks. The study guide provides learning activities and self-test questions to help students ascertain whether they understand and can apply the concepts. And finally the telecourse instructor answers students' questions, suggests and monitors other learning activities, such as direct observation of children, and evaluates student work. Thus, a telecourse is truly a multimedia coordinated instructional package.

The role of the television programs in a telecourse and their effect on learning are the object both of agreement and of debate. On the one hand, "both radio and television, audio and video recordings are usually held to be good motivating forces and assumed to exert greater affective influence than print or written communications" (Holmberg, 1981, p. 65). Most distance educators cite television's potential for demonstration, for bringing unique visuals from laboratories, historical settings, dramatizations, and foreign places as enrichment to the educational process. Some recent research suggests that the television programs have other functions. A University of Mid-America (UMA) study (Brown, 1975, pp. 54-55)

reported that "learners in UMA courses [tend] to react negatively to those aspects of the television programs perceived by learners as having exclusively an entertainment function rather than one of instruction." It may be that students watching television for instruction use levels of attention and criteria of quality that differ from those they use when watching television for relaxation and entertainment. The same study concluded that the broadcast television programs serve as a pacing device for students taking the telecourses.

On the other hand, there is also much debate between knowledgeable observers over the specific role of television in learning. We are all familiar with McLuhan's assertion that the medium is the message, which suggests that each medium in some way transforms the content being conveyed. Recent research elaborates on that thesis. For example, Salomon (1979) has presented an extensive analysis of how television utilizes various symbol systems differently than other media. He concludes that a learner will receive different content and different meaning from different symbol systems and that we need to teach people to learn the mental skills necessary for understanding the symbol systems of different media. A similar idea supports various efforts at teaching visual literacy to children at young ages. Yet, others in the field of educational media disagree and assert that media are mere vehicles for presentation of knowledge, not agents that somehow change the knowledge. For example, Clark (1982, p. 60) states that "We cannot validly claim any advantage of one medium over another when student achievement is the issue." Thus, for Clark, the choice of media to be used in a course is determined by convenience, resources, and availability. Both sides agree that television can teach, but they disagree over whether television—indeed, any of the new communication technologies—changes the teaching-learning process in perhaps subtle but pervasive ways. More research is needed to explore the nature of television as an instructional device and the ways in which adult learners react to and learn from television.

Telecourses: Learning from a Distance

Exploring the nature of telecourses means looking at the learners, the media, and finally, the basic method of their operation whereby students are independent and autonomous during much of their course work. What is the effect of distance on students and learning? The answer is probably that while distance between the student and the teacher and other resources of the institution is important, it does not necessarily prevent student learning. The fact that telecourses are designed to appeal to and serve mature and self-motivated learners has already been mentioned. In support of this approach, telecourse producers point to one of the goals of higher education: to promote the growth of student autonomy that leads ultimately to self-directed learning.

For some, the most important aspect of telecourses is in promoting and serving student independence: "The distant student is placed in a situation where he has much greater chances of individually selecting what he is to apply himself to than those conventional students for whom classroom attendance is compulsory" (Holmberg, 1981, p. 26). One result of this freedom is that students may complete or ly part of the course that is immediately useful and important to them. In light of this learner autonomy and freedom, dropout rates that are higher than those for classroom courses are neither surprising nor undesirable and in Holmberg's view (1981, pp. 19-20), the higher dropout rate "is wholly acceptable and should not be considered a negative comment *provided* students are offered proper facilities. Whether or not they make use of what is offered is up to the individual students."

Yet, however desirable the goal of the student autonomy and self-directed learning may be, the practical reality is that not all telecourse students are ready to profit from the autonomy offered in telecourse instruction. For the less mature student, telecourses may substitute the authority of a television program and a text for the authority of a professor in a classroom. Rather than actively responding to the visual presentation of content, they may passively accept it as a "canned" lecture. And, high dropout rates may be in part the result of immature students who cannot handle the autonomy, a finding reported in research on younger British Open University students (Waters, 1983). Thus, challenging students to think and reason, to respond actively and critically to the course, is a problem for telecourse instruction. And, institutions offering telecourses must identify students for whom distance learning is inappropriate and either help them to learn new study techniques or direct them to other, more supportive instructional situations.

