DOCUMENT RESUME

ED 233 706 IR 010 797

AUTHOR Ely, Donald P.
TITLE Information Technology in Education: The Best of ERIC.
INSTITUTION ERIC Clearinghouse on Information Resources, Syracuse, N.Y.
SPONS AGENCY National Inst. of Education (ED), Washington, DC.
REPORT NO IR-62
PUB DATE 82
CONTRACT NIE-400-82-0001
NOTE 55p.; For related document, see ED 228 987.
AVAILABLE FROM Information Resources Publications, 030 Huntington Hall, Syracuse University, Syracuse, NY 13210 ($4.25 plus $1.50 postage).
PUB TYPE Information Analyses - ERIC Information Analysis Products (071)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Cable Television; *Communications Satellites; Educational Policy; *Educational Trends; Futures (of Society); Government Role; Information Retrieval; Instructional Innovation; *Technological Advancement; *Teleconferencing; *Videodisc Recordings; Videotex
IDENTIFIERS Electronic Mail; *Information Technology

ABSTRACT

This publication highlights 48 recent ERIC listings which help to explain the variety of emerging technologies for the delivery of information in educational settings. Specific technologies addressed include cable television, electronic mail, satellite communication, teleconferencing, videodisc, and videotex. Entries were selected for inclusion based on recency (with most appearing since 1980), relevance to education, and readability, or ability to be understood by lay persons. Emphasis is on journal articles and documents which report results and which focus on one technology, rather than a combination of technologies. However, 11 general articles and documents are cited for the overviews they provide. Chapter 1 comprises an introductory summary of "Informational Technology and Its Impact on American Education," (published by the Congressional Office of Technology Assessment in November 1982), one of three such overviews which are noted as being most comprehensive and authoritative. An author index and ERIC ordering information are included following individual citations for each topic area. (LMM)

INFORMATION TECHNOLOGY IN EDUCATION:

THE BEST OF ERIC

by

Donald P. Ely

ERIC Clearinghouse on Information Resources
School of Education, Syracuse University

1982

Donald P. Ely is Director of the ERIC Clearinghouse on Information Resources and Professor in the Instructional Design, Development, and Evaluation Program at Syracuse University, Syracuse, New York 13210.

This publication was prepared with funding from the National Institute of Education, U.S. Department of Education, under contract no. NIE-400-82-0001. The opinions expressed in this report do not necessarily reflect the positions or policies of NIE or ED.

TABLE OF CONTENTS

INTRODUCTION

Information technology is a term which has recently emerged to describe the proliferating hardware and software which stores, processes, and delivers information. Information, broadly conceived, includes data, knowledge and facts which can be stored, manipulated, and transmitted. It may be in print, oral or graphic form. Technology is the process which systematically organizes people, devices, materials, and procedures for the purpose of providing solutions to practical problems.

Purpose and Scope

The purpose of this publication is to highlight recent ERIC listings which help to explain the variety of emerging technologies for the delivery of information in educational settings. Specific technologies include: cable television, electronic mail, satellite communication, teleconferencing, videodisc, and videotex. Computers or microcomputers are not included since that body of literature is extensive and already available. A current ERIC publication, Computer-Based Education: The Best of ERIC June-1976-September 1982 by Keith A. Hall, covers significant ERIC publications in that area. Publications dealing with text processing are also excluded.

It is difficult to separate computers from other information technologies since computers are integral parts of some delivery systems. For example, microcomputers often control videodisc searching, and access to some videotex systems. In fact, many of the new technologies are systems of components which, when operational, lose their individual identities. A television signal for a video teleconference can be bounced off a satellite and picked up by the antennae of a cable system which delivers the signal to many users. The process is called teleconferencing, but it uses several technologies to create the desired result.

Criteria for Selection

The literature of information technology is expanding as rapidly as the technology itself. The ERIC system attempts to capture as much of that literature as possible when it appears in reports, speeches, papers, and other uncopyrighted sources. Journal articles are also used to enhance the quantity and quality of the information.

Criteria used to select the items for this publication include (1) recency (most of the publications or articles have appeared since 1980), (2) relevance (the content should have at least a nominal relationship to education), and (3) readability (the writing should be understandable by lay people). In addition, items with results were sought rather than proposals, feasibility studies, or future prospects. An attempt was made to find articles and documents focused on one technology rather than a combination of technologies.

Definition and Terminology

One of the major difficulties in dealing with new information is that terminology is not yet firmly fixed. For example, videotex seems to be accepted as a generic term for textual materials on a screen but it is confounded when teletext, videotext, and several brand names are used in the same context. Teleconferencing is an interactive application of telecommunications. Either audio or video signals or both can be used for teleconferencing, but no distinction is made by the words themselves. The reader must ascertain the meaning of the terms used in each citation.

General References

About 25 percent of the items selected for this publication are general in nature. That is, they treat several information technologies simultaneously. They offer the best overviews and hence are offered first. There are three citations which deserve special mention because they seem more comprehensive and authoritative than the others on the list. Information Technology in Education: Perspectives and Potentials (ED 208 864), a report prepared for the Subcommittee on Science, Research and Technology of the U.S. House of Representatives' Committee on Science and Technology, offers a comprehensive overview of the factors which have led to the information revolution in education. The report, which was published in 1981, makes recommendations for future actions. New Information Technologies--New Opportunities (ED 225 567), edited by Linda C. Smith, was published by the Graduate School of Library Science at the University of Illinois in 1982. The content includes microcomputers, input-output devices, word processors, videodiscs, videotex, and telecommunications. The third overview volume is Informational Technology and Its Impact on American Education,* published in November 1982 by the Office of Technology

*This report will be available through the ERIC system in the fall of 1983.

Assessment of the U.S. Congress. The report reviews the demands of the information revolution on education as well as the opportunities which such demands create. The contents include a survey of the major providers of education and training, state-of-the-art descriptions of specific technologies, data regarding current use of technology in education, and the future potentials for these technologies in education. The report is comprehensive and specific. Case studies are included. Chapter 1, which is a summary of the entire report, is included here in its entirety as an introduction to this publication.

