

# Issues in Television-Centered Instruction for Adults

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**Abstract.** Interest in telecommunications delivery systems has increased in higher, postsecondary, and adult education institutions in recent years, in part due to demographic shifts and in part due to improved telecommunications systems. Current research on the adult learner and on instruction through media has grave flaws, and five reviews of research are needed to assist instructional developers and adopters to make wise decisions. A critical analysis is needed of existing telecourse packages. A review of research is needed on the motivation of various subgroups of adults and the recruitment and retention strategies which are effective for them. A review of research is needed on instructional strategies effective for different subgroups of adult learners. A review of research is needed on logistics and costs of alternative delivery technologies and audiences they are likely to reach. And a review of research is needed on the technical assistance and training needs of new adopters.

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## Introduction

Instructional developers today have exciting new options open to them as they develop their careers. Three societal trends are intersection, providing a time of opportunity for those professional enough and entrepreneurial enough to take advantage of it.

The first trend is the boom of adult learners in our country today. Participation in college programs by adults beyond the traditional college age is expected to increase significantly, for a number of reasons. First, statistics show

that people who have completed high school enroll more often in continuing education than people with less formal education, and the proportion of people over 25 who have graduated from high school is increasing, as is the proportion who have graduated from college. Second, as we move from being a goods-producing to a service-producing society, occupations are more likely to require more formal education. Third, since 1900 the work-life span has more than doubled. Men age 50 can expect to live to 78; women to 83. People can look forward to two twenty-year careers. Therefore many people in their forties and fifties are looking for educational opportunities that can prepare them for new jobs. Adult learners are the new market for well-designed instructional materials.

A second trend is the increasing willingness of institutions of higher education to collaborate in the development and delivery of learning opportunities to adults. Leaders in colleges and universities realize that technological developments in the workplace make it difficult for institutions of higher education to equip themselves with the most up-to-date facilities, and in some cases are therefore offering to do training in the workplace, taking advantage of the materials there. Continuing education agencies are collaborating with professional organizations to offer updated professional training in the variety of areas mandated by state legislation: nursing, dentistry, real estate, accountancy—the list goes on. Consortia of television stations and community and four-year colleges are collaborating to design and produce telecourses, and in some states the equivalent of an Associate of Arts degree can be gotten through taking most of the courses “at a distance”—through multi-media packages of correspondence materials, television programs, audiotapes, and

community-based seminars. These new collaborations of higher education institutions and community agencies mean that the adult learner has access to learning opportunities that are available at more convenient times and places and thus better able to fit into the working schedule of the busy adult.

A third trend is the marriage of television and interactive computers, so that interactive self-instruction is a viable option in the home and workplace. It is no longer necessary for the learner to transport himself or herself to the site of learning; instead, the information can be transmitted to the learner. We are only beginning to experience the ramifications of this development, but it has implications not just for formal higher education but for the learning of everything from home-plumbing to advanced statistics. Soon people will be able to purchase courses in a variety of topics at their local Radio Shack, and skip the higher education agency entirely, if they so desire.

What are the implications of all this for the field of instructional development? First, instructional developers need to look beyond campus-based instructional design and development centers as their primary source of employment. They should investigate materials development opportunities in various centers of enterprise: business and industry, professional associations, community agencies, health service agencies, and media centers. Adult learners are learning in a variety of places and for a variety of reasons, and formal higher education is only one of their options. Many will pursue their education from the workplace, the home, or the community center.

Second, instructional developers need to develop their broader human resource development skills. The jobs available in business and industry encompass more responsibilities than merely designing in-

struction: They include designing weekend seminars for managers, helping employees design career paths, developing instructional materials for customers. Jobs available in higher education for people developing multi-media materials require skills in networking, teamleading, political negotiations, and faculty development. Jobs in professional education require knowledge of that profession's value system, its communication patterns, its informal pecking order. Instructional designers who hope to be educational leaders need to develop themselves as managers, persuaders, and team-builders as well as excellent materials designers.

Third, instructional developers who plan to emphasize development of materials for formal higher education need to look beyond current practice and ask some critical questions. The telecourse development business has become something of a mini-industry, and developers have settled into a format adapted from the traditional college semester approach. Most telecourses consist of a certain number of television programs, an accompanying text and study guide, and a bank of test items. If telecourses are to continue to be developed, and in increased numbers, it is time for a critical review of the assumptions underlying the format currently used.

Increased clientele for adult learning, increased opportunities for institutional collaboration, and increased availability of new technologies of delivery—all promise a dynamic future for the instructional developer who broadens his or her human resource development skills, while asking the critical questions that will lead to improved practice.