Under the distance learning framework of telecourses, responsibility for learning is placed primarily on the shoulders of the students. However, the responsibility for encouraging learning still rests with faculty and educational institutions. The design, production, acquisition, and offering of the telecourses sets new kinds of responsibilities for all persons involved. First, the components of a telecourse need to be clear, interesting, and flexible. At the same time, they must observe academic standards of accuracy, objectivity, and completeness. A telecourse does not have the classroom's captive audience, and it must show the importance, excitement, and relevance of the subject to the student early in the course if it is to retain that student's voluntary commitment. Further, the institution that offers telecourses needs to design and offer appropriate support services for students who need help in order to profit from and complete the course. Practical considerations, such as enrollment by mail, evening and weekend faculty office hours, telephone office hours, frequent written communication between instructors and students, library use, and purchase of

textbooks by mail, as well as prompt feedback to students concerning results of tests and assignments, are but a few of the support services that institutions have offered to telecourse students.

Telecourses are multimedia presentations, not merely a series of television programs, print materials, or correspondence exercises. If telecourses fail to achieve the highest goals of our institutions of higher education, the blame cannot be placed on technology or on the fact of distance between learner and teacher per se. The test of the quality of the learning still rests on all the experience that we offer to students and on what we ask them to do as a result of their learning.

For example, if personal interaction between students and scholars is established as an important part of the educational process, those interactions can be provided even in distance learning situations. If student demonstration of higher-level thinking is a goal, institutions must establish ways of teaching and testing for such skills. Television, telecourses, and distance learning do not inherently prohibit or make impossible the achievement of such experience and goals.

Telecourses use one of the new communications technologies to accomplish distance learning for adults. In doing so, they raise important goals of independence and autonomy for students. They also challenge faculty and administrators to produce quality materials that utilize the qualities of the medium and to provide new kinds of support services for students who like and can profit from this new form of instruction.

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Improved broadcast technology and increased use of satellites make it possible for educators to reach previously unserved populations.

Satellites Stop Beeping and Start Teaching

Peter Vander Haeghen

Distance learning in higher education reaches students who cannot or do not want to come to college campuses. Often their experiences with distance learning later bring them to the campus to complete their educational goals, goals that they had felt were unattainable. A new attempt at reaching more of these potential students by increasing curriculum selection is now being developed by the Telecourse People and the Instructional Telecommunications Consortium of the American Association of Community and Junior Colleges (AACJC).

Many distance learning students need college credit for their degree goals. Current statistics indicate that a majority of telecourse students are degree oriented. But, there is a very large number of adults who are interested only in the information, not in the credit, offered by telecourses and related series. Some research by both the Public Broadcasting System (PBS) and Coast Telecourses came up with similar numbers in research projects that were conducted several years apart. This research indicates that there may be as many as 250 educational viewers for every enrolled student. As many continuing education program directors know, these unenrolled "students" need and want information. And, they are willing to pay for it, as the PBS stations that ran TV Ontario's computer literacy series "Bits and Bytes" quickly found out when more than 35,000 people each sent $70 to

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those stations as part of a non-college-based learning experience. The only college participation came from a few colleges that offered the course for college credit aside from, not as part of, the PBS Computer Academy.

More and more people are turning to television for information as well as for entertainment. Some information resources for these people are PBS, specialty cable channels, bookstores, and home video stores, to which vending machines in grocery stores are soon to be added. So, who cares how the video is delivered, as long as a college issues credit? The time has arrived for a satellite service to allow the college, station, or cable system to use academic programming to serve the distance learner.

Satellite Telecourse Survey

In January 1985, a questionnaire was sent to more than 300 telecourse customers in the United States. The purpose of the survey was to find out whether telecourse users would be interested in a satellite channel completely dedicated to the offering of credit college courses that could distribute telecourses through any available local broadcast delivery system. The cost of the service was estimated to be about $3,000 per college per year, plus individual course leases (at a reduced price). It was assumed that enhanced underwriting statements run between course segments would help to pay for the service.

Of the eighty respondents to this survey, forty-six were two-year public community or vocational colleges, eleven were upper-division institutions, one was a hospital, one was a school district, five were PBS stations, one was a Canadian college, and the nature of ten was unknown. Of the responding community colleges, 84.8 percent said they would support the channel, as compared with 62.5 percent of the upper-division colleges. A large majority of community college respondents were enthusiastically supportive of the concept. Sixty-three percent of these respondents felt that such a service would improve utilization. Fifty-three respondents in all indicated that they would use the service full-time on their cable channel and allow the enhanced underwriting statements to run. In addition to cable, twenty-one schools had access to ITFS (Instructional Television Fixed Services, a 2,500 megahertz band television system), and five had access to low-power transmission stations.

