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| Research in Distance Education by Michael Jeffries Assistant Director of Educational Services, IHETS  http://www.digitalschool.net/edu/DL\_history\_mJeffries.html |
| **The History of Distance Education** |
| Understanding the history of distance education is valuable in that it shows there was more than one historical path to distance education and that the evolution of distance education has not been easy. Many of the same problems facing implementation and acceptance of educational innovations today have been faced by distance education throughout its history.  The history of distance education could be tracked back to the early 1700s in the form of correspondence education, but technology-based distance education might be best linked to the introduction of audiovisual devices into the schools in the early 1900s.  The first catalog of instruction films appeared in 1910 (Reiser, 1987) and in 1913, Thomas Edison proclaimed that, due to the invention of film, "Our school system will be completely changed in the next ten years" (Saettler, 1968, p. 68).  This dramatic change didn't occur, but instructional media were introduced into many extension programs by 1920 in the form of slides and motion pictures just as they were in the classroom.  In tracing the history of distance education, the introduction of television as an instructional medium appears as an important entry point for theorists and practitioners outside of the correspondence education tradition, and marks parallel paths for correspondence study and instructional media.  Although instructional radio failed in the 1930s, instructional television was viewed with new hope. In 1932, seven years before television was introduced at the New York World's Fair, the State University of Iowa began experimenting with transmitting instructional courses.  World War II slowed the introduction of television, but military training efforts had demonstrated the potential for using audio-visual media in teaching (Wright, 1991).  The apparent success of audio-visual generated a renewed interest in using it in the schools and in the decade following the war there were intensive research programs (Reiser, 1987). Most of these studies were directed at understanding and generating theory on how instructional media affected classroom learning.  The 1940s saw great interest in television by educators but little action (Adams, 1958), and by 1948 only five U.S. educational institutions were involved in television with Iowa State being the first on the air.  Early studies by educators tended to show that student achievement from classroom television was as successful as from traditional face-to-face instruction. A study by Parsons (1957) showed only borderline differences in achievement, and Lapore and Wilson (1958) offered research showing that learning by television compared favorably with conventional instruction.  By the late 1950s, 17 programs used television in their instructional materials. The use of educational television tended to grow slowly but by 1961, 53 stations were affiliated with the National Educational Television Network (NET) with the primary goal of sharing films and coordinating scheduling (Hull, 1962).  Although instructional television would never realize what many thought was its potential, it was having limited success and had, unlike instructional radio, established a foothold in the minds of educators.  In 1956 the Correspondence Study Division of the NUEA conducted a study of the use of television to support correspondence instruction (Wright, 1991). The survey report recommended research to measure the effectiveness of television as an educational tool and, with a grant from the Ford Foundation, Gayle Childs studied television instruction in combination with correspondence study.  In one of the earliest education vs. media studies, Childs concluded that television is not an instructional method, but an instrument for transmitting instruction. He also found no appreciable difference in the achievement level of students taught in regular classrooms by means of television or by a combination of correspondence study and television (Almeda, 1988).  In the early 1960s, the innovative Midwest Program on Airborne Television Instruction (MPATI) launched its "flying classroom" from an airfield near Purdue University in Lafayette, Indiana to broadcast instructional programs to school systems and the general public in Indiana and five surrounding states (Smith, 1961).  At its peak, MPATI would transmit educational television programs to nearly 2,000 public schools and universities reaching almost 400,000 students in 6500 classrooms in Indiana and five surrounding states (Gordon, 1965).  This experiment in learning was the culmination of an educational vision for some educators and the result of a $7 million grant from the Ford Foundation (Carnegie Commission, 1979), a small part of the $170 million spent by the foundation.  Although the airborne teaching experiment came down in 1968, the MPATI project succeeded in several ways, including stimulating enough interest in educational television (ETV) in its region that new ETV stations were started. Many schools began using their own closed circuit television (CCTV) systems, and others began experimenting with Instructional Fixed Television Service (ITFS) microwave systems.  An even greater accomplishment (Wood and Wylie, 1977, p. 209) was that the MPATI project got educators from the six-state region to work together to select curriculum and to design and produce "the best example of an agreed-upon body of inter-institutional curriculum materials." And finally, it succeed in organizing hundreds of autonomous school districts to work together for a common educational goal.  The number of educational television stations grew more rapidly in the 1960s and, by 1972, 233 educational stations existed (Carnegie Commission, 1979). Ohio University, University of Texas and the University of Maryland were among the earliest universities to create networks to reach for both on-campus and off-campus student populations (Brientenfield, 1968), and many universities were considering how to bring distance learning to select student populations.  