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ABSTRACT

College-level instructional programs using a variety of media and aimed at adults pursuing degrees, specialized knowledge, or enrichment are described. The types of programs covered are: (1) learning programs which use a combination of various technologies, such as a text, study guide, audiocassettes, television programs, newspaper features, learning centers, Wide Area Telephone Service (WATS) lines, and reading lists; (2) programs which utilize mainly television lectures, supported by audio communication beamed to a specialized audience; (3) programs which employ public television, mail, and newspapers to reach a more heterogeneous audience; (4) programs which feature independent home study by correspondence alone, perhaps supported by local resource facilities, audiocassettes, a WATS line, or by minimal campus attendance; and (5) programs created by certain public libraries which outline a special independent learning project, select related educational materials, and provide support conferences. A 10-page annotated bibliography provides information on additional programs. (NR)

PRODUCTIVE DELIVERY SYSTEMS FOR NONTRADITIONAL LEARNING

by Wesley W. Walton

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PRODUCTIVE DELIVERY SYSTEMS FOR NONTRADITIONAL LEARNING
Learning Resources Away from Campus

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I. INTRODUCTION

Just a few years ago it was observed that "adults interested in learning have a hard time of it. Only infrequently do they find what they want, where they can go to get it, at times they are free to do so."(1) Nontraditional studies were available in a sellers' market. If an adult wanted to be a student of higher education, he or she found it necessary to take up studies on the institution's terms. Colleges exerted little serious effort to deliver instruction where or when the consumers needed or wanted it. "If you want our course, come to our campus," seemed to be the basic attitude.

This paper surveys current activities of colleges in the nontraditional delivery of instructional programs. Is it any more feasible now than a few years ago for a WOULD-BE learner who cannot come to the campus or accommodate herself or himself to the academic calendar to become an ACTUAL learner?

Only a year or two ago, educational technologies were identified as the key to new and effective course offerings which would satisfy the needs of adult learners.(2) Educational technologies which had been used in earlier nontraditional approaches were constituted of "new ways of teaching OLD subjects to new students, rather than NEW subjects as such,"(3) and more often than not used old teaching and learning methods.

And yet at that time ample opportunities existed for the application of technologically-oriented methods, especially the telecommunications technologies, to the work of the nontraditional learner. An extensive body of training and educational research (4) had established conclusively that instructional film and television were as effective as more conventional class lecture methods.(5) Many organizations that engaged in instructional missions with adult learners, including a few colleges and universities, already were depending upon the audiocassette, the videocassette, packaged visual support materials, and specially-developed reading and study materials. Widespread use of such technological methods to deliver instruction to adult learners had established beyond doubt their cost-effectiveness for nontraditional programs.

A second purpose of this paper is to determine how much technology now is used to support nontraditional programs of study, and to highlight those methods that appear to work best in removing or minimizing the constraints of time and place that impede the progress of the would-be learner.

One approach to removing the roadblocks for the nontraditional learner is based on the notion that "cooperative approaches to the development of educational materials for lifelong learning be planned."(6) This idea, advanced in somewhat different forms by the Carnegie Commission on Higher Education (7) and the Commission on Non-Traditional Study, involves instructional materials designed to meet the needs of nontraditional learners which are developed cooperatively among lifelong learning materials services centers. Faculty teams would be actively engaged at such centers on special task force assignments in the design of instructional systems. They would have readily available the kinds of technical assistance needed to package their materials for distribution. Learning specialists would apply the systems approach to course development, media specialists would advise on appropriate technologies to deal with the specifics of multimedia production, information specialists would pinpoint available resources, and graphic arts specialists would provide the best possible visual communications. By bringing together resource-people and subject matter specialists, the most effective team would be formed, resulting in the best possible odds that would-be learners, once they signed on for a course and started working through it, would want to see it through.

Because of the potential of such cooperative methods, this paper reports on recent course developments based on the spirit of such recommendations. The author concludes by urging wider application and use of the promising practices that are observable today in several nontraditional study programs.

In a larger sense, the mission of this paper is to urge colleges and universities engaged in providing programs of study for nontraditional learners to attend on a systematic basis to the needs of the learners they are attempting to serve. The motivating conviction behind the paper can be expressed as follows: While higher education is increasing the effectiveness and efficiency of nontraditional learning, it also has a fundamental responsibility to offer those beyond conventional college-going years the best possible learning experience--one that is lasting, pleasurable, challenging and even difficult.

In the following pages, several of the more visible and viable programs at the graduate, undergraduate, and university-college levels are described, with emphasis on the attributes of particular noteworthy approaches which deserve emulation or adaptation by other program sponsors.

II. A LEARNING PROGRAM USING MULTI-TECHNOLOGY

This section examines a nontraditional learning program which is supported by a number of different technologies--audio cassettes, television, telephone communications--and which uses varying combinations of technologies and personnel to serve its students. The program, probably the most developed today in terms of use of multiple media, is located at the University of Mid-America (UMA), and is designed to serve Iowa, Kansas, Missouri, and Nebraska.(8) Four governing principles from the earlier work of UMA's precursor, the State University of Nebraska (SUN), influence the character of curriculum development at UMA. First, courses are multimedia in nature; no one medium carries the entire burden of cognitive instruction for a given course. Second, television is treated as one of the main channels of instruction, since educational television networks and television sets are widely available to the people in the region. Third, television portions of a given course are designed with high quality in mind: Rigorous control is exercised in the production of program material. Fourth, early efforts avoid the "talking face"--the televised lecture. Rather, there has been more dependence upon vignettes, story lines, dialogues, group activities and music and rhythmic presentations. These means, rather than the stand-up lecture, have been used to highlight the "why" and "how" (reasoning, advanced knowledge, understanding and application) of key concepts, leaving the "what" (facts and basic knowledge) for one of the other methods of instruction.

Although television is seen mainly as a support of cognitive learning, there also is much interest at UMA in seeing what success may be realized by putting television to work in the affective learning domain. One objective, for example, is the production of television material which will help maintain learner interest, motivation, and enjoyment, as well as teach course material.

Courses at UMA are developed systematically step-by-step. Typically a course has as many as four or five carefully integrated components, each in its own medium, with each medium assigned an appropriate instructional role. For example, a textbook and detailed study guide serve as the knowledge base for a course, to help the learner organize the course material into units of appropriate size, in a sound sequence. Audio cassettes which may be replayed as often as desired convey the essential elements of course content, mostly the "what" of the subject matter. In contrast, the supporting television productions stimulate the higher order mental processes needed to understand and apply what is learned. Abstractions and obscure thoughts are dealt with carefully at the production stage to enable the television medium to make concrete, through visualization, dramatization, or whatever, those concepts which are particularly difficult to grasp in abstract form.

Besides books, cassettes, and television, a weekly overview and cumulative summary of the course, lesson by lesson, is often carried in newspapers distributed statewide. Another component is an annotated list of recommended readings developed to give the learner a feel for the full scope of the subject matter covered in the course and to guide him or her to more extensive study than the more essential components of the course require.

To complete the multimedia presentation of coursework, study center

arrangements or WATS telephone line networks enable learners to reach an instructor or a mentor for help in clarification of hazy points or for periodic discussions. All eight of these components--text, study guide, audiocassettes, television programs, newspaper features, learning centers, WATS lines, and reading lists--are actively used in various UMA programs of studies.