Some Advice

Many of the information technologies provide solutions to problems which have not yet been identified. Some exist because they are technically possible. Others are searching for applications. Most of the information technologies are making their contributions in business, industry, medicine, and the military. Education has never been noted for its pioneering spirit, especially when it comes to embracing technology. There will be a period of experimentation when some of these solutions will try to respond to problems of education. Some will find their way into the educational mainstream but others will drop by the wayside, rejected artifacts which look like some of the innovations of the 1960's, e.g., language laboratories, closed circuit instructional television, and electronic video recordings. There is no reason to categorically reject any of the new information technologies as inappropriate, irrelevant, or too expensive for education: there may come a time when one or more of these technologies are the most appropriate and cost effective way to solve some educational problems. Consider them carefully.

INFORMATIONAL TECHNOLOGY AND ITS IMPACT ON AMERICAN EDUCATION: A SUMMARY*

Modern society is undergoing profound technological and social changes brought about by what has been called the information revolution. This revolution is characterized by explosive developments in electronic information technologies and by their integration into complex information systems that span the globe. The impacts of this revolution affect individuals, institutions, and governments--altering what they do, how they do it, and how they relate to one another.

If individuals are to thrive economically and socially in a world that will be shaped, to a large degree, by these technological developments, they must adapt through education and training. Already there is evidence of demands for new types of education and training, and of new institutions emerging to fill these demands. The historical relationship between education and Government will be affected by the role that Government plays in enabling educational institutions to respond to the changes created by these technologies.

Background

Historically, the Federal Government's interest in educational technology has been sporadic--rising as some promising new technology appeared and falling as that technology failed to achieve its promise. Attention was focused, moreover, on the technology itself and not on the broader educational environment in which it was to be used. In the late 1960's, for example, the Federal Government funded a number of research and development (R&D) projects in the use of computer-assisted instruction (CAI). Interest in the projects waned, however, given the high costs of hardware and curricula and the failure to integrate computer-based teaching methods into the institutional structure of the school.

---

*U.S. Congress, Office of Technology Assessment, Informational Technology and Its Impact on American Education, GPO stock No.052-003-00888-2 (Washington, DC: U.S. Government Printing Office, November 1982). Reprinted by permission.

Over the last decade, Federal funding for R&D in educational information technology has dropped precipitously. At the same time, development and applications of information technology have advanced rapidly in many sectors. Public schools, beset by problems that such technology might mitigate, have lagged behind in adapting to technological changes. In view of this situation, OTA was asked in October 1980 to reexamine the potential role of new information technology in education. The assessment was initiated at the request of: (1) the Subcommittee on Select Education of the House Committee on Education and Labor; and (2) the House Subcommittee on Science, Research, and Technology of the Committee on Science and Technology.

This report examines both the demands the information revolution will make on education and the opportunities afforded to respond to those demands. Included in its scope are a survey of the major providers of education and training, both traditional and new, and an examination of their changing roles. The full range of new information products and services rather than any single technology is examined, since the major impact on education will most likely stem from the integration of these technologies into instructional systems.

For this report OTA has defined education to include programs provided through a variety of institutions and in a variety of settings, including public schools; private, nonprofit institutions that operate on the elementary, secondary, and postsecondary levels; proprietary schools; training and education by industry and labor unions; instruction through the military; and services provided through libraries and museums or delivered directly to the home. Information technology is defined to include communication systems such as direct broadcast satellite, two-way interactive cable, low-power broadcasting, computers (including personal computers and the new hand-held computers), and television (including video disks and video tape cassettes).

The assessment was premised on three initial observations and assumptions:

- The United States is undergoing an information revolution, as documented in an OTA assessment, Computer-Based National Information Systems.

- There is a public perception that the public schools are "in trouble," and are not responding well to the normal educational demands being placed on them. Public schools in many parts of the country are faced with severe economic problems in the form of rapidly rising costs and reduced taxpayer support. These pressures are forcing a new search for ways to improve the productivity and effectiveness of schooling.
- A host of new information technology products and services that appeared capable of fulfilling the educational promises anticipated earlier are entering the marketplace in affordably low cost and easy accessibility.

Findings

OTA found that the real situation is far more complex than assumed above. In summary, the assessment's findings are:

- The growing use of information technology throughout society is creating major new demands for education and training in the United States and is increasing the potential economic and social penalty for not responding to those demands.
- The information revolution is creating new stresses on many societal institutions, particulary those such as public schools and libraries that traditionally have borne the major responsibility for providing education and other public information services.
- Information technology is already beginning to play an important role in providing education and training in some sectors.
- Information technology holds significant promise as a mechanism for responding to the education and training needs of society, and it will likely become a major vehicle for doing so in the next few decades.
- Much remains to be learned about the educational and psychological effects of technological approaches to instruction. Not enough experience has been gained with the new information technology to determine completely how that technology can most benefit learners or to predict possible

negative effects of its use. Given this insufficient experience, caution should be exercised in undertaking any major national effort, whether federally inspired or not, to introduce these new technologies into education.

The Information Society

Role of Information

For the foreseeable future, information technology will continue to undergo revolutionary changes. The microprocessor--an inexpensive, mass-produced computer on a chip--will become ubiquitous in the home and office--not only in the easily identifiable form of the personal computer or word processor, but also as a component of numerous other products, from automobiles to washing machines and thermostats. High-speed, low-cost communication links will be available in such forms as two-way interactive cable, direct broadcast from satellites, and computer-enhanced telephone networks. New video technologies such as video disks and high resolution-television will be available. These technologies will be integrated to form new and unexpected types of information products and services, such as videotex and on-line information retrieval systems that can be provided over telephone or air waves directly to the home.

It is impossible to predict which of these technologies and services will succeed in the competition for consumer dollars, or which will appeal to particular markets. It is, however, reasonable to conclude that they will radically affect many aspects of the way society generates, obtains, uses, and disseminates information in work and leisure.