In this country we have had decades of high hopes for the use of technology to solve educational problems, but so far, the printed word or picture is the most widely used technique for mediating instruction in higher education. Ten years ago, when there was great optimism about applications of electronically mediated instruction, the Carnegie Commission on Higher Education (1972, p. 1) forecast that "by the year 2000 it now appears that a significant proportion of instruction in higher education on campus may be carried on through informational technology." But by 1975, a further study sponsored by the Carnegie Commission (Rockhart and Morton, 1975) suggested instead:

...the real impact of the new technology will for the most part be adding to, rather than replacing, cur-

rent learning mechanisms. Some current mechanisms will be displaced, but the new technology will allow two major improvements. First, it will provide increased enrichment ... Second, it will provide increased access by university faculty to students formerly outside the geographic limits of the regular educational system (p. 276).

It is this latter possibility that is now generating such enthusiasm on the part of certain higher educators and educational technologists. Demographics indicate that colleges and universities of the 1980's and 1990's will have to deal with an increasingly diverse range of students—diverse in age, educational purpose, background and preparation, socioeconomic status, and ethnicity. If these institutions are to meet the nation's educational needs in the future, so the argument goes, they cannot limit their concern to students who are between the ages of 18 and 25, white, middle-class, and academically skilled (Chickering, 1981). Major pressures for change come from nontraditional groups of students new to higher education: those over 25 (who already outnumber students under 25), women with families, minority students, and students from non-academic backgrounds. Clearly, to the enthusiasts for technology, the problem can best be solved by telecommunications technologies, which can deliver instruction to students at times and places convenient to them.

made some use of television for instructional and other purposes during 1978-79 (Dirr, et al., 1981). The Public Broadcasting Service began its new Adult Learning Programming Service in September, 1981, offering several telecourses each semester through public television stations to students unable to attend college on campus. New technologies are proliferating, and the 1978 Public Telecommunications Finances Act redefined telecommunication to include many modes of delivery: transmission via broadcast television and radio and other-than-broadcast distribution including coaxial cable, optical fiber, broadcast translators, cassettes, discs, microwave, or laser transmission through the atmosphere. The Carnegie Corporation has funded the American Association of Higher Education to establish a Center for Learning and Telecommunications (Center for Learning and Telecommunications, 1981). And to clinch it and convince everyone that the Promised Land is finally here, former ambassador Walter H. Annenberg has given \$150 million dollars to the Corporation for Public Broadcasting, to create new telecourses and to demonstrate the use of communications systems in solving higher education problems (Note 7).

Clearly, this proliferation of technologies and accompanying surge of entrepreneurial activities raises questions of great importance to higher and adult educators. What criteria should be

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A number of events nationally have heightened the sense that, at last, it's all about to happen. Many telecourse consortia are now in the business of producing, marketing, and offering telecourses (Munshi, 1980; Richardson, 1980b; Yarrington, 1979). A study done in 1979 by the National Center for Education Statistics and the Corporation for Public Broadcasting indicates that some 71% of the nation's higher education institutions

used for selecting and supporting programs and projects? What is known about adult motivation and recruitment practices effective with different subgroups? What is known about instructional strategies effective in bringing about learning achievement for adults who participate in mediated instructional systems? What is known about logistics, costs, and audiences for various technological delivery systems?

What is known of the technical assistance and training needs of the new adopters?

Decision-makers who turn to the research on mediated instruction or on adult learning will find little to guide their decisions. Wilkinson's critique of sixty years of research on media in instruction (1980) summarizes a number of problems with the research: imprecise definitions of terms, poor research questions, faulty experimental designs, research which trades off internal validity for external validity. Cross's attempt to make sense of research on adults as learners (1981) indicates a similar paucity of useful findings, probably because age per se is not a critical variable in predicting learning (Knox, 1980). Much of the research she summarizes was not done on learning outcomes at all, but on reasons adults give for participating or on claims they make about their "self-directed learning projects."

4. A review of research should be done on the logistics and costs of alternative delivery technologies and support systems and the audiences they are likely to reach.

5. A review of research should be done on the technical assistance and training needs of the new adopters.

#### **I. A Critical Analysis is Needed of Existing Telecourse Packages**

As the certainty grows that the modern American college will be populated by a very different kind of student, the adult learner, much thought is being given to implications for the mission of higher education. Chickering (1981) has suggested that the idea of human development can supply a unifying purpose for the modern American college.