UMA itself produces the television programs for some courses, while in other cases it modifies existing television program material from a number of outside suppliers. Such modification involves revising, expanding, or editing videotapes. In still other cases, television program material from outside sources is used without modification. At UMA, developers seem to be avoiding the all-too-common practice of reinventing the wheel.

Along with its use of multimedia, UMA has developed its courses with a multi-person, team approach. A course team in one particular case consisted of six full-time members: The resident content specialist, two content researchers, two instructional designers, and an evaluator. Additional assistance involved upwards of 20 other people, including specialists in various academic disciplines (multidisciplinary courses being part of the development effort), curriculum development and design, media production, and evaluation.

The teamwork covers all phases of instructional design, from assessment of learner needs, to agreement on a common platform of aims, beliefs and theories to guide the course development, and on to the ultimate design of the end products. A panel of scholars constantly evaluates course materials as they evolve.

It is much too early in the evolution of the UMA programs to look in a serious way at evaluative information. Plans are to have a diversified portfolio of some 50 course offerings developed in the next five years, with only four offered as of 1975. Nonetheless, the experiences with these four have pointed to several evaluative generalizations and conclusions which UMA doubtless will take into account as it proceeds with subsequent course development.

One of these conclusions is that the majority of enrolled learners find the television programs helpful or very helpful. At least half of these learners see television presentations as an important positive factor in pacing their learning activities. Degree of satisfaction with the respective television programs, however, is directly related to the relative emphasis upon specific cognitive instruction, and inversely related to perceived functioning as entertainment. The students prefer professional instructors to professional actors in roles of authority on TV. Greatest satisfaction, according to learners, comes when television programs present course aspects which are directly related to course objectives and which also are presented in other components. But learners indicate they prefer televised presentations which are distinctly different from other course components.

UMA has gone further in systematically developing curricula and extensive course material for adult learners than many other centers pursuing nontraditional program development activities. The curriculum developers there have come close indeed to the ideas about instructional materials-development reviewed in the first part of this paper. The instructional programs are largely divorced from constraints

of place and time. Virtually all the study may and can be done at home. Planners at UMA are discussing the future use of multi-channel cable television (9) to further reduce time constraints upon pupils. More available channels via cable and/or closed circuit television would provide more choices for viewing times than traditional over-the-air television.

This review of UMA's nontraditional learning program shows that a university can combine various technologies and teams of personnel, drawing upon outside sources where relevant, to offer courses of instruction away from the traditional campus atmosphere, and not totally dependent upon one or another medium. More numerous are nontraditional learning programs which rely heavily upon one medium--particularly that of television.

III. TELEVISION-SUPPORTED LEARNING PROGRAMS

Off-campus learning programs which rely mainly upon the medium of television are more numerous than the type of multi-technological program found at UMA. In television-supported programs, much less redesigning of course materials is required. In many cases, a lecture or class is conducted on campus in a "business as usual" fashion, with the only innovation being a television camera in the back of the room which beams the lecture to students off campus. Distant instructional settings thus become extensions of the campus classroom. Following is a description of a typical television-supported program.

Nontraditional learners are busy making notes on the professor's lecture as it is telecast at the same time that on-campus students are making notes in the classroom. Distant learners may be in a county court house, a conference room of an office or plant, a seminar room of another college, a meeting room of a public library or at home. If learners have a question, they often ask it over the telephone. If a teaching point needs visual emphasis, the graph, curve, or equation shows up on the TV screen.

If a point is disputed or an issue raised, the interchange between teacher and learner proceeds much the same whether the disputant is in the campus classroom or at the other end of a telecommunications network. The technology, when used in this way, may be said to add to the power of the teacher in his or her communication with learners (at long distances, simultaneously in different places), without losing the intimacy which direct two-way communication makes possible.

With this description in mind, it might be said that this added power carries with it the added responsibility of paying careful attention to design and development of the lessons, to the lecture and its ancillary materials, to the background learning aids and materials which support the learning process, and to the proper sequencing of lessons so that independent, off-campus, adult learners will see a course through to completion.

Of the television-supported learning programs that enjoy a vigorous existence and rapid growth, by far the most common are those that link up particular schools and faculties of a university with business and industrial firms and government agencies within television broadcast range.

A smaller number of television-supported learning programs seek a more general objective: To provide more basic liberal arts and general studies opportunities to a wider range of adult learners.

Typically, industry-oriented service includes one-way video and two-way audio communication, with the lecturer appearing live, and the learners using the two-way audio to clarify questions or pursue points of discussion. Usually, the lecture occurs in a campus studio-classroom, rather than an ordinary studio, so that for-credit students on campus are simultaneously instructed along with those in offices and industrial-laboratory sites that are signed up and hooked into the network. In a number of cases, written course materials, sets of work problems and exercises, and examinations are dispatched in advance to all sites participating in the decentralized

learning activity. The televised presentations usually reach distant classroom sites over special channels set aside for educational purposes.

In some systems with one-way sound, the audio is carried over the air with the video. In others with two-way capability, leased committed telephone lines or WATS lines are used. Most commonly, the courses offered over networks of this type are limited to the graduate level and to fields such as engineering, management, and mathematics, because these have proved to be of primary interest to industrial and business firms which pay the tuition and fees. Courses are designed to be of direct utility to learners in their employment.

In a few instances, tapes are made and/or put into videocassette format. Industrial and business clients outside receiving range of the television signal then may take advantage of instructional programs through receipt of tapes or videocassettes by mail. When programs are used this way, there is often a mandatory requirement that the material be erased from the tape within a short period after the scheduled broadcast. This seems to be due to concern for endurance of the tape in some cases, and copyright or economic concerns in other cases.

The remainder of this section provides brief descriptions of several television-supported learning programs designed to be interesting and accessible to the adult "would-be" and active learner (10).

CASE WESTERN RESERVE UNIVERSITY, through its Schools of Engineering and Management, serves a 30-mile radius in northern Ohio through a two-channel Instructional Television Network (ITN). Students receive full credit toward Master's degree programs of study, and have access to 34 graduate courses each semester during 30 designated hours of the week.

Links from distant classrooms, typically company facilities, to their counterpart classroom-studio are through leased committed telephone lines. The programs are broadcast from two classroom-studios. Through circulation of videotapes, the ITN is able to serve companies outside the radius for over-the-air reception. Testing, grading, and admission are on the same standards as for on-campus students. Course materials, exercises and tests are couriered, and all needed instructional materials are provided.

UNIVERSITY OF SOUTH CAROLINA serves 19 learner centers widely scattered throughout the state through a closed circuit Educational Television (ETV) system made available without charge by the South Carolina Educational Television Center. (Five over-the-air educational television stations also are owned by this authority but not used in this particular instance.) Locations for receiving instruction in some cases are regional campuses of the University; in others they are technical education centers or secondary schools. All the offerings are by the College of Business Administration and are mostly at the graduate level. Most are run entirely separately from programs on the campus, though their contents are identical. Students, whose admission requirements conform to those of the Graduate School, are expected to enroll in two courses each semester, and one during the summer. On this schedule, one can complete the MBA by ETV within three calendar years.

Each course is telecast two evenings a week to the learner centers. A total of four evenings are used for telecasting, alternating first year and second year candidates for the MBA. In addition to instruction taken near home at one of the 19 learner centers, each student is required to attend five meetings near campus each semester. These sessions are held from Friday afternoon through Saturday noon and provide for formal and informal interactions with faculty members, as well as for use of the library and computer. Televised instruction is taped, but the tapes are not kept for more than two weeks.