The community colleges responding to the survey represented 31,110 telecourse enrollments annually through 476 course leases. Overall, survey respondents had 73,759 enrollments from 810 leases. General comments ranged from "good luck" to great skepticism, to important suggestions for success. In general, there was a great deal of support for the project from this particular survey group who happened to represent the major telecourse users in the country.

The Hope of Transmission Technology

A long-nurtured goal—using technology to meet the needs of students who are currently unable to attend classes on a college campus—is approaching realization. The means is the delivery of college-level courses to all Americans and people around the world via television and other electronic delivery systems. The major technological hurdle, expensive mass delivery of huge amounts of educational material, is being overcome. Today, the number of satellites and receiving stations across the nation located at broadcast stations, cable systems, colleges, and homes makes this technological delivery of instruction as easy as turning on a television set anywhere in the country.

Satellite dishes are so inexpensive that they are commonly found in the backyards of American family homes. These are not the homes of the rich or even of the upper middle class. These are farm homes, homes in small towns and large cities, even condominiums. There are so many satellites in the communication ring of space above this nation that a real parking problem is beginning to develop. No longer is satellite communication to the home something from science fiction. It is now as commonplace as the television sets we watch. It is the pivot point for delivery of most programming viewed on both commercial and public television, whether open or closed broadcast.

So, where has higher education been in this technology? PBS has made major headway in delivery of college-level programs to stations and colleges. The Learning Channel has also provided an excellent resource of quality college telecourses through cable systems. Regional networks, such as Central Education Network (CEN) and Southern Educational Communications Association (SECA), are actively involved in the delivery of higher education programming, often via satellite. However, they all have one thing in common: The educational programming that they deliver is only part of a larger program service for other educational or entertainment audiences. Even the specialized satellite teleconference networks do not deliver a full-time higher educational programming service. Such systems as the National University Teleconference Network (NUTN) have met a specific need for college and universities by providing teleconferences that bring current topics and personalities to students all over the country—live and in some cases interactively. The market void or need is for a full-time higher education telecourse service that provides basic two- or three-credit-hour college-level courses.

There are several reasons why a telecourse channel has not yet been started. Most of these reasons center on the financial problems associated with the operation of such a service. The other problems include a lack of sufficient programming, a lack of satellite access or the money needed to

buy it, a lack of the promotional expertise needed to sell the service, and a lack of institutional support from enough community colleges and universities around the country to make it possible. Still other reasons involve problems with the techniques of delivery, lack of focus on customer service, and the question of the academic credibility of distance learning courses or instruction through television.

Except in a few rare cases, community colleges have not climbed on the electronic distance learning bandwagon. This may be due in part to the basically conservative nature of their business. The rhetoric about low-quality instruction and loss of teaching positions that this form of technology often elicits has not been justified. Even though teachers fear that this technology will lower academic standards and take away teaching jobs, research over many years has shown both that this is a valid instructional delivery system and that it does not eliminate jobs.

A new development in the use of technological delivery of higher education to students is forming outside the academic system in an area least expected—private industry. With the advent of true satellite broadcast delivery directly to the home, at least one commercial broadcasting company is considering the delivery of credit and noncredit college courses to homes on a $300 24-inch home satellite dish. The dish will receive a variety of entertainment and educational channels. There will be no monthly fee, and no special equipment is needed beyond the dish. This company is seriously conducting extensive market research into the possibility of delivering college-level education for profit.

The concept is not all that unusual when compared with the private colleges or proprietary technical schools that have correspondence schools and training centers all over the country. They have been educationally and financially successful, even though their offerings have often been criticized by the academic institutions. It must be admitted that they know how to analyze the marketplace, provide a needed service, and make a profit at it. To make that profit, these organizations have eliminated many of the sacred cows of academia, such as number of hours of teaching load (instructors work a forty-hour week), tenure (instructors perform at an acceptable level, or they are no longer in the employ of the school), and the publish-or-perish syndrome (instructors are there to teach). In addition, instructors work all year around without benefit of summers off, Christmas and Easter or spring breaks, and semester breaks. In other words, these schools are in the learning business. To maintain such a business, they must produce a quality product. At the same time, they must not price themselves out of the market, or the clients will no longer come to them, just as in any other business. The signs are clear: Community colleges and four-year universities have an opportunity to provide leadership in the technological delivery of instruction for higher education.