The growing importance of information itself drives and is driven by these rapid technological changes. Until a few decades ago, the information industry--that industry directly involved with producing and selling information and information technology--was relatively small in economic terms. It is now becoming a major component of the U.S. economy. While most economists still talk about the traditional economic sectors--extractive, manufacturing, and service--some now have begun to define and explore a fourth, the information sector. One analysis has shown that this new sector, if defined broadly, already accounts for over 60 percent of the economic activity of the United States.

Many firms involved directly with information are large and growing. Two of the largest corporations in the world, AT&T and IBM, principally manufacture information products and provide information services. Moreover, business in general is beginning to treat information as a factor of production that takes its place beside the conventional factors of land, labor, and capital. In addition, the Government is beginning to treat information as an important element of national security. While defense officials have always been concerned about the disclosure of military information--such as troop movements or weapons design--they are now also concerned about the international leakage of more general U.S. scientific and technical information that other countries could conceivably use to pursue economic or military goals that are in contrast to our own.

In addition to serving as an economic good, access to information is becoming increasingly important for individuals to function in society effectively as citizens, consumers, and participants in political processes. Relations with government at all levels are becoming more complex--whether they involve dealing with the Internal Revenue Service, applying for social benefits and services, or seeking protection from real or perceived bureaucratic abuse. Individuals are confronted with the need to evaluate more sophisticated choices and to understand their rights and responsibilities under the laws and regulations intended to protect them in the marketplace.

Information Technologies

The rapid evolution of the following technologies in the last few decades has shaped the information revolution:

Cable.--Cable systems--wherein data and programs are transmitted over a wire rather than through airwaves--are growing rapidly. The newer systems offer more channels, and some offer two-way communication.

Satellite Communication.--Satellites have stimulated development of new types of television networks to serve cable subscribers and earth station owners with specialized programing.

Digital Telephone Network.--The shift to digital transmission will allow telephone lines to carry more information at higher speed and with greater accuracy, providing better linkage of information between computer terminals.

Broadcast Technologies.--Some distribution technologies in the entertainment market may also have important potential educational uses. For one, the direct broadcast satellite can transmit a program directly to a home or office, bypassing a cable system. For another, low-power stations, which restrict transmission to a limited geographical range, provide a low entry cost to licensees and are subject to less regulation than are traditional broadcast stations.

Computers.--The design and uses of computers have advanced to the point where there is now a mass consumer market for computers and computer software. Moreover, networks that link privately owned computers have expanded access to information. Desktop computers are becoming more common in the home, the small business, and formal educational settings. The use of hand-held computers, cheaper and more portable than desktop computers, has also increased. Along with computer development have come advances in the interface between humans and computers--input/output technology. Input technology is the process of putting information into the computer--either by typing it, speaking to the computer, or showing the computer pictures. Developments in ouput technology are occurring in the areas of low-cost printers, graphics (particularly color graphics), and voice.

Storage Technology.--Data programs are stored on a variety of media for use in the computer: silicon chips, floppy disks, and hard disks. Improvements are being made in such technology for both large and small computers.

Video Technology.--Significant developments in several areas of video technology are likely in this decade. Video cassette recorders are already important consumer devices. The filmless camera, which combines video and computer technology to "write" a picture on a very small, reusable floppy disk, may soon be available.

Video Disks.--Resembling a phonograph record, a disk that stores television programing is of considerable interest to educators. It is durable, inexpensive to produce, and capable of storing a large amount of data and programs.

Information Services.--Several of the aforementioned information technologies are now being integrated to provide new types of services. For example, several countries now use the existing television broadcast medium to bring information services to homes

and offices. Using a teletext system, the user can select a page for special viewing as it is transmitted in segments over the air. In a videotex system the user can preselect a page from the central system for immediate viewing. Closely related to videotex are the information networks that provide owners of desktop computers and terminals with access to computer and data services and to one another over communication networks. Through electronic conferencing, geographically separated individuals can participate in meetings. Variations include audioconferencing, which uses telephone lines; video conferencing, which supplements the voice connection with television images; and computer conferencing, which involves transmitting messages through a central computer that then distributes them as requested.

Impacts on Institutions

Impacts from the information revolution are being felt by government at all levels and by the military, industry, labor unions, and non-profit service institutions. Traditional services provided by these institutions now overlap in new ways and offer a wide variety of new services based on information technology. For example, firms as diverse as investment houses and retail stores now compete with banks by providing a variety of financial services. Banks, on the other hand, are beginning to compete with computer service bureaus in providing more general on-line information services to businesses and homes.

The U.S. Postal Service, along with Congress and a variety of Federal executive and regulatory agencies, is considering the degree to which it should compete with private telecommunications firms in the provision of electronic mail services. Large computer firms such as IBM are moving toward direct competition with traditional telecommunication common carriers such as AT&T for the provision of information. Telephone companies may offer "electronic yellow pages" that could rival the classified advertising business of newspapers.

Those institutions principally concerned with the collection, storage, or transfer of information will feel the greatest effects. They include both private sector firms--in fields such as publishing, entertainment, and communications--and public or nonprofit organizations such as libraries, museums, and schools. How they handle their product--information--may differ from the handling of

tangible goods by other institutions because information has characteristics that differentiate it from tangible goods. For example, information can be reproduced easily and relatively inexpensively. It can be transported instantly worldwide and presumably can be transferred without affecting its original ownership. Thus, copyright or other forms of protection for intellectual property--data bases, programs, or chip designs--is important to the growth of the information industry.

While the business of selling information has always existed in some form--e.g., book publishing, newspapers, or broadcasting--the growth of this sector and its movement into electronic forms of publishing will create conflicts with traditional societal attitudes about information. The concept of information as a public good whose free exchange is basic to the functioning of society is inherent in the first amendment to the Constitution and underlies the establishment of public libraries and schools. This concept conflicts with the market view of information, which recognizes that there are inherent costs in the provision of information. Adopting new information technologies will entail extra costs that must be borne somehow by the users of those technologies.