By understanding how students from 18 to 80 meet life cycle challenges and grow in terms of intellectual competence, ego development, moral and

following: What is their view of the learner? Of the teacher? Of the interaction between the two? Of the structure of knowledge, skills, and attitudes it is hoped the learner will develop? Of the relationship between the goals of the learning situation and broader societal needs? Course producers need to make explicit and to subject to public scrutiny the theories of content, teaching-learning process, and short- and long-term student outcomes (Butman and Fletcher, 1973) upon which instructional choices are based. A constant dialogue between theory and practice is needed as the work of course development and acquisition proceeds.

Keppel and Chickering (1981) question whether educational technologies and varied forms of mediated instruction can contribute significantly to life cycle developmental tasks and to major dimensions of adult development. They concede that such vehicles may do a reasonably good job in imparting knowledge, communicating concepts, and helping students learn the language, methods of inquiry, and modes of thought of various disciplines or vocations. They recognize that such media may, when properly developed, achieve a wide range of training outcomes, especially if they can respond effectively to individual differences. But they view skeptically the suggestion that such vehicles could aid students in more general areas of human development.

A critical analysis of existing telecourse packages could identify those examples which seem aimed at accomplishing the broader adult development goals mentioned above, and could clarify and make explicit the different curricular conceptions represented in the various packages (Vallance, Note 1). The packages could also be evaluated according to the degree to which they assist learners to identify their own strengths and weaknesses as independent learners, and provide developmental assistance, as suggested by Richardson (Note 2). The outcome would be the development of evaluative criteria to guide the creation of new course packages, criteria which consider the new goals for higher education and the importance of adult development as well as learning achievement outcomes.

#### **II. A Review of Research Should Be Done On The Motivations of Various Subgroups of Adults and the Recruitment and Retention Strategies Which are Effective for Them.**

One of the hopes of funders of distance learning opportunities is that

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What is needed are some reviews of research which would critique and synthesize findings from instructional psychology, instructional technology, adult higher education, mass communications, social psychology, and related fields. These reviews should be addressed to decision-makers and should assist in developing or selecting educationally sound telecourses for adults. The particular reviews suggested here center on reaching and teaching the adult learner, as opposed to dealing with organizational, institutional, or policy-making areas.

1. A critical analysis is needed of existing telecourse packages and their theories of content, teaching-learning processes, and evaluation.

2. A review of research should be done on the motivation of various subgroups of adults and the recruitment and retention strategies which are effective for them.

3. A review of research should be done on instructional strategies effective for adult learners.

ethical development, humanitarian concern, interpersonal competence, capacity for intimacy, and professional development, educators can examine the potential contributions of various disciplines, areas of professional preparation, and educational practice. (Chickering, 1981, p. 7)

In the development of telecourse materials for adults, it is especially important that a clear definition of the criteria for excellence be developed. New technologies are developing rapidly, new monies are available for course development, and new pressures are being felt by technologists and educators to produce and market their wares. The various institutions involved in telecourse development are beset by a variety of political pressures and could easily be tempted by quick profit, pulled a dozen different ways and lose sight of the key question: the purpose of education.

Conceptually, the kinds of questions which must be asked about existing or developing telecourses include the

access will be provided to higher education for groups of students previously unable to take advantage of educational opportunities. Data on who currently participates in the distance learning opportunities available is scattered. Bryan and Forman (1977) indicate that the population of University of Mid-America distance learners is 75% women, average age 37, median income \$11,000, half of whom had not participated in formal education during the previous five years. Their goals were personal satisfaction and career development, and two-thirds wanted degrees. McIntosh and Woodley (Note 3) indicate that Britain's Open University appeals mainly to the upwardly mobile students, of working class backgrounds, who have professional and technical jobs. The labor class is unrepresented (true in America too), although the original purpose of the British Open University was to provide a "second chance" for the educationally deprived.

A review of research is needed to identify strategies effective in recruiting and retaining different subgroups of adult learners, so that decision-makers have more than demographic data to go on.

Such a review should have a number of characteristics. First, it should provide operational definitions of the strategy in question. Much that has been written about recruitment is vague and exhortatory; recruitment strategies such as "media advertisements," "alumni networks," or "college fairs" are mentioned. But from much that is written, it is not clear who the strategy is intended to reach, why people believe it would be successful, and specifically what the psychological functions of the recruitment strategy are. The same is true for retention strategies. Explicit operational definitions of recruitment and retention strategies need to be gathered.

Second, such a review should include the literature on effective recruitment and retention strategies for campus-based learners as well as distance learners, and for other kinds of activities besides learning activities. The basic question in recruitment and retention is this: What causes people to decide to participate in something and to stick with it once they're involved? In an Education Testing Service summary of several studies on college student attrition and retention, the reasons students give for leaving include academic matters; financial difficulties; motivational problems; personal considerations; full-time jobs; the expressed need for new, practical, non-academic experiences;

and the lack of initial plans to obtain a degree (Ramist, 1981). Some of the reasons don't fit the adult distance learner; others do. Specifically, two factors crucial to retention were faculty-student interaction and effective counseling. Much has been written about campus-based recruitment and retention, and this literature should be culled for useful advice for planners of distance learning.