If they ignore this opportunity, they may lose potential students to more responsive providers of educational services.

The Adult Learning Service (ALS) of the PBS has made a gallant effort to expand access to electronic learning systems (telecourses in this case). However, it had some unfortunate start-up problems with many of the colleges that were served. ALS has exclusive rights to broadcast distribution of Annenberg Foundation-funded courses, which promises to provide many new and well-produced educational series for many years. The ALS is taking steps to improve overall service to participating colleges, and it will continue to be a key provider of excellent educational programming. The major drawback of the PBS Adult Learning Service, from the perspective of colleges, has been the requirement to use only the PBS station or to get a written waiver from the station in order to use another delivery system. Local stations rightfully want and need exclusivity in their market if they are going to get their share of the revenues. These are valid considerations, but they have had the effect of tying the hands of the colleges.

The Concept of the Telecourse Channel

The Telecourse Channel concept was originated by the Telecourse People consortium in response to a general plea from telecourse users for a more college-oriented delivery service for telecourses. Coastline Community College, through Coast Telecourses, provided impetus for the concept with strong support from the other consortium members. Now, the International Telecommunications Consortium (ITC) of the AACJC has taken over development of the project. With its leadership, the concept promises to hold even greater service potential than it did as originally planned.

The Telecourse Channel would provide college-level courses via satellite to any educational institution that was willing to pay an annual fee of about $3,000 and a small lease fee for each course that it used. The annual fee allows the college to distribute the entire twenty-four-hour-a-day service through its own cable system, ITFS, low-power, or any other delivery available without additional charge. The college pays approximately $400 to $500 per course plus a fee for each student enrolled in credit or noncredit activities. The courses would be leased directly from the producers or distributors. Besides the freedom from restriction on delivery systems and access to as many as forty courses each semester, the college would be able to offer open entry-open exit, short-term, and flexible scheduling. Other services being considered include classroom support materials, in-service, computer software, audio programs, and management information. It will take some time to implement these secondary services.

Under the Telecourse Channel concept, the college would determine its own destiny and maintain control of the educational process. The

video portion of the courses would be delivered to meet as many college scheduling concerns as possible. However, the college would determine how to use the video resource. Faculty would be selected and paid for by the college that offered the course. Support systems for the student would be controlled by the college, as is currently done. Credit for the course would also be issued by the local school.

Students have windows of availability—times when they can watch a program. The Telecourse Channel would repeat programs in order both to open windows of availability and to provide opportunities for review. However, it remains the responsibility of the local college to ensure that the quality of the support system meets the expectations of the students. Watching television does not make a comprehensive learning experience. It is the college faculty and support system along with text, study guide, and assignments that make the experience a course.

Unlike attempts of the past to use satellites to establish a national higher education program, the Telecourse Channel project is strictly a telecourse video distribution system aimed at serving colleges through lower-cost telecourses. The channel will help to escalate a delicate program cycle. That cycle begins with the cost of designing and producing a good telecourse—close to $1 million. Production of such courses takes outside investment, which is predicated in part on the prospect of return on investment. High budgets generate good-quality video and design. Good quality means increased use. Increased use means greater financial return for investors. Greater financial return means increased interest by investors, and increased investment means more quality telecourses. Therefore, it is important for the producers to seek greater use of their products so that users have greater selection and larger enrollments.

Such a service will be expensive to operate. Initial estimates for such a service, assuming that producers provide courses to the service for free, are more than $1 million per year. The financing will be the major challenge. In order to raise $1 million a year, some creative financial thought has produced a plan that is currently being pursued. This plan involves a technique called *enhanced underwriting*. The technique is currently being tested by several PBS stations. Enhanced underwriting allows an underwriter to add something to the underwriting statement. Traditional underwriting statements take the form: "This program is brought to you by," followed by the name of the underwriting company. Enhanced underwriting not only acknowledges the underwriter's name but allows the company's logo to be displayed and a statement about the company's products to be added The PBS guidelines for enhancements are quite specific and clearly define the conditions of use.