By the mid 1960s, much of the interest in funding instructional television had abated, and the Ford Foundation shifted its support to public television. Much of the blame was placed on the mediocre quality of the instructional programming which was often little more than a teacher delivering a lecture (Reiser, 1987).  The 1967 Carnegie Commission on Higher Education concluded that "the role played in formal education by instructional television has been on the whole a small one... With minor exceptions, the total disappearance of instructional television would leave the educational system fundamentally unchanged" (pp. 80-81). Reasons given for instructional television not being adopted included teacher resistance to television in the classroom, the expense of the television systems, and the inability of television alone to meet the various conditions for student learning (Reiser, 1987).  In the late 1960s and early 1970s, microwave technology developed, costs went down, and universities began to set up microwave networks to take advantage of the Instructional Television Fixed Service (ITFS) authorized by the Federal Communications Commission. The Carnegie Commission on Higher Education predicted that, by the year 2000, more than 80 percent of off-campus and 10 to 20 percent of on-campus instruction would take place through telecommunications (Carnegie Commission, 1972).  Systems utilizing ITFS technology were able to reach regional campuses and other universities, but it remained a closed circuit concept (Wood and Wylie, 1977) reaching only the sites linked to the system and not the general public. It did appear that, for the first time, distant students were considered part of the extended classroom, and television existed to access those not able to come to campus (Dean, 1982). |
| Educational Experiments and Change |
| Alternatives to traditional higher education emerged in the U.S. in the 1960s and 1970s. Trends such as escalating college costs, a renewed interest in nontraditional education by a more mobile population, and success of Britain's Open University paved the way for numerous experiments in higher education (Gerrity, 1976).  Programs such as the University Without Walls, external degree programs, and imitations of the British Open University were encouraged by large grants from the Carnegie Commission on Higher Education.  The instructional technology movement was defining its purpose during the late 1960s and moving further away from equating instructional technology with audio-visual devices (Reiser, 1987). In 1970, the Department of Audiovisual Instructional changed its name to the Association for Educational Communication and Technology, and defined educational technology as "a field involved in the facilitation of human learning through the systematic identification, development, organization, and utilization of a full range of learning resources ....(AECT, 1972, pp. 36-37). The same period saw an increased attention to instructional technology and "systems" approaches to the design of instruction based on theories of cognitive psychology and individualized instruction (Reiser, 1987).  Distance education programs which exist today have a wide range of approaches. The CALS program offers independent study courses through computer networking and relies heavily on computer-based student contact and feedback. Nova University offers computer-delivered instruction; and the students communicate with instructors through electronic mail, attend some concentrated centralized class sessions, and meet in weekend cluster groups. The Mind Extension University offers undergraduate and graduate degrees through cable networks, and it supplements video courses with texts and other collateral materials.  In summary, the history of distance education shows a field that appears to be in a constant state of evolution, that is supported by theory, but in need of research which can fill many unanswered questions. The historical view of distance education shows a stream of new ideas and technologies balanced against a steady resistance to change, and it often places technology in the light of promising more than it has delivered. History shows nontraditional education trying to blend with traditional education while striving to meet the challenge of constantly changing learning theories and evolving technologies. |
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| Defining Distance Education |
| "Distance education is beset with a remarkable paradox - it has asserted its existence, but it cannot define itself." (Shale, 1988, p. 25).  How distance education is best defined or differentiated from other educational approaches has been the subject of much debate. From the perspective of many educationaltechnologists, distance education is "inexorably linked to the technology" (Garrison, 1987) and seems to be viewed as different from other forms of education, a factor which may contribute to course development and acceptance problems. Focusing on the distance factor and on technology takes the emphasis off the "dialectical relationship between teacher and student" which Shale feels is the foundational principle in the educational process (Shale, 1988, p. 25). To Shale, "distance" (and the technology which accompanies it) is an incidental consideration and not a "defining criterion" for education.  A broadening of the definition of distance education is urged by Barker, Frisbie and Patrick (1989) who acknowledge correspondence study as the historical foundation of distance education but suggest that there is really two forms of distance education. One is the traditional correspondence- based distance education which is independent study oriented and the second is telecommunications-based distance education which offers the teaching and learning experience simultaneously (1989, p. 23).  The Garrison and Shale definition of distance education (1987a, p. 10-11) offers a minimum set of criteria and allows more flexibility. They suggest that:   * distance education implies that the majority of educational communication between teacher and student occurs non contiguously * distance education involves two-way communication between teacher and student for the purpose of facilitating and supporting the educational process * distance education uses technology to mediate the necessary two-way communication. |