Much pioneering of this form of instruction-delivery occurred at STANFORD UNIVERSITY, where primary motivations were: (1) Reduction of the time required to drive to and park on campus for working adults undertaking graduate study, and (2) broadening of the choices of graduate courses available to adult learners in a given combination of class periods. The solution was a four-channel one-way video, two-way audio Stanford Instructional Television Network (SITN). Part of the power of the delivery system goes omnidirectionally over a 25 mile radius of a 160 degree arc covering the lower San Francisco Bay area. The rest of the power is beamed directionally up the Bay to San Francisco.

Students are able to complete graduate degrees through the off-campus offerings, although few do. They are encouraged, and seem to, spend time on campus to attend seminars, to receive counseling, to become acquainted with faculty members, and to make use of the campus libraries.

A wide range of courses is available (180 or more), mostly reflecting graduate level offerings of the ten departments in the School of Engineering and a number of offerings from the School of Humanities and Science, for the 30 participating industries. This amounts to more than 5,000 lecture hours each year. Six credits per quarter are suggested for each student, running for eight consecutive terms. Master's requirements can consequently be met in two calendar years. The SITN is on the air 8 a.m. to noon and 1 to 4 p.m.

A recent spin-off employs an unused four hours of the broadcast day to deliver courses through the Association for Continuing Education (ACE). ACE offers diverse courses from several neighboring colleges (some 3,000 lecture hours) to a much wider student body than they otherwise would reach.

Instructional programs using the facilities of SITN are self contained--all the instructional materials required to complete course work are accessible to the registered students.

Another television-supported program is sponsored by The Association for Graduate Education and Research of North Texas (TAGAR). TAGAR consists of nine colleges and universities and primarily serves the industries in the Dallas-Fort Worth area. Courses are televised live through a microwave network from program-originating studio-classrooms in any of eight institutions. These courses may be received by all the institutions and industrial sites participating in the TAGAR Program. A typical capability at a given learner site is incoming video and two-way audio, so that students may see and hear lectures and hold discussions with the instructor.

Courses are given along conventional lines and employ traditional teaching methods. Class assignments and examinations are couriered and graded together with the papers of on-campus students. The telecommunications network has a full 63-hour week of operation. Instructors are available for telephone consultation, and on occasion come onto the television system during unscheduled broadcast hours. Saturday on-campus sessions are held, and instructors make visits to outlying learner centers. With the exception of research done on the campus where a learner is matriculated, degrees may be earned without ever attending classes in a conventional on-campus situation.

A surcharge per credit hour is levied in addition to the per semester credit hour tuition charged students on the campuses. Tuition and fees are ordinarily paid by the employers of graduate students learning by television, as is the case in other industrially-oriented programs.

In another setting, television programming of the UNIVERSITY OF PENNSYLVANIA serves locations throughout the greater Philadelphia area.

The University began experiments with corporate-related television-delivered instruction in 1972, and now operates GETSUP, Graduate Engineering Television System of the University of Pennsylvania. As a professor lectures to a large class on campus, nine-inch monitors built into student positions give views of the lecturer and a pad for writing or sketches. In this way, the lecture is heard and seen by learners in classrooms in or near plants at the Philadelphia International Airport, in Camden and Cherry Hill across the Delaware River, and at Valley Forge.

This offering features talk-back television. Learners at all locations have microphones at their desks, and upon pushing the mike buttons, are able to query the professor or contribute to long-distance class discussion. Fully interactive learning is thus offered without the need to commute to the urban campus. Courier service is used to deliver class notes, textbooks, and examination papers, and to return assignments and other papers to the instructor. Course subjects include computers, information systems, energy resources management, enzyme technology, biomechanics--over fifty courses in all--on a late afternoon, early evening schedule, Monday through Thursday. A city secondary school and one in the suburbs are experimenting with these college-level courses for advanced students.

Other services beamed to system users include special seminars and a noon hour technical news program each telecast day.

The TV COLLEGE OF CHICAGO is among the first and most prominent over-the-air programs for delivering accredited college instruction through ordinary television sets to learners in their homes. Two channels (one VHF, one UHF) broadcast the videotaped courses. Some 26 hours of instruction are given each week, days and evenings. The offerings are "banded" by different fields of study with over 80 courses available for credit. The target population of potential learners comprises the 6.5 million residents of Chicago.

Two televised courses of 30 lectures each are developed each year and taught by faculty of the Chicago City College system. Released time is provided beforehand

to faculty members for course development, and during videotaping the instructors are relieved of other teaching duties.

Although students can complete requirements for the associate degree through broadcast television courses, few actually do. For each student who completes an associate degree through the TV College, six students earn one semester's credit. More than 150,000 learners have participated in at least one course, 80,000 of them for credit. A study guide accompanying each course suggests readings and gives assignments which are mailed in for grading, as well as exercises the learners may use to assess their progress. Two midterms and a final examination are given, with the latter written at one of the four academic centers in the system. Learners may engage in telephone conversations with the TV instructor during two designated hours each week. Supplementary reading and reference materials are available at academic centers and public libraries.

Throughout the development of the TV College, its costs per credit hour have been kept about the same as for on-campus courses.

Another over-the-air arrangement is the MARYLAND COMMUNITY COLLEGE OF THE AIR, a cooperative project of the Maryland Center for Public Broadcasting (MCPB) and several community colleges within the receiving radius of one of its television stations. Students register for full college credit at one of the cooperating community colleges and take midterm and final examinations on that same campus. They also may come to campus for tutorial sessions with their instructors if they feel the need. With a study guide supplied by the MCPB, a textbook purchased at the college book store, and a television set, the learner is in a position to complete all other components of the course at home. Four courses are offered, each developed elsewhere, recorded on videotape, and made available through the Great Plains National Instructional Television Library and other suppliers. All are thoroughly previewed before being aired, and are judged to be equivalent to the counterpart courses offered on each of the campuses.

Each 30-class course runs for a semester of 15 weeks, two evenings a week. Repeat broadcasting of a week's lessons on Saturday and Sunday mornings allows for makeup or repeat/review.

This section has reviewed but a few of the nearly 100 television-supported learning programs in operation today. Although varying in degrees of technical sophistication and amount of specially-developed supplementary materials, these programs all are working to meet the needs of industry- or college-associated learners by using TV to reduce constraints upon the time and place of instruction.

IV. WIDELY ACCESSIBLE TECHNICALLY-SUPPORTED LEARNING PROGRAMS

As constrasted with instructional television which beams classroom presentations to specialized audiences, other technically-supported learning programs have grown up which use more generally accessible delivery systems, such as public television, the mail, and newspapers, to reach more heterogeneous audiences. These technically-supported programs also differ in that they nearly always develop specialized course materials and technological support to assist learners from all walks of life who choose to study in their homes. Often such efforts result in one-of-a-kind instructional programs, as evidenced by examples in this section.