The Telecourse Channel would carry the enhanced underwriting concept much further. The Channel is to be operated as a nonprofit organization expressly to provide an educational programming service to col-

leges and universities, but because the programming will be distributed by local colleges through any means at their disposal, the enhancements can be longer and more explicit. This freedom from restriction would increase the incentives to underwriters to support a telecourse or a block of time. If the underwriter realizes that he can reach a very targeted audience at little expense, compared to the cost of commercial television, the underwriter appreciates that his support has "value returned." That value returned may be increased product awareness, increased corporate awareness, corporate image, or some combination thereof.

Programs or blocks of time would be offered to underwriters on a yearly basis. For example, an underwriter might wish to support a specific program series each time it was distributed. A half-hour segment could cost $95,000 for the year. If the series was repeated, the underwriter might wish to support each repeat for another $95,000. Another possibility is that the underwriter would want to support certain time slots in the day regardless of the programming. Again, the underwriter could do so at a fixed annual rate per year. What does the underwriter get for his support? The underwriter's company gets national exposure to a prescreened audience. This audience is made up of older adults who have families, jobs, motivated educational goals, and purchasing power. The underwriter also gets national recognition as a supporter of education in the United States. And, the underwriter gets thirty seconds before and thirty seconds after each program to make the underwriting statement. The cost of such support is small compared to what most underwriting companies would pay for regular commercial advertising.

The college has the option of running the underwriting statements or not, depending on the agreements that it has with distributors or the regulations that govern its delivery systems. It would be the user's responsibility to remove the enhancements if it does not want them to run. The Telecourse Channel would run the underwriting statements in their entirety. It serves users of the channel best if colleges that can run the underwriting statements do so in order to encourage underwriters to continue their support.

The overall goal of the Telecourse Channel is to increase utilization of telecourses by colleges and universities by increasing access and selection. But, how do you increase telecourse utilization when most colleges can spend only a fixed amount of money on leases? This utilization factor has been a major concern of the system's planning group. One way of increasing utilization is by lowering prices. From the distributor's viewpoint, this creates a serious problem because of fixed overhead. Lowering lease fees on a product that has a slim profit margin can quickly turn black ink to red. High overhead is chiefly due to the percent of return that producers have to give back to investors. Investors are crucial to the development of the product, and their needs must be accommodated.

Assuming that the college budget for telecourse leases is fixed, distributors are gambling that the college will lease more courses because the unit cost has dropped. It is hoped that expanding offerings will spur increased enrollments by telecourse students. Increased enrollment should increase demand, college budgets, and use of courses. It is a long range marketing venture, and a gamble, that the Telecourse People are taking for improved distribution and increased utilization of telecourses in distance learning.

Toward the Future

Public higher education must face the fact that electronic technology is here to stay and that it will have an effect on the lives of us all. Educators who can accept this fact will guide the technology to ensure the most effective utilization and quality. Those who cannot accept it will stand by and watch other agencies take a critical educational process away from them and turn a profit with a product that has been available for years. The Telecourse Channel is an attempt to bring this exciting learning alternative to more colleges and more people inexpensively. Only the people in the academic institutions can answer the question, Will we use and control it, or will we ignore and lose it to other providers?

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Regional cooperative efforts among learning resource centers at different colleges yield many benefits, including cost savings, resource sharing, and coordinated staff development.

Change Through Cooperation: The NILRC Model

Jack A. Weiss, Ralph G. Steinke

Community colleges were widely recognized for their comprehensive and innovative programs during a decade of rapid growth in the 1970s. Looking ahead to the 1980s, Breneman and Nelson (1980, p. 73) predicted an "increased tension between mission and finance" and colleges were forced to deal with the realities of leveling enrollments and increasing financial constraints. This prediction has indeed become a very real fact of life for today's community college leaders.

The learning resources center (LRC) has emerged as the common organizational unit for the provision of a wide range of instructional support services. Although LRC programs vary from one college to the next, the model usually includes library technical services, library public services, media production, and audiovisual (AV) equipment maintenance and distribution. Other services found in LRC programs include reprographics (duplication centers), computer labs, learning labs, institutional archives, and telecourse programs. In justifying their programs, LRC professionals often take the position that healthy library and AV services help to improve the quality of instruction. They argue that learning labs and strong tutoring support help to maintain enrollment by keeping high-risk students in classes. However, the bottom line is that these support services are usually money consumers, not money makers. As such, they are vulner-

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able when colleges face a serious budget situation and are forced to make difficult decisions about maintaining programs.