Third, such a review should provide a functional analysis of the recruitment/retention strategies presented. For example, the psychological literature tells us that the outcome of persistence is linked to the strategy of reinforcement. Whether on or off-campus students are the target audience, activities which reinforce for them their efforts are needed if they are to persist as students.

Fourth, such a review should identify the critical characteristics of adults which predict participation and persistence in a distance learning program. Cross (1981) has developed a Chain of Response Model which summarizes key factors others have suggested are significant. She suggests that when a learner needs to learn something, and realizes it,

attitude. Also, the individual differences of adults should be taken into account in such a review. What attracts and retains a successful and self-confident learner might be very different from what would attract and keep an anxious and inexperienced learner.

Fifth, such a review should be theoretically oriented, showing the relationship of recruitment/retention strategies to psychological effects on the learner. Miller's force field analysis (1967), Rubenson's expectancy-valency paradigm (Note 4), Boshier's congruence model (1973), and Tough's anticipated benefits model, are all attempts to develop explanatory principles for adult participation. A theory of the achievement motivation and cognitive development of adults of various aptitudes needs to be developed and related to the effective environmental interventions (recruitment/retention strategies) which might be used.

Sixth, such a review should be eclectic and pragmatic, making appropriate use of strategies grounded in marketing research, social psychology, and communications theory. Mass communica-

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two initial factors will determine action: self-evaluation and attitudes about education. If both are positive, influencing factors might be life transitions, importance of related new goals, and expectation that participation in education would assist in meeting those new goals. If these are all positive, the learner would then seek information about education, and would assess the opportunities and barriers in various educational situations. If these factors are favorable, the learner is ready to make the decision to participate. If all goes well, the learner's self-evaluation and attitudes toward education become more positive, and the likelihood of further participation increases. She points out that institutions focus their effort on providing information and removing institutional barriers, when the real blocks may be earlier in student self-concept or

tions researchers and practitioners (such as advertisers) have a good deal of knowledge applicable to recruiting adult learners to telecourses, and that knowledge should be tapped.

Lavish expenditures to develop new learning opportunities are wasted if adults don't take advantage of them, and "equal opportunity" arguments are empty if only the affluent and educated are customers for distance learning. A review of research on recruitment and retention strategies for different subgroups is needed.

### III. A Review of Research is Needed on Instructional Strategies Which Predict Learning Achievement for Different Sub-Groups of Adult Learners.

One of the problems with the newer telecommunications technologies is that their glamour often prevents people

from thinking clearly about them. As Clark points out (Note 6), one result is that developers too rarely distinguish between a technology as a mode of transmission of messages, instructional or otherwise, and technology as a set of specific techniques employed in the instructional act. "Technologies of transmission" refers to those technologies which transmit messages. They are simply delivery devices which transmit instructional programs, in the same way that a postman or a carrier pigeon delivers a letter. "Technologies of instruction," on the other hand, are the set of research-derived principles for the design of instructional strategies which make up the teaching-learning process: strategies such as cueing the learner so that he/she attends to the appropriate instructional task, designing the instructional message so that it activates existing information processing skills, reinforcing and providing feedback, or building appropriate amounts of novelty or humor into instruction. Wilbur Schramm (1977) has recently noted that learning and achievement are more affected by the techniques we employ in

struction." Thus the findings are difficult to interpret. It has been commented that educational psychologists are able to measure individuals with micrometers, but that they tend to measure treatments with divining rods, and that situation still prevails today. A number of individuals are working on developing better specifications of instructional treatments (Leinhardt, 1980; Clark, Note 6) and their work can be consulted for further guidelines in this area.

Second, such a review should include the literature on effective instructional strategies for all age groups, not merely adults. Many research-derived principles about human learning and instruction have been discovered which offer guidance for the design of instructional strategies for all ages: strategies such as cueing the learner so that he/she attends to the appropriate instructional task, designing the instructional message so that it activates existing information-processing skills, reinforcing appropriate behaviors, or building appropriate amounts of novelty or humor into instruction (Menges, 1981). These findings need to be applied to instruc-

Fourth, such a review should identify the critical aptitudes in adults which predict learning from a given instructional strategy. Adults with high general ability, well-developed cognitive strategies, prior learning in the subject area, constructive (as opposed to defensive) motivation, and a strong sense of self-efficacy are likely to do well in an instructional situation which puts much of the information-processing load on them, in other words, one which is relatively unstructured; adults who lack these characteristics are likely to need their instruction to be more directive, structured, broken into small steps with immediate feedback at each step, and so on. Further writing on the relationship of adult aptitudes to appropriate instructional techniques can be found in Cronbach and Snow, 1977; Clark, Note 6; Allen, 1975; Goldstein, 1973; Salomon, 1979; Richardson, Note 2).