THE OPEN UNIVERSITY OF GREAT BRITAIN in large measure stimulated interest in and gave impetus to the establishment of systematically developed, technologically aided nontraditional programs of study in the United States. Discussions were well underway in the early 1960's and its operations were launched in January, 1970. Adult learners, enrolled without formal academic qualifications, are able to study independently at home, using specially prepared correspondence material, weekly tests delivered by mail, and related articles and speeches of interest. Learners also have the benefit of weekly broadcasts related to the courses they are taking, over BBC Television and Radio. At regional study centers, they are able to meet with tutors and counselors for help with learning tasks and planning programs of study. The Open University is a wide-ranging attempt to mesh conventional and technologically oriented means into courses of quality, with attention to concerns of substance and course content on the one hand, and process and learning procedures on the other. Interests of the learner have been given top priority at Open University.

Another type of technically-supported learning program (11) is illustrated by MIAMI DADE JUNIOR COLLEGE and its "Man and Environment" series, a college level credit course for students off campus. The two-semester course is built around 30 sets of 30-minute color documentary and panel discussion television programs. Other components include a commercially published textbook, study guides, a computer-assisted learner monitoring system, panel discussions over the radio, telephone communications with panelists, and panelists' responses to telephoned queries over the air.

The several components are carefully interrelated. Recommended readings and written assignments, for example, follow naturally out of the stimulus material included in the television programs. The written assignments include responses to sets of multiple choice items which are scored by computer. The prescriptive computer-aided monitoring system, called R.S.V.P., provides feedback to the learner including diagnostic information and suggestions on review of material before proceeding.

Each semester segment runs for 16 weeks and includes a televised orientation session. Two programs are televised each week, one documentary and one panel discussion on that week's theme as related to local issues. Learners come to campus twice each term, for mid-term and final examinations, and have complete

access at these and other occasions to all services accessible to more traditional students.

In contrast with some programs where tapes are not saved, the television programs here are recorded on videotape and made available to others, along with key course materials. The format and design of "Man and Environment" are such that institutions wishing to use the tapes for broadcasting or telecasting over closed circuit or CATV may adapt the other components, designing their own course tailored to their special styles and indigenous conditions. At this writing, other colleges wishing to offer the course may secure the rights and materials for $15 per student with a minimum of 200 students, or for $10,000 for 2-year rights to programs and study guide reprinting privileges. Some 30 community colleges now use the "Man and Environment" materials in their respective adaptations.

An approach in an entirely different medium is the Course by Newspaper offered by the UNIVERSITY OF CALIFORNIA AT SAN DIEGO, in cooperation with the Copley Press in San Diego and the Copley News Service. This project was begun under a grant from the National Endowment for the Humanities and is available under local college and university auspices throughout the world where newspapers are published in English. A first course, "America and the Future of Man," was developed in 1972-73 and pilot tested on a limited scale. Sample components were reviewed by colleges and newspapers by the spring of 1973, and supplementary readings and other support materials were in print by July. Starting in the fall of 1973, the course was offered in more than 100 newspapers, with cooperation by a number of colleges.

The course consists of 20 lectures (published weekly) by distinguished scholars and writers from faculties of universities and colleges from coast to coast. Each lecture runs about 30 column inches at 1400 words, and optional art work is supplied to lend graphic support to lecture content. Three groups of readership are served: The casual newspaper reader; the reader who has been drawn into pursuing the subject for personal interest and who may wish to purchase a $10 kit of supplementary materials; and the reader who wishes to seek college credit (which may be done in the San Diego area, for example, by registering for the course and paying an additional $35 in fees).

Learners wishing formal credit attend two classroom sessions, one after the tenth, the other after the twentieth lecture is published. At these sessions, a faculty coordinator delivers a lecture, leads a discussion, and administers an examination. Learners following the series are permitted to enroll any time during the first ten weeks prior to the first classroom session. The kit of supplementary materials contains an anthology of related articles, study guides, bibliographies, and in some cases, records and games.

Other colleges and universities offering "America and the Future of Man" are entirely free to adapt the course to their respective institutional styles. Cooperating newspapers publicize the course, give information to guide the credit-seeking readership toward the credit-granting college, and make a 20-week commitment to print the series.

The early experiences with this course were so positive that the National

Endowment for the Humanities during fiscal 1974 set out to fund a second course tentatively entitled "Images of America: the Dream and Reality."

The most well-known public television offering now is Jackob Bronowski's "The Ascent of Man." At the start of 1975, it was made available over Public Broadcasting Service (PBS) outlets throughout the country and offered for credit through cooperating colleges. The course typically includes the much-lauded television series concerning scientific development from pre-history to modern times, Bronowski's book of the same name, and study guide materials from the University of California at San Diego.

Technically-supported learning programs as illustrated here appear to be using accessible types of delivery systems for the benefit of a variety of non-traditional learners. Those who are particularly interested in such programs might look first at programs and courses of the Open University and the "Man and Environment" series, discussed early in this section.

V. MENTORED INDEPENDENT STUDY BY CORRESPONDENCE

Some college and university-sponsored nontraditional programs can be characterized by their emphasis upon mentored independent study by correspondence.(12) Such programs rely upon the mail for delivery of instruction and use tutors or learning counselors as part of the instructional package. Many of these programs have been built on the model of the Open University of Great Britain discussed briefly in the previous section.

Mentored independent study programs are developed especially for the off-campus learner and involve a team approach to instructional materials development. In addition to a teacher or a teaching team, participants include curriculum development or educational technology specialists (who apply the systems approach to curriculum development); instructional resources or media specialists; and graphic arts, library, research, and secretarial support.

One such program is the UNIVERSITY EXTERNAL STUDIES PROGRAM (UESP) at the University of Pittsburgh. This off-campus general studies program offers a broad range of undergraduate courses for adult learners. Students complete most of their course work at home, receive all the learning materials as packaged units, and attend three on-campus workshops each term.

Courses follow a structured curriculum model, which reflects findings related to curriculum development from a decade of research at Pittsburgh's Learning Research and Development Center. Learners are given wide flexibility as to time, place, mode of study, and rate of course completion. They are supplied a study guide, examinations, and an array of course materials. In addition, learners maintain close telephone and mail contact with their professors, and as noted above, come to campus three times each term. Standards for admissions and performance are consistent with on-campus programs in the School of General Studies.

An additional feature of UESP is the student support specialist. This specialist is concerned with minimizing the remoteness felt by the learner studying away from the campus. A bi-weekly newsletter is issued to all UESP participants, a student communications network is encouraged, and liaison is maintained on behalf of the remote learner with other university offices such as the Registrar. Thousands of inquiries are answered by the student support offices as the learners raise points beyond the specifics of courses they are taking.

Another program is sponsored by MINNESOTA METROPOLITAN STATE COLLEGE, where the greater twin cities area of Minneapolis-St. Paul is regarded to be "the campus." Libraries, museums, parks, and special facilities of government and industry, as well as the area's colleges and universities, are parts of the learning resources used by Minnesota Metropolitan learners. Learning contracts are executed by individual learners under the aegis of one of the full-time faculty members, assisted by knowledgeable community members serving with the staff. Studies are upper division; applicants must have attained two years of college or its equivalent. Programs are based on competency, rather than credit. Learners are more or less on their own in uncovering the resources for their studies.

A further variation is the COLLEGE-AT-HOME PROGRAM sponsored by the Northampton County Area Community College of Bethlehem, Pennsylvania. A student may enroll during any weekday of the year, at a time mutually convenient to instructor and learner, with the 16 week term for that learner's course beginning on the date registration is completed and tuition and fees are paid. Course materials are sent through the mail, and most of the study can be done at a location of the learner's choosing. Courses are individualized and personalized; the desire to learn something new is the prime motivation. If an unlisted course is desired, arrangements are made where at all possible to offer that course. Each offering is the responsibility of a faculty member or adjunct instructor; students and professors communicate by audiocassette tape, WATS telephone line, or by personal discussion on campus if reasonable arrangements can be made. The program thus offers a one-to-one learning-teaching arrangement.