Bush and Ames (1984, p. 73) have identified technology and human resources development as the two major obstacles that lie ahead for community college leaders. They urge proactive planning as a strategic tool for dealing with these obstacles. Given their unique function in the community colleges, LRC professionals have had broad exposure to technology with a strong services orientation. They are well prepared to provide institutional leadership in addressing technological change and human resources development. Several midwestern community colleges have had more than a decade of successful experience related to these issues, and they have augmented institutional leadership through a learning resources cooperative.

The primary purpose of this chapter is to examine the LRC cooperative as a positive tool for dealing with technological change and human resources development. It will use as a model the Northern Illinois Learning Resources Cooperative (NILRC), and it will highlight benefits in four areas: the cooperative purchase of supplies, equipment, and educational materials; resource sharing; staff development; and information sharing.

The intent in using NILRC as a model for regional cooperatives is to identify some of the factors that have contributed to its success over the past ten years. Specific examples will be given. These success factors can be applied in other settings as colleges face the issues of technological change and human resources development.

The NILRC Background

NILRC was formed in 1973 with the help of an Illinois Community College Board planning grant of $8,000. The grant was awarded through the Higher Education Cooperative Act (HECA) and provided seed money that allowed LRC representatives to begin meeting on a monthly basis. The original emphasis of the members was on the sharing of locally produced instructional materials.

Just as with individuals, organizations have personalities, and NILRC's personality as a new organization was characterized by a spontaneity and openness to new ideas. However, an organization's personality is in large part a composite of the personalities and interests of individual members. From an interest in sharing locally produced instructional materials, the founding members broadened their concerns to such issues as cooperative purchasing, information and resources sharing, and staff development. In fact, all these concerns then became the foundation on which the cooperative was constructed.

As the group's interests widened, it became important from a legal standpoint to obtain the individual and institutional protection afforded

by a not-for-profit corporation status. NILRC obtained its charter in May 1975. Since that time, membership in NILRC has grown from eight to thirty-seven institutions. A number of pending applications are being considered.

NILRC Success Factors

A commonly shared community college learning resources philosophy is at the core of NILRC's success. All members believe in comprehensive, integrated learning resources programs that extend to the educational community as well as to the community at large. Such similar thinking produces a climate that is conducive to elevating the concerns of the individual members to an interinstitutional level.

NILRC colleges are located close to the city of Chicago. The practical advantage is one of saving time and money. It is easy for delegates to drive or carpool to monthly board meetings. All fifteen full member colleges are located within a seventy-mile radius of the city of Chicago, and associate membership is extended to institutions outside this area. Member colleges take turns hosting board meetings and other activities. Thus, delegates spend their time more efficiently by meeting, not by traveling.

A significant and certainly most critical reason for NILRC's success has been the human element. The organization was formed at the grassroots operational level by learning resources people. Its structure developed along a bottom-to-top line of communication, not along the more common top-to-bottom model. As a result, its agenda focuses on issues and practical problems experienced by learning resources staff.

The cooperative spirit and trust among NILRC people are best exemplified by the level of information sharing among members. Regular meetings allow delegates from member colleges to know the diverse interests and strengths of other delegates and institutions. Everyone soon knows whom to contact for answers concerning a particular field of expertise. Important developments that may be of interest to NILRC members are reported at the regular meetings or shared informally, when necessary, over the telephone. This practice of information sharing at monthly meetings is often identified by members as one of the most valuable benefits of the organization—one that meets an important individual professional development need. The end result of informal sharing has internally been to build and strengthen the pool of human talent, thereby benefiting all member institutions. Externally, it has thrust NILRC people into active roles in local, regional, state, and national organizations.

The organization's bylaws and membership agreements provide the umbrella of legal protection necessary for dealing with NILRC internal and external affairs, and they establish a unique framework for governance. In addition, they buttress the common community college learning resources concept. The bylaws encourage a rotation of elected officers,

thus maximizing the development of leadership qualities among delegates. One effect of shared governance is that over the course of time the large majority of delegates approach matters from a group perspective rather than from the view of a single institution. Moreover, rotation of leadership prevents either an institution or an individual from dominating the activities and decisions of the cooperative. Therefore, NILRC meetings present an open forum in which delegates can discuss and act on the issues freely and candidly.