The conflict between the view of information as a market good and the view of it as a "public good" affects public institutions in a number of ways. Public nonprofit institutions find themselves increasingly in competition with private profitmaking firms that offer the same or similar services. Institutions such as libraries, schools, and museums are beginning to feel pressure to incorporate both nonprofit and income-generating offerings in their own mix of services. To the extent that previously free or very low-cost and widely available information services such as education move into the private marketplace, access to them may become limited, either because of their cost or because of their restricted technological availability. Periodicals previously available at newsstands, for example, may be available in the future only via computer or video disk.

New Needs for Education and Training

The information revolution places new demands on individuals, changing what they must know and what skills they must have to participate fully in modern society. It may also be increasing the social and economic prices that will be paid by those who do not

adapt to technological changes. For instance, spurred by increasing domestic and international economic competition, U.S. industry is expected to adopt computer-based automation in a major way. Computer-aided design, robotics, and other new computer-based manufacturing technologies will, within the next decade, transform the way goods are manufactured. Automation will not be restricted to the factory, however. Office automation will, according to some, have an even more revolutionary effect on management and on clerical work in business. Over the longer term, even the service professions, such as law and medicine, will be transformed.

While some sociologists suggest that the effect will be to "deskill" labor by lowering the skill requirements for workers, more anticipate that a greater premium will be placed on literacy, particularly technological and information literacy. The latter argue that an increasing number of jobs will be in the information sector or will require the use of information systems. Moreover, new forms of production and information handling will create new jobs requiring new skills. Vocational education and industrial training programs will be needed to teach the skills for jobs such as robot maintenance or word processing.

An advanced information society will place a premium on skills oriented toward the creation of new knowledge and the design of new technologies. Thus, while there is some current debate about a possible surplus of college graduates, generally speaking many experts see a growing gap between the demand and supply of graduates in engineering and science, and particularly in computer engineering and science.

A key element in all of these educational needs is that they will constantly change. In a rapidly advancing technological society, it is unlikely that the skills and information base needed for initial employment will be those needed for the same job a few years later. Lifelong retraining is expected to become the norm for many people.

Case Studies on Information Technology

In addition to using existing information for this assessment, OTA undertook case studies designed to gain insights into the successful application of information technology in education. Accordingly, OTA examined well-established programs in public school systems, industries, libraries, museums, the military, special education, and

direct to the home markets nationwide. These case studies are presented in the appendix. Many of the findings presented in this assessment reflect observations made in these studies. The most important of these observations is that information technologies can be most effectively applied to tasks when they are well integrated in their institutional environments.

Potential Technological Solutions

OTA found little evidence of current hardware limitations that would limit the applicability of technology to education and, hence, call for major research efforts. Continuing research in the general fields of computer science and engineering, coupled with innovative private sector development will provide the necessary hardware base. The only exception is the area of technology for the handicapped, where it is not clear that the opportunities for developing specialized technology could be met without some Federal support for R&D. There does appear to be a need, however, for R&D focused on developing new techniques and tools for software development, human/machine interface, and improving the understanding of cognitive learning processes.

If properly employed, information technology has certain characteristics that suggest it will be invaluable for education. For one, information technology may be the only feasible way to supplement teaching capability in schools faced with reduced teaching staffs and larger class sizes. For another, information technology is capable of distributing education and training, both geographically and over time. Services can be provided in the home, at work, in a hospital, or in any other location where and when they may be needed.

Many of the electronic media, such as video disks or microcomputers, allow learners to use them at their convenience, instead of being locked into specifically scheduled times. Computer-based analysis, combined with a flexible, adaptive instructional system could diagnose and immediately respond to differences in learning strategies among students and, hence, could be more educationally effective. Finally, much work has been done on using information technology to improve the ability of foreign students and the physically and mentally handicapped to communicate.

Some experts suggest that the use of computers by students teaches them new ways of thinking and new ways of solving problems that may be more appropriate in an information age. They suggest that a generation that grows up with computers will have a significant intellectual advantage over one that does not. Many educators criticize such a view as being too technology-centered. At the very least one can predict, however, that computer and computer-based information services will be ubiquitous by the next century, and that learning how to use them effectively is a basic skill that will be required for many and perhaps most jobs. (In response to this view of future skill requirements, many schools have placed a high priority on computer literacy as the first instructional use of the computer.)

Although experience with educational technologies has demonstrated that they offer a variety of potential benefits, it has also demonstrated that technology cannot, by itself, provide solutions to all educational problems, nor should it be imposed on an educational system without sensitivity to institutional and societal barriers that could prevent the realization of educational benefits. These barriers include:

Institutional Barriers.--New educational technology must be designed for ease of integration into the schools and other educational institutions that will use it. Some adaptations of curricula, schedules, and classroom organization will be needed, but the changes are not likely to be extreme.

Teacher Training.--Widespread use of technology in the classroom will require that teachers be trained both in its use and in the production of good curriculum materials. Too few teachers are so qualified today. Schools maintain that they are already faced with a shortage of qualified science and mathematics teachers (those most likely to lead the way in computer-based education). Furthermore, there is little evidence that most of the teacher training colleges in the United States are providing adequate instruction to new teachers in the use of information technology.

Lack of Adequate Software.--OTA found general widespread agreement that, with few exceptions, the quality of educational software--curriculum material designed for educational technology--now available was, in general, not very good. Curriculum providers do not yet use the new media to full advantage

for several reasons. In the first place, many of the technologies are still new. It takes time to learn how to use them, and the early attempts suffer from this learning process. Second, production of high-quality educational software is expensive. Some large firms that have the necessary capital to produce educational software hesitate to risk developmental money in a relatively new and uncertain market.

Third, the programers and curriculum experts qualified to produce educational software are in short supply. Finally, some firms cite the lack of adequate property protection--e.g., copyright, patents--for their information products as a barrier to investment in development.

Skepticism About Long-Term Effects.--Some educators are seriously concerned that the long-term effects on learning of substituting technology for traditional teaching methods are not sufficiently understood. While acknowledging that computers or other technologies may have some limited utility in the classroom for drill and practice, or for instruction in computer literacy, they fear that any widespread adoption of technology for education could have deleterious effects on the overall quality of learning.