| Philosophy and Organization of Distance Education |
| The organizational pattern and operating practices of a distance education facility are generally based upon the educational philosophy of that institution as well as economic and political restrictions (Verduin & Clark, 1991). Most educators would prefer a more student-centered model while politics and economics might dictate a more institution-centered approach with greater control and a larger number of students. Three different modes of operation under which distance education can operate are identified by Rumble (1986), including:  Sole responsibility - where the institution and its administration have distance education as their sole responsibility and purpose, such as with the Open University in the United Kingdom. Administration and faculty focus on distance education teaching methods and student needs, and are not controlled by other programs or purposes. Development of teaching techniques and innovative practices are seen as primary benefits. Mixed mode - institutions where both distance and conventional education occur, such as the University of New England in Australia and most traditional American universities. Organization may fall under a single department with university administration being responsible, several departments may offer distance education with each department administering its own program, or a distinct unit may offer distance education in a variety of areas and be solely devoted to this purpose. The mixed mode approach may have the advantage of being able to draw upon the resources of the resident faculty and services, but a disadvantage is that some faculty and administrators may consider distance education to be less effective and less important than campus-based instruction. Consortium - a group of institutions or distance education programs devoted to distance education as a means of broadening or sharing distance education programming. Students may register with their own institution and use centrally-developed learning materials with credits being easily transferable. This is one of the fastest growing segments of distance education (Verduin & Clark, 1991) but it also experiences administrative problems when it comes to collaboration between universities and conflicts in philosophical differences, teaching resources, and cost sharing. The University of Mid-America failed in its attempt at a consortium but efforts such as the Mind Extension University(r) are viewed as a success.  Any organizational or administrative structure must have effective communication for it to succeed. Distance education, with its diversity of activities and staffing, the nature of its students, and externally based instructional programming, requires very effective communication. According to Verduin and Clark (1991), information must flow in such a manner that all involved are aware of common goals, activities and procedures, and the appropriate feedback is possible whenever necessary.  Kaye and Rumble (1981) cite the problems of educational institutions in introducing distance learning programs, and suggest that a major issue confronting many universities is how to resolve the conflict between distance education, which often requires the management and structure of a business enterprise, and traditional academic areas which have a completely different style of governance. These differences "often find expression in a conflict between academic 'freedom of action' and the necessity for maintaining effective production mechanisms" (p. 179) necessary for distance education course development and distribution.  The separation between innovation and organization can "converge" as the innovation moves toward institutionalization through boundary expansion and resolution of conflicts (Levine, 1980, p. 14). It is this integration process which is the goal of most distance education programs at traditional universities, but studies suggest that there are often institutional barriers to the convergence of distance and mainstream education.  To focus on technologies without considering their role as a catalyst for change can adversely affect the ability of technologies to enact change (Heinich, 1982). Heinich suggests that we tend to treat all technological innovations almost the same, yet technologies such as television can affect the power structure in education, and faculty prefer the power structure the way it is.  Power and politics are primary forces in the implementation process; and school systems, like other social systems, have to be viewed in terms of the seeking, allocation and use of power (Meyer & Rowan, 1978). According to Sarason (1990), the communication network, which is dependent on personal contact and on who knows whom, often identifies the path for implementation of an innovation.  Innovators have been accused of being so passionate about their innovation that their reality is distorted and they fail to consider the importance of building constituencies to help support their cause (Sarason, 1990) and Rogers (1983) even identifies a "pro-innovation bias" which often appears in the implementation of an innovation and any related research which follows. Educational innovations seem to receive strong support from a relatively small segment of adopters but may have limited support from the group effected. Bardach (1978) suggests that even when an effort is made to develop support from constituents, it is difficult to find a cause with "a broad commonality of interest that would form the basis for coalition building" (p. 42).  