The bylaws and membership agreements are also characterized by minimum requirements. All that is actually mandated of a full member institution is regular attendance by its delegate at meetings and the payment of the annual dues. Associate members need only to pay dues. Out of such an arrangement comes what can best be termed organizational fluidity. Operational goals are annually formulated, reviewed, and modified. Delegates and member institutions can volunteer and participate in cooperative projects of their own choosing. Each institution is easily able to maintain its autonomy.

The dues structures and voting method make further contributions to cooperative flexibility. Annual dues of $300 per institution were established in 1975, and for full members they have not increased since. This low fee has made it possible for even the smallest colleges with a limited budget to join and enjoy the cost benefits of group contracts. In combination with the one vote per institution stipulated in the bylaws, the dues structure has prevented the development of voting blocs. No large-college-versus-small-college or have-versus-have-not phenomenon has occurred. In fact, membership privileges have equated well with member responsibilities. Smaller colleges, which are often more flexible organizationally than larger schools because of their size, have been able to meet more immediate needs, such as furnishing logistical support services on short notice. The larger institutions frequently have made contributions by sharing special facilities, material, and human resources when the occasion demanded.

The success that has resulted from the factors just outlined has not gone unnoticed, and it has resulted in a degree of emulation. Two other cooperatives have been developed within Illinois along the NILRC model: the Mid-Illinois Learning Resources Cooperative (MILRC) and the Southern Illinois Learning Resources Cooperative (SILRC). They, too, resemble neither a number of regional television consortia that focus only on one specific activity nor certain national consortia that have more dispersed missions or purposes. Like NILRC, they have served their members in a multifaceted manner.

Benefits of NILRC Membership

All of the success factors just enumerated can be regarded as such because of the very real benefits that have resulted from cooperation. Mem-

bership benefits originate from cooperative purchasing, information and resources sharing, and staff development.

Cooperative Purchasing. The most evident benefit in terms of cost-effectiveness has occurred in the leasing and purchase of instructional television materials. Consortium pricing has made it possible for even the smallest colleges to acquire materials far beyond their financial means if they acted as individuals. Indeed, the considerable savings realized in the cost of instructional television software, particularly telecourses, has been a significant reason why many institutions have applied for membership in the cooperative.

As television matters generated more activity, they consumed more time as well. Recognizing this, the Telecommunications Advisory Group (TAG) was established as a NILRC standing committee. Formed in April 1981, it consists of telecourse coordinators from the NILRC colleges that are active or interested in discussing educational television matters. Institutional commitments to lease or purchase are made at TAG meetings, and a designated member of the group then negotiates with producers or distributors. The status of television affairs is reported at regular NILRC meetings by the TAG chairperson. In this way, NILRC delegates are kept informed about television developments without the subject's monopolizing a large amount of meeting time.

Added benefits to individual colleges have resulted from the cooperative's membership in a national organization, the Instructional Telecommunications Consortium (ITC), an affiliate of the American Association of Community and Junior Colleges. Composed of producer and user institutions and consortia from the U.S. and Canada, the ITC provides information sharing and production opportunities in which every NILRC college can participate.

Cooperative purchasing agreements extend beyond the instructional television or telecourse area. Group purchases of commercially produced sixteen-millimeter films and videotapes have been successfully negotiated with a number of major producers and distributors, which have made large portions of their holdings available at attractive prices. Other agreements have been consummated with book vendors and audiovisual supply companies. Negotiations are presently in process with library suppliers and computer software vendors.

Information and Resources Sharing. A less tangible but nevertheless equally valuable benefit involves the information and resources exchanged among NILRC members. This sharing can best be exemplified by the research and development of a computerized software package for community college learning resources centers. A team of NILRC personnel composed of librarians, audiovisual specialists, and computer experts developed a plan for the implementation of an automated learning resources package. With the aid of an approximately $200,000 award to the cooperative by the U.S. Department of Education, further research and

development as well as initial installation was carried out at Elgin Community College, the host site. The computer package, referred to by the acronym CALS (Comprehensive Automated Learning Resources System), is a flexible LRC management system designed to operate in an IBM computer environment. It accommodates all media formats and satisfies a variety of LRC service needs, including on-line circulation control, audiovisual equipment scheduling, art department slide collection retrieval, and records management. A wide variety of reports are generated, either automatically or on request. Future plans include the development and testing of an on-line catalogue with patron access modules.