Courses are available to candidates holding a high school diploma, who are 18 years of age or older. Those unable to appear on campus are interviewed over the telephone. Several dozen courses are offered, and credits earned are applicable to any of several associate degrees.

This program, begun in 1974, has been designed primarily for those for whom regular study on-campus would be either a hardship or an impossibility. Other features of special interest are the college credit consideration given to life experiences in the learner's background, challenge examinations offered by the faculty, and credit offered for satisfactory performance on the College Level Examination Program.

A final example of a program which emphasizes mentored correspondence study is one administered under the 1,000 MILE CAMPUS project, as defined by the Consortium of the California State Universities and Colleges and sponsored by the California State College at Sonoma. This upper division home-study program is directed at individuals in Northern California who wish to complete a bachelor's degree but who are unable to do so in the usual manner.

Students may transfer 56 lower division course credits from accredited institutions. Then the program begins with a four unit course "Introduction to Interdisciplinary Study" that involves the disciplines of Art, History, Music, English, and Philosophy. During each of four years, the learner studies a different historical period. In the first half of each year, core readings are pursued in the four disciplines. In the second half, further concentrated studies are pursued in a chosen discipline, and specialized projects growing out of study are completed. At each year's end, a one-week seminar is held on campus where the learners share their completed projects and participate with faculty in symposia. Pursuit of the regimen for four years yields 60 units and qualifies the learner for a bachelor's degree.

VI. THE PUBLIC LIBRARY AS A RESOURCE FOR ADULT LEARNERS

As more and more active adult learners engage in studies far from campuses off and on throughout their lives, increasing attention will be devoted to the quality, quantity, and applicability of learning resources available where and when they study. For many university programs including those reviewed here, effective ways have been found to package and deliver most resource materials a learner needs to achieve course objectives, as well as to give the learner access to instructional assistance, advice and counsel through mentors from campus or through judicious use of telecommunications. However, other situations call for resources that go beyond those built into such programs, either with respect to print and audiovisual materials, or regarding teacher/mentor intervention. An unusually fitting answer to these needs is the public library, a place where adult learners can study at times convenient to them near their homes and work.

Close to 10,000 public libraries are located in community centers throughout the United States, and an additional 4,900 branch libraries are situated in neighborhoods.(13) These libraries have book holdings amounting to 319,000,000 volumes, with millions of additional periodicals, microfilms, records, audiotapes, pictures, videotapes, and motion picture films. In a recent year across the nation, 850,000,000 volumes were circulated to over 50,000,000 registered borrowers.

Librarians themselves are an important educational resource. The 1,057 libraries which recently reported to the U.S. Office of Education were staffed by 45,636 full-time employees--over 20 per cent with their fifth-year degrees in librarianship, and untold numbers of others with at least bachelor's degrees. All librarians graduating from accredited library schools are trained in reference and bibliography, and many have academic specialties.

In addition to materials and highly skilled human resources, public libraries offer extensive facility and equipment resources. There are special rooms designed for public meetings and small group discussions, office spaces for private consultations, study carrels, and listening and screening rooms. There also are microform viewing machines, tape and disc players, movie projectors, and other such equipment. Some public libraries have videocassette tape collections of educational and public television programs together with tape players and television monitors for public viewing. Still others are hooked up to cable television (CATV) systems for receiving and originating programs over the cable.

Because of the resources available through public libraries, they can be regarded as seats of learning for adults studying independently or under the tutelage of colleges or universities at distant points. Several efforts currently are encouraging libraries to set up instructional support services for adult learners. The predominant effort in this direction is the Library Independent Study and Guidance Project. It is sponsored jointly by the Bureau of Libraries and Learning Resources of the U.S. Office of Education, the College Entrance Examination Board, the Council on Library Resources, and the National Endowment for the Humanities.(14) Its headquarters are at the main office of the College Board in New York. Nine public library systems throughout the nation, some with large numbers of branches, cooperate with the project and receive funds to support their efforts. Together with

the project office, the libraries are: (1) developing services for self-directed adult learners, addressed to assessed needs, (2) training library staff members in delivery of these new, usually innovative services, (3) attracting clientele to use of the services, and (4) evaluating the effort as they go forward.

Among the activities of the librarians and specially-trained learner consultants at these public libraries are the following:

* Assisting the independent learner with his or her educational planning on a sustained basis with periodic individual conferences.

* Serving as a clearinghouse and referral service on accessible educational institutions for lifelong learning, identifying contacts at each one, and publicizing educational events of related interest.

* Accumulating material resource collections to serve adult learner needs--books, other educational material in print, as well as non-print material--compiling subject bibliographies, reading lists, and study guides, and releasing directories of subject and special interest areas of staff competence or awareness.

* Helping the independent learner in the outlining of a special independent learning project, in the selection of related educational materials, in offering support, encouragement, and reinforcement while the project is underway, and in evaluating the final outcomes.

* Giving guidance by telephone and through correspondence, as well as on site; sending books and other materials through books-by-mail services; otherwise helping independent learners who are homebound, on swing shift working hours, or otherwise unable to come to the library.

* Helping librarians to understand the adult learner, the process of personal decision making, interview techniques, needs ascertainment, and identification of special resources available and appropriate for the adult learner.

Pilot tests at the nine public libraries were concluding during the writing of this paper. A brief look at the experiences of two libraries whose reports were then available (15) will prove of interest in pointing to the future of the public library as a major resource for lifelong learning.

Their plans were based partly on key findings from a Survey of Adult Learning, part of the research program of the Commission on Non-Traditional Study.(16) Some 77 per cent of the adult Americans sampled answered yes to the question: "Is there anything in particular that you would like to know more about or would like to learn how to do better?" It seemed clear that there is "a widespread desire on the part of the population for learning opportunities beyond those presently provided by systems of formal education."

General plans for responding to adult learning needs were nurtured at the FREE PUBLIC LIBRARY of Woodbridge, New Jersey, with nine branch libraries, over a two-year period starting in the spring of 1973. By August of 1974, a detailed plan had been developed for introducing three services to the independent learner.

* Advisory services, by which adult and young adult librarians would serve also as learners' advisors. They would offer assistance to independent learners in planning and carrying out their educational goals, through individual consultations and use of library materials.

* Informational services, by which the library would be able to supply in-depth and up-to-date descriptive materials such as directories, guides, brochures, applications, and the like, which ordinarily provide the point-of-entry for adult learners to enroll in nontraditional programs of study at traditional institutions, or outside formal education.

* Referral services, by which potential learners or other patrons needing such help would have the direct assistance of library staff members in what one might call "the advocacy" role. Librarians would contact the agency to which referral is appropriate, and intercede if a problem arises. An interesting aspect of this function would be in the follow-up efforts, from which determinations would be made as to which learner needs or expectations had been met by the institution or agency to which referral had been made.

These plans were pilot tested during the academic year 1974-75, focusing upon adults interested in preparing to pursue credit-by-examination learning activity.