Educational change is technically simple and socially complex, and definitely not a linear process. Educational innovations such as the early distance education programs were probably motivated by a "vision" that Fullan (1991) would suggest "permeates the organization with values, purpose, and integrity for both the what and how of improvement ... its formation, implementation, shaping and reshaping in specific organizations is a constant process" (p. 81-82). For a vision to become a reality, Miles stresses that it must be "shareable" and be shared with others; "it provides direction and driving power for change, and the criteria for steering and choosing" (1987, p. 12). And this vision must include a shared vision of the change process which can provide a strategy for implementation.  Although there are clear strategies for implementing innovations, change is often at the mercy of organizational culture. "Attempts at innovation in schools have usually ignored the cultural and structural traditions of the sociocultural system ... If a school has a culture in place, and there is ample evidence to suggest it does, those involved in the rigorous maintaining of the status quo are not going to be eager candidates for innovation" (Schrum, 1991, p. 37).  A case study of Athabasca University in Alberta, Canada by Shale (1985) showed some surprising results. Although the university was an "open" distance education facility and with a commitment to trying innovative educational approaches, over time it had become more and more traditional. In the beginning, the core of the academic program was the instructional designer with few academic staff, and multi-media was used heavily. But this emphasis on innovation changed and now the role of the instructional designer is not as important as that of the teacher, courses follow a more traditional lecture approach, and little use is made of media except to enhanced written materials. Shale suggests that understanding this shift back to the traditional lies "in a deeper understanding of what a university is" (1985, p. 11) and whether a traditional university allows for change and innovation. The educational technology point of view appears to regard education as "packageable" while universities are traditionally characterized by process, academic staff, and research. Costs andthe time required to produce distance education courses are two factors suggested for this tendency to the traditional, but Shale also feels distance education has not dealt with some of the natural boundaries such as jurisdiction and coordination, factors which impact on the institutionalization of distance education programs.  Directions in Research Much of the research done to date has centered around the use of new technologies for teaching and distance education's effectiveness as a teaching medium. A predominance of this research has used survey questionnaires with closed-ended questions with the range of options determined by the researcher (Morgan, 1984). This empirical research is useful for studying drop-out rates, learning about student preferences, and attempting to compare the variety of media used for delivery, but Morgan (1984) has urged that qualitative research methods be used to study distance education as a whole. Coldeway (1988) acknowledges that the focus of most distance education institutions is on the technology but suggests that the research is shifting to "the more human side" of the system as the programs age.  Holmberg (1984), as an international authority on distance education, strongly urges undertaking inductive studies of distance education "organization" to look at administrative framework, processes of developing and distributing learning materials, interaction between system members, and other activities required by society and the educational establishment. This type of study has not been done and seems to have value for establishing new distance education programs or making comparisons with other traditional and nontraditional programs. |
| Roles in the Instructional Process |
| A team approach to the development of learning materials is often considered the most appropriate for distance education. The team would be responsible for assessing adult needs, designing learning packages, providing guidance, and assessing performance, and it would include academic content specialists, instructional designers, writers and editors, media specialists, and specialists in adult learner behavior and curriculum development (Verduin & Clark, 1991). These instructional development activities should support the institution's philosophy and goals, and the mission of the distance education program.  If anything is evident in this team approach, it has the potential to be complex and open to interpretation. The roles of academic content specialists, instructional designers, writers and editors, media specialists, and specialists in adult learner behavior and curriculum development can be seen to overlap and to not be very clearly defined. An educational technologist may have skills in instructional design, as a media specialist, in adult learning behavior and in curriculum development, and their job may begin with assessing program needs and end with product implementation. But their role may be perceived as someone working primarily to implement electronic technology into the learning system or simply be misunderstood. The counter problem is that "use of computers, television, teleconferencing, and other means of transmission does not make one an educational technologist" (Wagner, 1990, p. 62).  The relationship between distance education and educational technology is viewed as strong, but the problem of defining roles for instructional designers/ developers is difficult. And the role of the educational technologist may be defined, not by the field, but by the organization's philosophy of education and their broader educational goals. Wagner (1990) suggests that an issue to consider is whether "distance education can afford to emphasize technology" or whether "it must emphasize instruction" (p. 62). Wagner suggests that educational technology can serve as a holistic approach where process and product are both components of the system. |