Unlike turnkey systems that require the purchase of separate equipment, CALS uses the college's own computer equipment. Data processing staff handle routine maintenance. This conceptual design helps to keep the costs of automation down. The higher degree of integration in CALS also greatly enhances LRC services without requiring additional staff, another cost issue. CALS software is marketed through CALS Services Group, Ltd., a team of community college people with a unique combination of skills and interests in media services, librarianship, and computer technology.

As the cooperative spirit of NILRC people has increased, the level of information sharing among them has risen correspondingly. Formally, the sharing process takes place at regular monthly meetings where delegates are able to draw upon and benefit from the diverse areas of expertise of other delegates. Informally, delegates often share ideas while car pooling to regular board or committee meetings. With increasing frequency, much informal sharing occurs by telephone. The development of the formal telephone network has spawned an annual NILRC activity: publication of the *Illinois Learning Resources Personnel Directory.* The directory contains the names, addresses, and telephone numbers of all Illinois public community colleges and the names, titles, and telephone extensions of their learning resources staff members.

To make information sharing even more efficient, the cooperative currently has under study the development of its own electronic mail system. Such a system would not only be used by learning resources personnel, but it would be offered to other administrators in order to expand cost and time-saving benefits to each college. In addition, it would serve to raise the visibility of learning resources in a positive sense before higher administration.

Staff Development. NILRC has taken an active role in planning growth and development activities for its members in order to prevent professional hardening of the arteries. Tightened budgets, technological changes, and decreased staff turnover due to the economic environment all contribute to the need for a healthy staff development program. Staff development activities usually occur as the result of two processes. The first is

an evolutionary one whereby a matter increasingly consumes more time and attention of members. The result is the creation of a subgroup comprised of expert, interested personnel who then concern themselves with the subject. Examples of such groups are the Telecommunications Advisory Group described earlier and an on-line users group made up of library professionals concerned with the accessing of bibliographic data bases.

The second process is more ad hoc by nature in that special topics of interest are focused upon as potential workshop activities. The systematic planning and scheduling of these events is carried out by a NILRC delegate. Examples of past activities include workshops in management techniques for LRC administrators, on-line bibliographic search strategies for reference librarians, microcomputer applications for LRC staff, equipment repair for audiovisual technicians, and demonstration of new equipment for evaluative purposes. Workshops dealing with such emerging technologies as interactive learning systems are in the planning stages.

Conclusion

The NILRC experience conveys an important message to community colleges in general and to learning resources centers in particular. The message is that cooperation can be most advantageous in a climate of stable or declining enrollments and economic constraints on the one hand and of rapid technological change on the other. The dilemma that educators face in such a climate is that they are torn between taking the risks they know changing technology requires and spending funds that they know are limited.

Cooperation is one way by which such a dilemma can be circumvented. As NILRC has demonstrated, colleges are encouraged to take risks because cooperation minimizes the risk. NILRC's success with the delivery of instruction via telecourses is a prime example. Cost savings to each institution permit not only implementation but continued expansion of a nontraditional yet increasingly viable method of education at a time when no additional dollars are available. In short, cooperation gives institutions the leverage they need to innovate.

There is a psychological advantage to cooperation as well. Technological change must be accompanied by an attitudinal change. Instruction and academic support of instruction can only change if the personnel involved can cope and adjust. Cooperation, through the sharing of new ideas and experiences, removes the threat that individuals feel when conditions necessitate change. The support provided by an informational network of fellow professionals has a reciprocal effect of lending increasing strength to the group as well as to the individual.

Finally, truly successful cooperation calls for an exercise in diplomacy and tact. Each cooperative delegate is an autonomous agent of his or

her institution, and as such each delegate is on an equal footing with every other delegate. Authority is not a factor among cooperative delegates. Instead, the gentle art of persuasion holds sway. In such an atmosphere, the ultimate in participatory decision making, the real grassroots learning experience, takes place.

What, then, can be learned from the NILRC model? The cooperative is not unique in its balance of the philosophical with the pragmatic, nor in the nature of the individuals and institutions that comprise it, nor in the length of time for which it has existed. Its uniqueness stems from a combination of all these factors with the spirit of voluntarism that prevails among members, for NILRC employs no full-time paid staff. Instead, it demonstrates a record of measurable achievements—the most important of which is the ability to cope with change—that cooperation can bring over the long run when like-minded professionals recognize the need for it and are willing to do something about it.

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