Fifth, such a review should be theoretically oriented, showing the relationship of instructional strategies to psychological effects on the learner. Salomon (1979) points out that we need to move research on media in education from an atheoretical, unsystematic, "isolationist" exploration to a more systematic, theoretically guided inquiry, one which would relate the learner's information-processing capacity to the medium's particular way of structuring and conveying contents through its symbol systems.

If media differ along specific dimensions (such as their technologies of transmission, contents, or symbol systems), then there are a number of possible ways in which media can interact with human behavior and learning. Not only do the sources of variance differ, but they affect different domains or outcomes. The technology of a medium affects the modes of interaction with users (compare computer-based instruction with a television show of the same content), and the transmitted content affects the knowledge acquired. The societal context in which a message is received affects emotional states, and the didactic mode of the message affects the ease of processing its content. It follows, then, that the different aspects of media interact with different aspects of behavior, thus undermining a conception of media as invariant entities. (Salomon, 1979, p. 8)

Salomon's *Interaction of Media, Cognition and Learning* argues that study is needed of the nature of a

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the instructional act than by the medium which we choose to deliver instruction. The most important issue, seldom addressed by instructional technologists, is which of the many instructional methods which are available should be transmitted by an instructional medium. This decision rests less on the technology of transmission than on our current knowledge of instructional research and development.

Such a review should have a number of characteristics. First, it should provide operational definitions of the strategy in question. A problem with much of the research which compares one instructional treatment to another is that the treatments are not clearly specified; they are combinations of techniques which go under vague, generic labels such as "programmed instruction" or "personalized system of in-

structional design for adults rather than putting adult instruction in a ghetto uninfluenced by discoveries about learning.

Third, such a review should provide a functional analysis of the instructional strategies presented. Salomon (1979) describes three models for thinking about the function of all methods: remedial (in which the function is to insure that the learner acquires the skills he/she needs in order to solve an instructional problem), compensatory (in which the function is to circumvent a learner's weaknesses by supplying him or her with the temporary aids needed in order to solve an instructional problem) and preferential (in which the function is to build upon the learner's special capabilities). Each of these models is supported by a body of instructional research which suggests helpful design principles to practitioners.

medium's most essential attributes and the psychological functions that they can be made to accomplish under different conditions and for different learners.

Sixth, such a review should be eclectic and pragmatic, making appropriate use of strategies grounded in behavioral, cognitive, and humanist learning and instructional theories, as opposed to being based in a narrow philosophical viewpoint. It is likely that for certain learners, given certain goals and learning tasks, one set of instructional strategies might be quite appropriate, and for a different group, entirely different strategies would make more sense. Goldstein's *Structured Learning Therapy* (1973) proposes a four-stage instructional sequence of modeling, role-playing, social reinforcement, and transfer of training to help mental patients learn community living skills. Such strategies are clearly grounded in behaviorist and social learning theories, and are appropriate for a client group with a restricted language code (Bernstein, 1964), an authoritarian upbringing, and a low sense of self-efficacy. For the motivated group of middle managers attending workshops given by adult educator Malcolm Knowles (1977), the humanistically-oriented techniques he proposes of collaborative goal-setting, planning, and evaluation make sense, since he's dealing with a group of individuals who already have the cognitive strategies to engage in self-directed learning. For instructional situations in which the goal is meaningful learning or concept acquisition, strategies such as cueing, defining, providing examples and nonexamples, sequencing, providing practice for mastery and for transfer, and reinforcing, are all appropriate (Merrill and Tennyson, 1977). A good review of instructional strategies should be practical rather than ideological.

Seventh, such a review should be especially clear about the counterintuitive findings contained in recent instructional research. For example, a favorite saw of adult educators is that adults learn more if you allow them to choose the instructional method; however Clark (Note 6) has reviewed a large number of studies which indicate that learners tend to select the method from which they will learn the least. Another "obvious" truth for a while was that adults who are slower learners will profit more from novel, media-oriented approaches. In fact, the research-based finding is that slower learners need *more* structure and sequence, while the cap-

able students can handle more novel and less-structured approaches (Cronbach and Snow, 1977). Another incorrect assumption has been that if you want to predict who will learn most, it's important to know such things as sex, socioeconomic status, religion, and goals. In fact, general intelligence is the best predictor of amount of learning, and when that is controlled for, the sociodemographic factors don't account for any variance. The sociodemographic factors are useful in helping to predict who will participate, but not who will learn. Gage and Berliner (1975) provide an excellent beginning list of counterintuitive findings with implications for appropriate use of instructional strategies.