The evaluation was positive enough that services will be expanded. Toward the end of the pilot period, Woodbridge submitted and had approved a grant application for federal funding that will allow more rapid expansion of the tested procedures.

Involvement of the ATLANTA PUBLIC LIBRARY in accommodating the special needs of independent learners started in the spring of 1972. Independent Learning Program services were first offered in the fall of 1974, and the pilot test of services was run at the central library through December. In an expanded test, services were extended in 1975 into 26 branch libraries. Trained staff members move from branch to branch, and clients are directed to a branch where service is available when desired. Although necessary materials are not available at all branches, interlibrary loan is used extensively, and there has been strong emphasis upon the interdependence of the library units.

Offerings to independent learners feature two major components: An advisory service and a clearinghouse/information service.

The advisory service involves personalized one-to-one interactions between a specially-trained learner-advisor and a patron. Interactions vary in time, spanning a week, a month or a half year. Learner-advisors help patrons define their learning needs, settle upon intermediate and long-range objectives, come to decisions on the best ways of meeting needs and realizing objectives, make plans for execution of study plans, locate materials and learning tools, and guide evaluation efforts.

The clearinghouse/information service focuses upon referral to learning resources and tools outside the library itself. Community resource files and activity schedules at such institutions as the YMCA's and churches are kept up to date. Also, schedules of classes and seminars at the colleges and universities are kept, as are

theatre schedules, correspondence school catalogs, and information about external degree programs, credit by examinations, testing programs, and the like.

Evaluation results appear most encouraging. Learner satisfactions have run 87 percent among patrons and 68 percent among librarians. Material availability measures were 71 percent and 68 percent respectively. Material usefulness had marks of 77 percent and 75 percent, and appropriateness of referrals rated 80 percent and 63 percent.

Plans of the Atlanta program for independent learners are to expand the audiovisual collection, acquire additional technical materials, and maintain a running checklist of materials requested but not available through its facilities.

In addition, the clearinghouse and advisory service are scheduled to offer additional sources of resources, so that both individuals and groups with common interests may be helped in the pursuit of their independent learning interests.

VII. CONCLUSION

This paper has described a number of methods of delivering nontraditional instruction that have recently evolved. Widespread programs have been reported upon, some emulating the Open University model started in Great Britain, and others taking newer and even more novel approaches. Of those programs reviewed, some have developed tailored curricula and learning materials to accompany nontraditional delivery systems, while others have found it appropriate to bring business-as-usual, traditional classroom instruction to off-campus learners using new technologies.

In all cases, increasing use is being made of technologies in increasingly diverse ways. The emphasis upon systematic program development and evaluative procedures also has increased laudably (e.g. UMA), but not nearly as much as is desirable.

After examining such programs, it is appropriate to close this paper on the same note as the theme of the 30th National Conference on Higher Education (17): "Educating the Whole People." In her keynote address, Jacqueline Grennan Wexler said, "Success and quality must be distributive if the family of man is to be a family of dignity. Those committed to the life of the mind cannot afford to support the hierarchical cult which respects only the intellect of the few. If we are to create a world of distributive justice, we must achieve distributive rather than hierarchical quality."

One way to advance toward distributive quality is to put television and other electronic tools very much into the picture. In the flexibility afforded by the air waves, tape and cable, the TV tower, and other developments of the electronic age is to be found many viable alternatives for maximizing the learning opportunity for each potential learner, wherever he or she may be geographically or in educational stature.

This goal requires higher education's best efforts on behalf of lifelong learners, comparable to Sesame Street for pre-schoolers and Electric Company for the early schoolers. Multimedia curricula, programs of study, and courses will need to be carefully developed and evaluated to a much greater extent than in the past, so that strengths and deficiencies can be identified. With all that remains to be done, it is gratifying to observe and report upon a few programs which have taken up the challenge of designing, developing, managing and improving nontraditional learning programs for all types of people.

VIII. FOOTNOTES

(1) Walton, W.W., "New Paths to Adult Learning" Princeton, N.J.: Educational Testing Service, Released for publication July 1973. One of six state-of-the-art papers prepared as part of the Research Program on Non-Traditional Studies.

(2) Cross, K.P. Valley, J.R. & Associates. "Planning Non-Traditional Programs. San Francisco: Jossey-Bass, 1974. pages 98-104.

(3) Op.cit., page 97.

(4) See for example, Carpenter, C.R., and Greenhill, L.P., Instructional Television Research, University Park, Pennsylvania: Pennsylvania State University, 1958. See also, Tickton, S.G., "To Improve Learning: An Evaluation of Instructional Technology," New York: R.R. Bowker, 1970.

(5) A "no-significant-difference" finding, which characterizes most of the research, has as much to say about the control methodology as about the methods used under the experimental condition.

(6) Op. cit. pages 104-114.

(7) Carnegie Commission on Higher Education, "The Fourth Revolution: Instructional Technology in Higher Education," New York: McGraw-Hill, 1972.

(8) A series of Working Papers issued by the Office of Research and Evaluation at UMA, Lincoln, Nebraska from December 1974 to July 1975, report on the early-day evolution of the UMA program of studies. This paper has drawn particularly upon Number 5, Rhetoric and Practice: Needs Assessment in a Major Development Effort, by D. D.. Gooler and Associates, April 1975, and Number 8, Learner Responses to the Use of Television in UMA Courses, July 1975, by L.A. Brown.

(9) The reader is referred to the report of the Sloan Commission on Cable Communications, "The Television of Abundance," New York: McGraw-Hill Book Co., 1972.

(10) In preparation of this summary on television-supported learning programs, the author was heavily dependent upon documents shared by the institutions with the Office of New Degree Programs, and maintained as a special library by John R. Valley at Educational Testing Service, in Princeton. Beyond that, the single document most useful was Mike D. Wong's "The Role of Technology in Non-Traditional Higher Education," St. Louis, Missouri: Washington University, 1974. This Master's thesis is part of the work of the Center for Development Technology under the direction of Robert P. Morgan.

(11) Again, in preparing this analysis on some of the other technologically-supported learning programs, the Valley collection and the Wong thesis (noted in 10 above) were helpful, as were a number of studies turned up in a search of ERIC done at the request of the author by the ERIC Clearinghouse on Information Resources included in this bibliography, and unpublished items in the author's collection.

(12) All the material for this section on mentored study came through reference to the Valley collection noted in 10 above.

(13) Walton, W.W., Parton, J. & Associates, "Report to the Commission on Non-Traditional Study from the Committee on Means." Princeton: Educational Testing Service, New York: College Entrance Examination Board, 1971.

(14) Toro, J.O., "The Role of Public Libraries in Supporting Adult Independent Learning: An Interim Assessment," and "Program Summaries of the Participating Project Libraries." New York: Office of Library Independent Study and Guidance Project, College Entrance Examination Board, 1974. These two documents, together with more recent documentation soon to be released by the Office of Library Independent Study and Guidance Projects, have served as basic background for this section on the public library as a resource for adult learners.

(15) Atlanta Public Library, "Independent Learner Program Case Study," June 1975. Free Public Library of Woodbridge," Independent Learner Project, Final Report to CEEB," July 1975.

(16) Commission on Non-Traditional Study, "Diversity by Design," San Francisco: Jossey-Bass, 1973.

(17) Vermilye, D.W., Editor, "Learner-Centered Reform: Current Issues in Higher Education 1975," San Francisco: Jossey-Bass, 1975.