Cost.--Even though the cost of computer hardware and communication services is dropping, investment in educational technology still represents a substantial commitment by financially pressed schools. Costs of software are likely to remain high until a large market develops over which providers can write off developmental costs. In some cases the cost of information products and services may be passed on to users for the first time.

Policy Issues and Options

Issues

The impact of information technology on education will confront Congress with a number of important policy decisions in several areas:

- Education and training for economic growth: OTA found that trends in automation and the growth of the information sector of the economy will probably present the United States with severe manpower training problems over the next decade.

These will include a persistent shortage of highly trained computer scientists, engineers, and other specialists; a need for retraining workers displaced by factory and office automation; and a need for a more technologically literate work force. Congress must decide what Federal response to these national needs would be both appropriate and effective.

- Redressing inequities: In both the OTA study on national information systems and in this assessment, OTA found concern that a significant social, economic, and political gap could develop between those who do and those who do not have access to, and the ability to use, information systems. People who cannot make effective use of information technology may find themselves unable to deal effectively with their government and to obtain and hold a job. Both social and economic concerns may motivate Congress to take action to improve literacy in American society.

- New institutional roles: OTA found that many public educational institutions are under severe strain, to the extent that many question their survival--at least in their current form. Actions directly related to the use of information technology could also have important impacts on these public educational institutions, both by enhancing their productivity and by helping them offer a modern, computer- and communication-based curriculum. Although the States have primary responsibility for control of the public schools, decisions and policies set at the Federal level have influenced the nature of public education and will continue to do so.

Options for Federal Action

Assuming that Congress decides there is a significant need for Federal action to address these issues, there are a number of possible actions it could take.

- Direct Intervention.--Congress could take action to increase and improve the use of information technology in education. Most of the following options would principally affect the schools. A few would have a broader effect on the provision of education and training in other institutions.

  -- Provide tax incentives for donations of computers and other information technology: H.R. 5573 and S. 2281 are

examples of such initiatives. They are intended to accelerate the rate at which schools install computer hardware and to respond to possible inequities in the abilities of school districts to direct funds to equipment acquisition. However, some experts have noted that the personal computer industry is on the verge of moving to a new generation of more powerful machines that may have much greater potential for educational application on a more sophisticated level. Donations of older equipment could freeze the schools into dependency on obsolescent systems. Moreover, such incentives do not address problems such as the need for software, teacher training, or institutional barriers to effective use.

- Subsidize software development: OTA found that the most-often cited barrier to current educational use of technology was the lack of adequate educational software. There may be a role for the Government in reducing the risks software producers currently see that inhibit major investment in quality courseware (educational software). Many of the existing successful packages, such as the Sesame Street programs for television and the PLATO computer-aided instruction system, were developed with partial Federal support. On the other hand, good software may be forthcoming if the producers see a sufficient quantity of hardware in the schools to provide them with a viable market.

- Directly fund technology acquisition by the schools: The Federal Government could directly underwrite the acquisition of hardware and software by the schools. Such a program would create a market for educational products that would attract producers, and it would accelerate the introduction of technology into the schools. On the other hand, such an approach may promote premature and unwise purchases of technology by schools that are unprepared to use the technology effectively. It is also counter to some current trends and attitudes in Congress concerning the proper Federal role in education.

- Provide support activities: The Federal Government could assume a leadership role in encouraging the educational system to make more effective use of information technology by funding demonstration projects, teacher-

training programs, and the development of institutions for exchanging information about successful implementations. OTA found evidence of a high degree of interest and motivation by both schools and parents that could be more effectively channeled with appropriate Federal leadership. Such a program would not address the financial limitations that currently prevent many institutions from acquiring technology and software.

- Adapt a General Education Policy.--Congress is considering various forms of education-related legislation that may affect, and in turn may be affected by, the new informational needs of society. Examples are bills concerning vocational education, veterans' education, education for the handicapped, and foreign language instruction. Such legislation, if drafted with the intent to do so, could encourage the development of more effective and economical technological alternatives to current programs.

- Support R&D.--Federal civilian agency support of R&D in educational technology has decreased substantially over the last decade. OTA found that, to make the most effective use of technology, there was a need for R&D in learning strategies and cognitive development, methods for the production of effective and economical curricular software, and the long-term psychological and cognitive impacts of technology-based education. Congress could consider policies to: (1) directly support R&D in these areas, (2) encourage private sector investment from both foundations and industry, or (3) encourage a combination of both by using Federal funding to leverage private investment.

- Elimination of Unintended Regulatory Barriers.--Some legislation and regulation not specifically directed at education may create barriers to the effective application of educational technology. Telecommunication regulation, for example, can affect the cost of technology, access to communication channels, and the institutional structure of education providers.

  Moreover, protection of intellectual property, principally copyright law, was identified as a major determinant of the willingness of industry to invest in educational software. The current state of the law was seen by many industry experts as

inadequate and, hence, as creating a barrier to th development of novel and innovative software. However, t the extent that such a barrier does exist, it is not clea whether its removal lies in new legislation or in the gradua development of legal precedent in the courts.

BIBLIOGRAPHY

Information Technology (General)

ED215665 IR010097

User Perspectives: Vermonters Talk About a Telecommunications Demonstration. Paper P-118

Chupack, Stephen F.; And Others

Institute for the Future, Menlo Park, Calif.; New York Univ., N.Y. Alternate Media Center.

Jul 1981 41p.

Sponsoring Agency: Department of Health, Education, and Welfare, Washington, D.C.

EDRS Price - MF01/PC02 Plus Postage.

Document Type: PROJECT DESCRIPTION (141)

In this collection of papers, individuals with no prior experience in telecommunications describe their experiences as participants in a major demonstration of telecommunications applied to the needs of persons with developmental disabilities in Vermont. Conducted by the Alternate Media Center of New York University from summer 1979 through September 1980, the demonstration dealt with basic questions about the communication process and how a person begins to use and adopt technology to augment that process. Project participants included the Vermont Association for Retarded Citizens (VARC), the Vermont Surrogate Parent Program (VSPP), the Center for Developmental Disabilities (CDD) of the University of Vermont, United Cerebral Palsy (UCP) of Vermont, and the Vermont Developmental Disabilities Council. Seventeen additional publications from the project are listed. (Author/LLS)

EJ244291 IR508995

Information Technology and Its Socioeconomic and Academic Impact.