Such a review of research on instructional strategies would be a contribution to the field of adult instruction in general, not just to the field of television-centered instruction. Comparative media studies indicate that the technology of transmission is not a significant variable in learning outcomes (Schramm, 1977; Briggs, et al., 1967). Any medium can be used to teach, and the selection of strategy should rest on our current knowledge of instructional research and development, which would be summarized in a good review of research on instructional strategies.

to the Technology," under the auspices of The Office of Engineering Research of The Corporation for Public Broadcasting which comes close. It presents an overview of available instructional television technologies, over-the-air transmission such as broadcasting, ITFS, and satellite; wire or cable transmission, such as cable television and common carrier services; and copy technologies such as videotape, videocassette, and videodisc. It also explores some mixed distribution modes, including ITFS and cable television broadcasting and copy and cable and broadcasting. Additionally, it presents several multi-mode options that meet such special objectives as maximizing program availability\* for a minimum cost. Its main limitation is that it is written mainly to assist school administrators and teachers to make effective use of instructional television, rather than including examples and issues for adult and continuing education.

Second, such a review should provide alternate models for use: large-scale and complex, medium-scale, and simple and transportable. These models would relate the critical features of information delivery to an array of user needs and capacities.

Third, it would be helpful if such a review could be illustrated with some

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### IV. A Comprehensive Review of Research is Needed on the Technologies of Transmission and the Logistics of Delivery. What Would Reach Whom, in the Most Cost-Effective Manner?

Such a review should have a number of characteristics. First, it should catalog the various technologies, give a functional description of each, characterize its critical delivery capacities and limitations, and provide an estimate of costs. Dordick et al. (1979) have developed a manual entitled, "ITV: A User's Guide

detailed case studies. For example, the TAGER Television Network links seventeen college and university campuses in Texas to a large number of corporate subscribers in the area, who receive graduate courses in business and engineering and handle around 2,000 registrations per semester. In Seattle, a consortium of eleven colleges and universities is providing credit and non-credit courses, professional continuing education and developmental education to 100,000 homes and public libraries by

cable (Dirr, Note 8). In Ohio, a consortium is using the two-way capabilities of the Warner Amex Qube system to provide courses (Dirr, Note 8). In San Diego, the State College is using cable radio to provide credit courses which fulfill the general education requirements leading toward a bachelor's degree (Dirr, Note 8). Many community colleges are collaborating with public broadcast stations and other community agencies to serve both formal and non-formal learning needs of the community (Richardson, 1980; Yarrington, 1979). These case studies should include empirical data on cost, time, personnel, and management systems involved in the various models, and should clearly identify the economies of scale which result from the different models. The case studies should relate the technologies to such features of their setting as community size, institutional factors, and alternative uses. They should also be explicit about unintended consequences.

#### **V. A Review of Research Needs to be Done on the Technical Assistance and Training Needs of the New Adopters.**

The Corporation for Public Broadcasting's Higher Education Utilization Study (Dirr, et al., 1981) found that major factors which seem to affect positively the use of television for instruction include: faculty members' support for the use of television for instruction, availability of courses which meet the academic needs and standards of the colleges, and television outlet operators who are sympathetic to the colleges' goals for television use. Each of these areas imply a need for technical assistance and training.

Faculty members' support for the use of television for instruction can best be gotten by involving them in all aspects of decision-making. Evaluation of the federal programs developed during the U.S. "Great Society" years of educational reform and of federal attempts to change the school indicates that the local practitioner is a powerful and legitimate force to be reckoned with (Dollar, 1978). Research on adoption and diffusion of innovation (Havelock and Huberman, 1978) argues for the importance of the local educator or planner. The complexities of the educational setting as a social system, combined with the primacy of personal contact, argue for the necessity for local faculty members to participate in all aspects of program development or utilization. Effective implementation requires personal interaction and contacts among practitioners and between practi-

tioners if old roles are to be changed and new ones are to be learned.