IX. BIBLIOGRAPHY

Appalachian Adult Education Center. The Interrelating of Library and Basic Education Services for Disadvantaged Adults: A Demonstration of Four Alternative Working Models. Annual Report. Volume III. Morehead, Kentucky: Morehead State University, 1973. Available as ERIC ED 098 986 (51 pp.).

A theoretical overview was developed as background for Appalachian Adult Education Center (AAEC) research into cooperative service to disadvantaged adults by the public library and the public schools. Enormous needs to expand educational services to adults in the United Sates were identified. The study demonstrated that obstacles preventing the initiation and coordination of services to disadvantaged adults could be overcome in the presence of a middleman or catalyst such as the AAEC.

Association for Continuing Education. Association for Continuing Education Annual Report. Stanford, California: Association for Continuing Education, 1974. Available as ERIC ED 098 989 (15 pp.).

Serving as an educational delivery system, the Association for Continuing Education is described as offering a broad range of programming to employees of San Francisco Bay Area firms that are members of the Stanford Instructional Television Network. The annual report includes lists of officers and board members and member companies, and provides financial, statistical, and general information on the program operation.

Atlanta Public Library. Independent Learner Program Case Study. Atlanta, Georgia: Atlanta Public Library, 1975.

This study of the demographic characteristics of library-oriented independent learners covers the patterns of use of library services, the costs in providing those services, and the evaluation of the services offered at central and branch libraries.

Benoit, Richard P. "Alternative Programs for Higher Education: External and Special Degrees." Intellect, Vol. 101, No.2349 (April, 1973), 422-425.

Despite the criticisms which can be leveled at external and special degree programs, the fact remains that they provide a needed service to selected clientele and have the capability to provide valuable alternatives for institutions of higher education and their clients.

Brown, L. A. Working Paper Number 8, Learner Responses to the Use of Television in UMA Courses. Lincoln, Nebraska: University of Mid-America (Office of Research and Evaluation), 1975.

This paper discusses learner responses to the television component of courses offered by the University of Mid-America. Most learners consider the television programs helpful; at least half see them as important in pacing instruction. Learners respond positively to material clearly related to course objectives, but presented in a "different" way.

Carnegie Commission on Higher Education. The Fourth Revolution: Instructional Technology in Higher Education. New York: McGraw-Hill, 1972. Available as ERIC ED 061 994 (112 pp.).

Carpenter, C. R., and Greenhill, L. P. Instructional Television Research. University Park, Pennsylvania: Pennsylvania State University, 1958.

Chickering, Arthur W. Program of Study Policies and Procedures. Saratoga Springs, New York: Empire State College (State University of New York), 1973. Available as ERIC ED 081 315 (6 pp.).

This document describes the overall organization of study areas and learning activities to be undertaken for completion of an Empire State College degree. When formulated and officially approved it becomes the framework within which particular contracts are designed. The framework is divided into five sections: Applications, timing, assistance, approval, and review.

Cohick, Jane W. "A Management Model for Team Development of Self-Instructional Higher Education Curricula on the Structured Curriculum Model." Paper presented at annual meeting of the American Educational Research Association, New Orleans, Louisiana, February 1973. Available as ERIC ED 081 349 (26 pp.).

The development of external studies programs in higher education utilizing instructional design technology is hypothesized to require the interaction of faculty content experts and curriculum specialists in a special type of development process. A model is then proposed. Model utility and feasibility, as tested in the pilot development of external studies courses at the University of Pittsburgh, are discussed.

Commission on Non-Traditional Study. Diversity by Design. San Francisco: Jossey-Bass, 1973.

This book thoroughly examines non-traditional study and its foundations, including analyses of: Demands for continued education, observed expansions in access to lifelong learning opportunities, alternatives needed in higher education and other delivery systems, and monitoring means to assure quality.

Cosford, R. H. "The Open University--The Increasing Challenge to the Regions." Adult Education (London), Vol. 45, No. 5 (January, 1973).

Evaluates Open University in Great Britain which has 40,000 students involved in correspondence courses.

Craig, John, and others. Outreach and Occupational Education in Colorado. A Study Conducted for the Colorado Commission on Higher Education by the Academy for Educational Development. Palo Alto, California: Academy for Educational Development, Inc., 1972. Available as ERIC ED 079 496 (130 pp.).

This study was set up to determine how well the post-secondary and occupational education needs of the people of Colorado were being serviced by existing programs and how these services could be improved. In assessing outreach programs and opportunities, the study examined the extent and potential of various non-traditional programs, with extension being the major existing form in Colorado. Recommendations for program structures, staffing, and other needs are presented along with results of interviews and surveys and tabular data on extension enrollments.

Cross, K.P., Valley, J.R., and Associates. Planning Non-Traditional Programs. San Francisco: Jossey-Bass, 1974.

A collection of papers on the interests and experiences of adult learners, university-sponsored non-traditional programs and opportunities, alternative means for the delivery of learning opportunities, learner credits and institutional accreditation, all in the context of non-traditional education. This is the detailed report on the research program in support of the work by the Commission on Non-Traditional Study.

Dordick, Herbert S. "The Economics of Delivering Education by Television: Some Lessons for Cable Television." Paper presented at the Conference on Cable Television and the University, Dallas, Texas, January 29-31, 1974. Available as ERIC ED 093 382 (16 pp.).

Four attempts to use telecommunications in education are reviewed: Educational television in Columbia, the Bavarian Telekolleg, ALPS (Adult Learning Program Service), and the proposed Edu-Cable. It was found that selling education

requires a continuing marketing and promotional effort whose costs are high. Educators should expect that for every dollar of technology, between 3 and 6 will be spent on support services to make it work. Cable operators must be assured that the educators will share the operating and financing responsibilities and risk of such a system.

Eskisehir Academy of Economic and Commercial Sciences. The First ETV Project of Turkey. Turkey: Eskisehir Academy of Economic and Commercial Sciences (Institute of Educational Television), 1974. Available as ERIC ED 090 991 (20 pp.).

The success of a small-scale, closed circuit educational television project run at the Academy of Economic and Commercial Sciences in Eskisehir, Turkey, has led to the expansion of the experiment. The expanded project will offer services to other academies, demonstrate the effective use of educational television, and serve as an integral part of Turkey's Third Five-Year Development for education.

Fisk, George, and Nehmadi, David. Management Research Center Report to the External Degree Planning Consortium of the Policy Institute, SURC on Identification of Learning Materials. Syracuse, New York: Syracuse University School of Management, 1972. Available as ERIC ED 088 478 (43 pp.).

This report describes a system that has been developed to identify, locate, and evaluate learning materials for use in an external degree program in management at Syracuse University. It consists of five elements, each of which is a set of physical objects or documents: the interaction of these sets transforms the demand for learning materials into an output of retrieved information. In the course of developing the system, it was found that the available materials had widely differing influences upon the students' completion of prescribed courses, and that faculty cooperation must be increased for external degree programs to succeed.

Free Public Library of Woodbridge. Independent Learner Project, Final Report to CEEB. Woodbridge, New Jersey: Free Public Library of Woodbridge, 1975.

This reports on a public library-oriented alternative for learning programs designed to meet the needs of adults wishing to advance their education.

Gardner, David Pierpont, and Zelan, Joseph. A Strategy for Change in Higher Education: The Extended University of the University of California. Paris, France: Organization for Economic Cooperation and Development, 1974. Available as ERIC ED 095 730 (41 pp.).