Doll, Russell

Online Review, v5 n1 p37-46 Feb 1981

Document Type: JOURNAL ARTICLE (080); POSITION PAPER (120)

Explores the intended and unintended outcomes of information technology on (1) business and economics, (2) research, and (3)

library career preparation. Specific examples of the potential effects of databasing in these areas are provided, and four references are listed. (SW)

ED217890 IR010510

Educational Telecommunications for Alaska. Volume I: Executive Summary.

Alaska State Dept. of Education, Juneau. Office of Educational Technology and Telecommunications.; YAF Associates, Rockville, MD.

Apr 1982 47p.; For related documents, see ED 162 611, ED 184 518, and ED 217 891-893.

Sponsoring Agency: National Inst. of Education (ED), Washington, DC.

EDRS Price - MF01/PC02 Plus Postage.

Document Type: PROJECT DESCRIPTION (141)

The first of four volumes, this executive summary briefly discusses the educational situation in Alaska in terms of geography, climate, and ethnic groups; reviews the state's involvement in the National Institute of Education's Education Satellite Communication Demonstration; describes project management and introduction of the innovations; and reports on the three systems developed by the Educational Telecommunications for Alaska Project, which was undertaken in 1977 to provide support for schools throughout the state. The Administrative Communications Network, which provides administrative and instructional support among the state's 52 school districts, Regional Resource Centers, and the State Department of Education, is reviewed in terms of objectives, electronic mail box (EMS) operation, a user evaluation, and its current status. The objectives of the Alaska Knowledge Base System are outlined, and information is provided on its implementation, database content, and access to the database, as well as its current status. A description of the Individualized Study by Telecommunications (IST) system includes the objectives, the IST model, preoperational evaluation of course effectiveness and student and teacher attitudes, and cost effectiveness. A brief glimpse of the future closes the report. (JL)

ED208872 IR009786

Imaginative Use of Nonbroadcast Technology Directs Social Services to Isolated Audiences.

Erdman, Ann

Agency for International Development (Dept. of State), Washington, D.C. Clearinghouse on Development Communication.

Development Communication Report, n35 Sep 1981

Sep 1981 18p.

EDRS Price - MF01/PC01 Plus Postage.

Document Type: POSITION PAPER (120); PROJECT DESCRIPTION (141); SERIAL (022)

The keynote article in this issue summarizes some of the lessons learned after a decade of using satellites for public service, and after five years of experimentation with information technologies designed for specialized audiences. Community service programs in the Appalachian Mountain and Rocky Mountain regions and in the state of Alaska are evaluated, and a series of observations are made suggesting reasons for the success or failure of these satellite projects. The report also includes an outline of projects funded by the telecommunications demonstration program and lists the name of the grantee, the technology used, the service rendered, and the end-user of that service. Other articles in this issue provide: (1) a discussion of satellite communications in rural Peru, (2) a glossary of the language of telecommunications, (3) some practical guidelines for radio scriptwriters and planners, (4) an examination of communications utilization in encouraging hybrid cocoa farming program in Nigeria, and (5) a discussion of the use of interactive media by the Volunteers in Technical Assistance (VITA) program to send information on energy to requestors primarily in developing countries. (MER)

EJ258490 SE530808

Challenge of Information Technology to Education: The New Educational Crisis.

Haefner, Klaus

Technological Horizons in Education, v9 n1 p47-49,52 Jan 1982

Available from: Reprint: UMI

Document Type: JOURNAL ARTICLE (080); POSITION PAPER (120)

Ways the informational environment has changed, and how it will change in the near future are discussed. Justification of educational funding in the future must come from new notions, in light of changes brought about through new information technology. A crisis over the next decade is predicted. (MP)

ED198816 IR009194

Information Technology in Education. Joint Hearings before the Subcommittee on Science, Research and Technology of the Committee on Science and Technology and the Subcommittee on Select Education of the Committee on Education and Labor, House of Representatives, Ninety-Sixth Congress, Second Session.

Congress of the U.S., Washington, D.C. House Committee on Education and Labor.; Congress of the U.S., Washington, D.C. House Committee on Science and Technology.

Apr 1980 254p.; Not available in paper copy due to small print size. Legibility varies; appendices on pp. 201-250 will not reproduce due to small type size.

Available from: Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: LEGAL MATERIAL (090); POSITION PAPER (120)

The joint hearings which are documented in these proceedings were held to enhance the awareness of the Congress, the executive branch, and the private and public sectors of both the potential educational benefits of new information and telecommunications technologies, and the possible social and economic impacts resulting from the widespread use of these technologies in the educational process. A variety of perspectives on these two issues was presented during the two days of sessions. Among the witnesses who appeared before the subcommittees were representatives from the National Institute of Education, the World Institute for Computer Assisted Teaching, Massachusetts Institute of Technology, the Corporation for Public Broadcasting, the Warner Cable Corporation, and the Educational Testing Service. In addition to these presentations, six workshops were held which focused on the implications of instructional technology for elementary secondary education, post-secondary education, public planning, special education, adult education, and information technology development. The recommendations presented to Congress by the workshop participants are included in this document. (LLS)

ED208864 IR009776

Information Technology in Education: Perspectives and Potentials. Report Prepared for the Subcommittee on Science, Research and Technology of the Committee on Science and Technology, U.S. House of Representatives, Ninety-Sixth Congress, Second Session.

Library of Congress, Washington, D.C. Congressional Research Service.

Dec 1980 348p.; Serial QQQ. Pages 201-255 and 207-303 will not reproduce due to the size of type in the original document. For related document, see ED 198 816.

Sponsoring Agency: Congress of the U.S., Washington, D.C. House Committee on Science and Technology.

Available from: Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402 (1981. 77-352-0).

EDRS Price - MF01/PC14 Plus Postage.