Empirically, the overall quality of any instructional development process will ultimately be judged by the quality of the instructional products and the teaching-learning system developed. Instructional products must be developed which meet the criteria for quality in these three areas: content, instructional design, and aesthetic appeal. Additionally, they must meet the needs and expectations of external critics who act as gatekeepers. Richardson (1980a) found that different criteria are employed by people who hold different roles in an organization. Faculty members look for "materials which have substantial educational content and meet the standards of the college." Station managers are more interested in "materials which are of high production quality and meet the standards of the station." Instructional designers are most concerned that "materials are structured to enhance motivation, participation, persistence, and learning on the part of the at-home learner." Marketers are looking for "materials which

must be designed as a coordinated instructional system, with all components working together to serve the same instructional objectives. Local support services must foster involvement (personal contact by phone or mail, seminar opportunities, counseling) and feedback (self-study quizzes, prescriptive comments on homework). Administrative arrangements must be designed for the adult learner: information and recruitment materials must be easily available; simple procedures must be available for registration, taking exams, obtaining course credit. Television programs must be offered at times convenient to the adult learner. These criteria were developed through interviews with telecourse students, faculty members, station managers, community college administrators, and marketing representatives, and need further validation (Richardson, 1980a).

All of the above topics have implications for the technical assistance and training needs of the new adopters of telecourses, whether they are designing, selecting, or establishing support services for them. The new technologies

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are designed for flexible and compatible use in a variety of settings." The casual home viewer is unlikely to watch unless "materials meet learner's needs, stimulate interest, have broad appeal, and attract large, general audiences." Clearly, achieving a "high quality" instructional product is no easy task.

Similarly, certain quality criteria for the teaching-learning system must be met. Richardson (1980a) found the following to be the major expectations for a quality teaching-learning system: the system must have a special plan for telecourse delivery, including processes for academic administration, target population assessment, inservice training for counselors and course managers, curriculum development and design, and research and evaluation. Each course

can't just be added on; in some cases they require a rethinking of the total educational system in order to be viable. Understanding the training needs of each member of the system is crucial.

In sum, the new adult client group may or may not be effectively served by telecommunications delivery systems, but it will clearly take more than high hopes to accomplish it. Just after the Civil War, new railroad tracks were built all over the country, and alongside many of them, new colleges were built too. The assumption seemed to be that once the technology was in place to deliver people to the site of learning, everything else would fall into place. Unfortunately, many of these new institutions were unclear about their mission, unable to effectively recruit and

retain students, had an inadequate grasp of the teaching-learning process and the related effective instructional strategies, and weren't able to train and develop their staff quickly enough to serve their students. So many of them withered away shortly. It wasn't enough then to deliver students to the instruction, and it isn't enough now to deliver the instruction to the student. We need to take stock before we charge ahead, and some reviews of research for decision-makers can assist us in the stock-taking.

## Reference Notes

1. Vallance, E. A second-generation critique of alternative curriculum research methodologies. Paper presented at the annual meeting of the American Educational Research Association, Los Angeles, 1981.
2. Richardson, P. Adapting instruction to differences in older adults. Paper presented at the annual meeting of the American Educational Research Association, Los Angeles, 1981. Available from Department of Higher Postsecondary Education, WPH 701, University of Southern California, Los Angeles, CA 90007.
3. McIntosh, N.E., and Woodley, A. Excellence, equality and the open university. A paper presented to the working party on teaching and learning and the new media. Third International Conference on Higher Education, Lancaster University (U. K.), 1975.
4. Rubenson, K. Participation in recurrent education: A research review. Paper presented at meeting of National Delegates on Developments in Recurrent Education, Paris, March, 1977.
5. Clark, R.E. Issues in the transfer of instructional technology between nations. Paper presented at the XXIV Annual Conference of the Comparative and International Education Society in Vancouver, B. C., Canada, March 22, 1980(b). Available from the University of Southern California, WPH 801, Los Angeles, CA 90007.
6. Clark, R. E. "Is Achievement Enjoyable?" Paper presented at the annual meeting of the American Educational Research Association, Los Angeles, California, April 1981. Available from the University of Southern California, WPH 801, Los Angeles, CA 90007.
7. Dirr, P. Instructional uses of cable for instruction. Remarks to the Pennarama Teleconference, March 12, 1981. Available from Peter Dirr, Corporation for Public Broadcasting, Washington, D. C.

## References

- Allen, W.H. Intellectual abilities and instructional media design. *Audiovisual Communications Review*, 23(2), Summer, 1975.
- Bernstein, B. Social class, speech systems, and psychotherapy. *British Journal of Sociology*, 1964, 15, 54-64.
- Boshier, R. Educational participation and dropout: A theoretical model. *Adult Education*, XXII (4), 1971, 255-282.
- Briggs, L.J., Campeau, P.L., Gagne, R.M., & May, M.A. *Instructional Media*. Pittsburgh, Pennsylvania: American Institutes for Research, 1967.
- Bryan, D., & Forman, D.C. Characteristics of SUN learners. Statistical summary No. 4. Lincoln, Nebraska: The University of Mid-America, March, 1977.