This report is one of a series of background studies especially prepared for the Conference on Future Structures of Post-Secondary Education held in Paris in June 1973. Following a discussion of stimuli for change in American higher education, a detailed description of the Extended University of California (UC) is presented. Appendixes include the survey methodology and a brief description of various alternative approaches in higher education.

Garrison, Guy. "The Metropolitan Matrix of Libraries and Users." Library Trends, Vol. 23, No. 2 (October, 1974), 193-205.

A discussion of the literature of user studies on information needs in urban areas.

Gooler, D. D., and Associates. Working Paper Number 5, Rhetoric and Practice: Needs Assessment in a Major Development Effort. Lincoln, Nebraska: University of Mid-America (Office of Research and Evaluation), 1975.

This review of plans for course development at the University of Mid-America contains useful generalization to other settings and extensive references.

Gross, Lynne S. "A Study of Two College Credit Courses Offered Over Television by the Southern California Consortium for Community College Television." Paper presented to the California Association for Educational Media and Technology, Newport Beach, California, October 27-28, 1972. Available as ERIC ED 076 013 (34 pp.).

A consortium of 20 community colleges in Southern California enrolled approximately 8000 students for two televised college credit courses and made comparisons between these students and on-campus students in the same courses. Results showed no significant differences between on-campus students and students taking the televised courses in grades, although more students did not complete one of the televised courses as compared with on-campus students in the same course.

Hawkridge, David. The Open University in the Third World. 1973. Available as ERIC ED 083 829 (14 pp.).

The British Open University is described in the first section of this paper as a multi-media system for teaching at a distance. The following section presents data on the Open University's cost-effectiveness. The concluding portion discusses the possibility of transplanting both the concept and the actuality of the Open University as an institution to the Third World.

Hawkridge, David. "The Open University's Role in a Democracy." Paper presented at the Leidse Onderwijsintellingen Jubilee Congreee, The Hague, Netherlands, October 1973. Available as ERIC ED 083 830 (11 pp.).

The steps which led to the establishment of the Open University in Great Britain and the intentions of its founders are described. Following this is an examination of the evidence of the University's success in reaching its target student population. The third section provides an analysis of the instructional system of the University and the place of correspondence materials within that system. Next, some studies are cited which compare costs in the Open University with those of conventional institutions in England. Finally, an assessment of the Open University's potential as an instrument of democratization is offered.

Hirschbuhl, John J. "The Computer and the Camera, CAI and CATV--The Missing Link?" Paper presented at the 10th Annual Conference of EDUCOM, Toronto, Canada, October 1974. Available as ERIC ED 095 928 (10 pp.).

The University of Akron has been using computer assisted instruction (CAI) with cable television (CATV) in a system that blends man and machine delivery systems for instruction in a variety of courses, but present hardware does not allow complete fulfillment of the instructional design.

Houle, Cyril O. The External Degree. San Francisco: Jossey-Bass, 1973.

This book examines the external degree in relation to the extremes of attitudes, myths, and data. Emphasis is placed on the emergence of the U.S. external degree, foreign external-degree programs, the purpose of the external degree, the current scene, institutional issues, and problems of general policy.

Japanese National Commission for UNESCO. Educational Broadcasts of NHK (Special issue of NHK Today and Tomorrow). Tokyo, Japan: Japanese National Commission for UNESCO, 1971. Available as ERIC ED 055 438 (47 pp.).

This report provides a brief description of each of the programs of Nippon Hoso Kyokai (NHK--Japan Broadcasting Company), the only public service broadcasting organization in Japan.

Jwaideh, Alice R., and Bhola, H. S., eds. Research in Diffusion of Education Innovations: A Report with an Agenda. Bloomington, Indiana: Indiana University School of Education, 1974.

This document includes papers by five experts in educational change of diffusion research, who spoke at the annual summer Research Conference in Instructional Systems Technology. In addition to the papers, the guest editors present an overview of the conference and speculate about future approaches to planned educational change.

Kaufman, Ed L. "Cassettes Can Move Mountains in Virginia." Educational and Industrial Television, Vol. 6, No. 11 (November, 1974), 31-34.

How WVPT-TV provides cassettes for eleven Shenandoah Valley schools.

Lightbourn, A.F. "TV Ontario--A Full Service Television Agency." Educational and Industrial Television, Vol, 6, No. 11 (November 1974), 27-28,52-54.

A discussion of how the Ontario Television Agency produces, distributes and broadcasts educational programming.

Mayville, William. Contract Learning. ERIC Higher Education Research Current, December, 1973. Washington, D.C.: ERIC Clearinghouse on Higher Education, 1973. Available as ERIC ED 083 934 (4 pp.).

This paper focuses on the nature of contract learning. Emphasis is placed on the general nature of learning contracts, the framework for learning contracts, nontraditional student profiles, contract learning as a program component, and program evaluation. A 31-item bibliography is included.

McBride, Jack. "The Market Need for Off-Campus Cable-Based Higher Education." Paper presented at the Conference on Cable Television and the University, Dallas, Texas, January 29-31, 1974. Available as ERIC ED 093 386 (7 pp.).

A study was made of the market need for cable television-based higher education from an off-campus and non-traditional point of view. State University of Nebraska (SUN) is such an endeavor. The findings indicate there is an important and substantial educational need to be serviced.

Ministry of Education, Tokyo. Social Education and Its Administration in Japan. Tokyo, Japan: Ministry of Education, 1972. Available as ERIC ED 069 956 (44 pp.).

This report describes Japanese social education which covers all aspects of life,

including out-of-school education for children, parents' education in connection with education in the home, etc., from a viewpoint of life-long education. An appendix gives locations of youth centers, shows trends in enrollment, and diagrams the school education system.

Owens, Major R., and Braverman, Miriam. The Public Library and Advocacy; Information for Survival. Commissioned Papers Project, Teachers College, No. 5. New York: Columbia University, 1974. Available as ERIC ED 098 991 (105 pp.).

The limited success achieved by recent library outreach programs in the inner city is partially due to the absence of a commitment to advocacy by the library profession and a lack of systems capable of supporting advocacy efforts. Libraries must utilize systematic approaches to the identification of information needs and develop formal linkages with major information sources.

Pentz, M. J. Open University Courses in Science and Technology Applicable to the Education of Teachers of Integrated Science. England; The Open University, 1973. Available as ERIC ED 081 616 (12 pp.).

This paper is concerned with three areas of discussion; (1) the number of teachers studying Open University courses; (2) the courses available or planned in science and technology; and (3) the integrative features of Open University science and technology courses. The author concludes that sciences and technology courses of the type being taught in the Open University could make a significant contribution to the education of teachers of integrated science.

Southern Regional Education Board. Meeting the Needs of Non-Traditional Students. Atlanta, Georgia: Southern Regional Education Board, 1974. Available as ERIC ED 089 594 (8 pp.).

This report describes programs of Florida International University (FIU), The University of Alabama in Tuscaloosa, and Eagle University (Kentucky) designed to meet the needs of nontraditional students. In each of these programs, the emphasis is placed on the needs of the students. The immediate result is the reopening of higher education to those persons long shut out.

Tickton, S. G., To Improve Learning: An Evaluation of Instructional Technology. New York: R. R. Bowker, 1970.

This report by the Commission on Instructional Technology includes the

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