Document Type: LEGAL MATERIAL (090)

This report is a current review and exposition of the role of information technology in education, with particular emphasis on the perspectives of leaders in the field and their views regarding its many potentials. The purpose of the study is to present an overview of the hearings and associated workshop on this topic held during the 96th Congress, within the broader context of a perceived need for the creation and implementation of a cohesive national policy governing the management of our information resources. Not only are the thematic and factual contents of these sessions analyzed and synthesized, but their commentary on the state of education in the United States and the impact of advanced technology is attuned to the special interests of those legislative oversight groups which must plan for the future. (Author/LLS)

ED214530 IR010116

Linking Californians for Learning: Next Steps for Telecommunications in California Postsecondary Education. Commission Report 81-28.

California State Postsecondary Education Commission, Sacramento.

Nov 1981 101p.; For related document, see ED 178 085.

EDRS Price - MF01/PC05 Plus Postage.

Document Type: RESEARCH REPORT (143)

A follow-up to the 1979 report, Using Instructional Media beyond Campus, this report describes a plan for making statewide use of available media for postsecondary education in California. The first of three sections provides a basic inventory of California's telecommunications resources, focusing on electronic means of transmitting information over long distances and time, e.g., television, radio, and telephone. The second section identifies five areas of knowledge as major social needs, including basic adult competencies or survival skills, and employment information and occupational skills, and discusses how these needs can be met on a statewide basis with electronic media. Primary barriers hindering the use of these resources by postsecondary institutions are identified

as lack of incentives and coordination and high initial costs, and recommended steps for marshalling the necessary resources to meet the state's educational needs are described in the final chapter. The four appendices include a summary and findings of the first report on telecommunications issued by the commission, a reference list on major societal needs, and catalogs of taped instructional materials for postsecondary use. Six maps, three tables, and two figures illustrating typical cost patterns per student for classroom-intensive courses and technology-intensive telecourses are provided, as well as 19 references and an index. (RBF)

EJ235162 SE528461

Information Technology for Education: An Agenda for the 80's.

Melmed, Arthur S.

Technological Horizons in Education, v7 n6 p46-47,62 Nov 1980

Document Type: JOURNAL ARTICLE (080); PROJECT DESCRIPTION (141)

Describes technologies applicable for educational use, including computers, calculators, video storage, and word processing devices among others. Applications of the new technologies to basic skills in reading and comprehension are given. Three goals for the 1980s resulting from new information technologies are suggested. (JN)

EJ267593 SE531894

The Search for New Intellectual Technologies.

Molnar, Andrew R.

Technological Horizons in Education, v10 n1 p104-12 Sep 1982

Available from: Reprint: UMI

Document Type: JOURNAL ARTICLE (080); PROJECT DESCRIPTION (141)

Among the topics discussed relating to demands on business/industry/education resulting from the "pull" of the information explosion are: frontiers of knowledge, research on educational television, computer-based learning, intelligent video-discs, quality of learning, science education/cognitive research, misconceptions, motivation, structure of knowledge, computer-based /expert-novice models, "expert systems," spatial data management, and broad/narrow cast systems. (JN)

ED225567 IR050047

New Information Technologies--New Opportunities. Papers Presented at the Clinic on Library Applications of Data Processing (18th, Urbana-Champaign, Illinois, April 26-29, 1981).

Smith, Linda C., Ed.

Illinois Univ., Urbana. Graduate School of Library and Information Science.

1982. 123p.

Available from: Publications Office, 249 Armory Building, 505 E. Armory St., Champaign, IL 61820 ($11.00).

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: VIEWPOINTS (120); REPORTS - GENERAL (140); CONFERENCE PROCEEDINGS (021)

The papers presented at the 18th Clinic on Library Applications of Data Processing discuss current developments and applications of new technologies for processing, transmitting, and storing information, as well as some issues raised by these new technologies. Ten papers are included: (1) a keynote speech on the changing roles of the information professional based on evolving information technology; (2) a tutorial on microcomputers; (3) a delineation of microcomputer applications in technical processing, public services, and management activities of libraries; (4) a description of the many applications of word processing at the U.S. Department of Agriculture's Technical Information Systems unit; (5) a survey of currently available data entry and display devices; (6) a discussion of U.S. and international projects which are testing the market for videotex and teletext systems; (7) an examination of recent developments in telecommunications, including electronic mail, facsimile, two-way cable, and digital telephones; (8) an outline of the basic characteristics of videodiscs as a storage medium; (9) an analysis of copyright protection for computer software and databases; and (10) an exploration of the relationship between technological change and professional identity. Brief descriptions of contributors and a subject index are provided. (Author/ESR)

Information Technology (Retrieval)

ED200216 IR009250

Data Input for Libraries: State-of-the-Art Report.

Buckland, Lawrence F.

Inforonics, Littleton, Mass.

1 Aug 1980 9p.

EDRS Price - MF01/PC01 Plus Postage.

Document Type: REVIEW LITERATURE (070)

This brief overview of new manuscript preparation methods which allow authors and editors to set their own type discusses, the advantages and disadvantages of optical character recognition (OCR), microcomputers and personal computers, minicomputers, and word processors for editing and database entry. Potential library applications are also indicated, including such special problems as converting back files, and available commercial services are mentioned. (RAA)

ED217892 IR010512

Educational Telecommunications for Alaska. Volume III: Alaska Knowledge Base System.

Alaska State Dept. of Education, Juneau. Office of Educational Technology and Telecommunications.; YAF Associates, Rockville, MD.

Apr 1982 95p.; Photographs will not reproduce. For related documents, see ED 184 518 and ED 217 890-893.

Sponsoring Agency: National Inst. of Education (ED), Washington, DC.

EDRS Price - MF01/PC04 Plus Postage.