| Teachers in Distance Education |
| The likelihood of significant increases in distance learning enrollments within the next decade will have a profound impact on faculty members' instructional roles, according to Beaudoin (1990). The changes that he envisions are tied to distance education's more learner-centered system, and he predicts that teachers accustomed to more conventional teaching modes will have to "acquire new skills to assume expanded roles not only to teach distance learners, but also to organize instructional resources suitable in content and format for independent study" (Beaudoin, 1990, p. 21)  A key player in the distance education team should be the teacher since the use of telecommunications inhigher education requires faculty acceptance (Dillon, 1989). But "negative faculty attitudes, ranging from apathy to open antagonism, remain a major barrier" to implementation of distance education programs (Brock, 1987, p. 40). A growing acceptance among university faculty is acknowledged by Brock and he blames faculty attitude on a resistance to required changes in familiar teaching patterns and the faculty having to relinquish a degree of control over the teaching-learning process.  A survey of Oklahoma administration, faculty and telecourse coordinators led Dillon to suggest expanded rewards and more faculty development efforts, and to express the belief that the success of distance education will "require changes in the practices and attitudes of faculty in an environment that is still suspicious of or threatened by the nontraditional. Only the system which effectively rewards it will succeed at change" (1989, p. 42). A survey of teachers using satellite delivery methods showed a significant growth in credit course delivery since 1984, but it also identified several problem areas. According to Albright (1988), needs assessments were rarely conducted prior to course development, interactivity was minimal due to the practice of uplinking videotaped lectures, the visual components of most courses were underutilized, faculty training was limited to technical considerations, and faculty efforts were largely unrecognized for promotion and tenure. A study by Clark (1993) has also attempted to measure faculty attitudes toward distance education and specific media used in distance education. Among Clark's finding were: 1) that university faculty who were slightly positive about the concept of distance education were more negative about their personal use of distance education, 2) faculty who were more familiar with distance education were more receptive, and 3) faculty was more positive toward telecourses and video conferencing, and less positive toward correspondence and audio conferencing. Respondents expressed the normal concerns about course quality, student-teacher interaction, and faculty rewards for teaching distance education courses. Clark suggests that, with faculty still being ambivalent about distance education, a cautious optimism regarding the future of distance education in the U.S. is appropriate. |
| Technology and Teaching |
| Most educational technologists do link distance education to technology (Garrison, 1987) and may view it as different from other forms of education. Claims about the affect of new technologies on learning have caused many people to suggest a change in the way new technologies are evaluated for distance learning (Clark, 1989). Although Salomon (1981) and Clark (1991) make the point that instructional strategies and not the medium are the key to effective learning, technology and production considerations rather than teaching-learning theory or the instructional development process are often the driving force behind distance education programs.  The interest in utilizing "instructional technologies" to accomplish a variety of educational delivery needs has grown to the point where "preparing teachers to use technologies is assumed to be the main function and primary intellectual interest of the educational technologist" (Heinich, 1982). While Heinich feels that teacher preparation is needed, he points to this as a problem in defining the field of educational technology. Romiszowski (1981) suggests that the educational field "has been plagued with more than its fair share of solutions looking for problems" and suggests that developers often reflect a vested interest in technology or make premature decisions to the instructional solution before fully understanding the problem.  Studies on the use of various media in distance education have supported Schramm's view that "learning seems to be affected more by what is delivered than by the delivery medium" (1977, p. 273) and Clark's analogy of media "not influencing learning any more than the truck that delivers groceries influences the nutrition of a community" (1983, p. 3). Also, studies comparing education in the classroom with technologically-deliveredclasses (Beare, 1989; McCleary and Egan, 1989) showed no significant differences in academic performance.  Recent developments in technology are believed to be removing some of the disadvantages associated with media in distance education. Bates (1984) suggests that new technologies promise "a wider range of teaching functions and a higher quality of learning, lower costs, greater student control, more interaction and feedback for students" (p. 223). In fact, the 1990s are experiencing the emergence of digital media which has the potential to blur the lines which separate various media, as predicted by Baltzer (1985). The issue of media vs. method is likely to continue to be debated in relation to distance education, but there is no doubt that distance education is different from other instructional approaches. A study by Gehlauf, Shatz and Frye (1991) on the reaction of teachers to the teaching experience in the traditional classroom compared to interactive television shows teachers wanting to cling to more traditional approaches but finding these methods not as effective, teachers feeling the need to be better organized, and feeling the need for training for distance education teaching. |