- Butman, J.W., & Fletcher, J.L. The role of the evaluator and developer in educational research and development. In G.W. Borich (Ed.), *Evaluating educational programs and products*. Englewood Cliffs, N.J.: Educational Technology, 1974.
- Carnegie Commission on Higher Education. *The fourth revolution: Instructional technology in higher education*. New York: McGraw-Hill, 1972.
- Center for Learning and Telecommunications, *Resource File* (Preview Edition), April, 1981. American Association for Higher Education, One Dupont Circle, Suite 780, Washington, D.C. 20036.
- Chickering, A., & Associates. *The modern American college*. San Francisco, Jossey-Bass, 1981.
- Cronbach, L.J., & Snow, R.E. *Aptitudes and instructional methods: A handbook of research on interactions*. New York: Irvington, 1977.
- Cross, K.P. *Adults as learners*. San Francisco, Jossey-Bass, 1981.
- Dirr, P.L., Katz, J.H., & Pedone, R.J. *Higher educational utilization study phase I: Final Report*. Washington, D.C.: Corporation for Public Broadcasting and National Center for Education Statistics, 1981.
- Dollar, B. Federal attempts to change the schools. In Williams, M.F. (Ed.), *Government in the classroom*, Proceedings of the Academy of Political Science, 33, (2), New York, 1978.
- Dordick, H.S. et al. *ITV: A user's guide to the technology*. Washington, D.C.: Corporation for Public Broadcasting, 1979. 111 16th Street, N.W., Washington, D.C. 20036.
- Gage, N.L., & Berliner, D.C. *Educational psychology*. New York: Rand McNally, 1975.
- Goldstein, A. *Structured learning therapy: Toward a psychotherapy for the poor*. New York: Academic Press, 1973.
- Havelock, R.G., & Huberman, A.M. *Solving educational problems: The theory and reality of innovation in developing countries*. New York: Praeger Publishers, 1978.
- Keppel, F., & Chickering, A. Mediated instruction. In *The modern American college* (Ed. A. Chickering). San Francisco, Jossey-Bass, 1981.
- Knowles, M. The adult learner is a "less neglected species." *Training*, August, 1977.
- Knox, A.B. Proficiency theory of adult learning. *Contemporary educational psychology*, 5, pp. 378-400, 1980.
- Leinhardt, G. Designing educational treatments. *Review of Educational Research*, 51(1), Spring, 1980.
- Menges, R.J. Instructional methods. In A. Chickering (Ed.), *The modern American college*, San Francisco, Jossey-Bass, 1981.
- Merrill, M., & Tennyson, R. *Concept teaching*. Englewood Cliffs, New Jersey: Educational Technology Publications, 1977.
- Miller, H.L. Participation of adults in education: A force-field analysis. Boston: Center for the Study of Liberal Education for Adults at Boston University, Occasional Papers No. 14, 1967.
- Munshi, K. *Telecourses: Reflections '80 Executive Seminar*. Washington, D.C.: The Corporation for Public Broadcasting, 1980.
- O'Bryan, K.G. *Writing for instructional television*. Washington, D.C.: Corporation for Public Broadcasting, 1981.
- Ramist, L. College student attrition and retention. *Findings*, A periodical of ETS research in postsecondary education. Vol. 7, No. 2, Princeton, N.J.: Educational Testing Service, 1981.

- Richardson, P.L. Community college and television station collaborations: What makes them work? In Kressel, M. (Ed.), *Adult learning and public broadcasting*. Washington, D.C.: American Association of Community and Junior Colleges, 1980 (a).
- Richardson, P.L. Telecommunications and adult learning: What nine projects reveal. *New directions for continuing education*, 5, 1980 (b).
- Rockart, J.F., & Scott Morton, M.S. *Computers and the learning process in higher education*. A report prepared for the Carnegie Commission on Higher Education. New York: McGraw-Hill, 1975.
- Salomon, G. *Interaction of media, cognition and learning*. San Francisco: Jossey-Bass, 1979.
- Schramm, W. *Big media, little media*. Beverly Hills, California: Sage Publications, 1977.
- Tough, A. Choosing to learn. Unpublished manuscript, June, 1979. Available from Ontario Institute for Studies in Education, Toronto, Ontario.
- Vallance, E. The landscape of the Great Plains Experience: An application of curricular criticism. *Curriculum Inquiry*, 1977.
- Wilkinson, G.L. *Media in instruction: Sixty years of research*. Washington, D.C.: Association for Educational Communications and Technology, 1980.
- Yarrington, R. (Ed.) *Using mass media for learning*. Washington, D.C.: American Association of Community and Junior Colleges, 1979.