Document Type: PROJECT DESCRIPTION (141)

The third of four volumes, this report documents the implementation, evolution, and institutionalization of the Alaska Knowledge Base System, a computerized database containing information about a variety of educational resources developed by the Educational Telecommunications for Alaska (ETA) Project in response to the need for quick access to educational resource materials in Alaska. Following an overview of Alaskan educational needs, the purpose and results of the Alaska Department of Education Planning and Evaluation Survey and the Telecommunications Alternatives Survey are discussed. The development and evaluation of the computer-supported Alaska Knowledge Base System is then recounted, with discussions of Alaska Knowledge Base content, the

technological component of the Knowledge Base, the Knowledge Base Cost Study (including a breakdown of computer system alternatives), program planning and implementation, user specifications in software development, the pre-operational Knowledge Base network configuration, the operational support network, pilot test evaluation, and the operation of the Knowledge Base retrieval system. The status of Knowledge Base data files is also discussed. Appended to the text are a list of planning objectives and examples of Knowledge Base data file printouts. A list of abbreviations and a bibliography on the Knowledge Base are also included. (JL)

Cable Television

ED211114 IR009944

Cable Television 1980: Status and Prospect for Higher Education.

Baus, F., Ed.

Association for Higher Education of North Texas, Richardson.

1980 66p.; Papers presented a Symposium on Cable TV--Expanding Educational Options in the 80's (Arlington, TX, March 6, 1980).

Sponsoring Agency: National Telecommunications and Information Administration (DOC), Washington, D.C.

Available from: AHE, P.O. Box 688, Richardson, TX 75080 ($5.00; $4.50 each for 10 or more copies).

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: CONFERENCE PROCEEDINGS (021); REVIEW LITERATURE (070); RESEARCH REPORT (143)

Baseline information for the would-be cable television educational programer is provided by two papers, one an overview of the state of the cable television industry, and the other a report on a marketing study conducted to determine consumer attitudes toward cable TV as an educational medium. In "The Promise and Reality of Cable Television," Ralph Lee Smith offers a factual treatment with explanations of historical events and economic events that helped shape the cable television industry. In "Educational Uses of Cable Television," Joe L. Welch and Jeffry N. Savitz explore the impact of cable television on the educational interests, attitudes, and intended behavior of residents of Dallas County, Texas. A summary of the objectives, methodology, and findings of the study is

followed by a more detailed discussion of the findings about the current, past, and future educational pursuits of the respondents and their attitudes toward the use of cable television for educational purposes. Supporting materials include 34 tables of data, a copy of the survey questionnaire, the frequency and percent of responses to 14 of the questions, and a list of the program content divisions. Nine references are listed. (CHC)

EJ059918 SE506331

Information Technology: Its Social Potential

Parker, Edwin B.; Dunn, Donald A.

Science, 176, 4042, 1392-1399 Jun 1972

Describes the possibilities of using cable television as an education, information retrieval, and political action tool, particularly by the use of the system in a two-way mode. (AL)

Electronic Mail

ED213397 IR010019

Choosing an Electronic Message System: A Guide for the Human Services.

Institute for the Future, Menlo Park, Calif.; New York Univ., N.Y. Alternate Media Center.

Sep 1980 19p.; For related documents, see ED 213 398-399.

Sponsoring Agency: Department of Health, Education, and Welfare, Washington, D.C.

EDRS Price - MF01/PC01 Plus Postage.

Document Type: EVALUATIVE REPORT (142); CLASSROOM MATERIAL (050)

This guide is designed to give persons working with developmentally disabled clients a practical introduction to the strengths and weaknesses of electronic message systems. It supplies answers to questions often asked by human services personnel, and includes brief descriptions of message systems now available or anticipated in the near future. The advantages and disadvantages of basic types of electronic message systems are briefly discussed, as well as ways in which a group can determine whether it is a good candidate for such a service, what an organization needs to get started, and how to operate an electronic message system. An

explanation of the costs of electronic mail systems, a list of human service organizations using such systems, and a list of 11 service providers are also included. Information on a project at New York University and a list of papers on telecommunications in human services available from the project are appended. (MER)

ED217891 IR010511

Educational Telecommunications for Alaska. Volume II: Administrative Communications Network.

Alaska State Dept. of Education, Juneau. Office of Educational Technology and Telecommunications.; YAF Associates, Rockville, MD.

Apr 1982 153p.; Photographs will not reproduce. For related documents, see ED 158 783, ED 162 610, ED 184 518, and ED 217 890-893.

Sponsoring Agency: National Inst. of Education (ED), Washington, DC.

EDRS Price - MF01/PC07 Plus Postage.

Document Type: PROJECT DESCRIPTION (141); TEST, QUESTIONNAIRE (160)

The second of four volumes, this report documents the implementation, evaluation, and institutionalization of the Alaska Administrative Communications Network, an electronic mail system (EMS) developed by the Educational Telecommunications for Alaska Project in response to the need for faster, more efficient communication in support of the administration of schools throughout the state. Following a review of the context of educational needs in Alaska, the purpose and results of the Alaska State Department of Education's Planning and Evaluation Survey and Telecommunications Alternatives Survey are discussed. The development of the Administrative Communications Network is then recounted, including its objectives, the expected results of the project, the evaluation and organization of the network, the design for evaluating the system, initial tests of the EMS, EMS components, development of an operational framework for EMS, training EMS users, pilot testing of EMS, and steps toward its institutionalization. Technical features of the system, usage levels, cost effectiveness, and user satisfaction are also considered. Among the appendices are a list of key events in the development of EMS, a description of EMS software, a statement of EMS conditions for use, and a copy of the EMS use survey. (JL)

ED207853 SE035733

The Impact of a Computerized Conferencing System on Scientific Research Communities. Final Report. Research Report No. 15.

Hiltz, Starr Roxanne

New Jersey Inst. of Technology, Newark.

Jun 1981 465p.; Not available in paper copy due to marginal legibility of original document.

Sponsoring Agency: National Science Foundation, Washington, D.C.

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: RESEARCH REPORT (143)

Presented is a case study of several scientific communities which used a computerized conferencing system (Electronic Information Exchange System--EIES) for a period of two years to enhance their communications and carry out cooperative tasks. Though it focuses on one particular system, it was designed to yield some data that make possible direct comparisons with the results of studies of other computer-mediated communication systems. Specific areas examined are: (1) the determinants of acceptance of this new form of communication; (2) user reactions and preferences related to specific system features and design choices and how these change with experience; and (3) changes in communication patterns, work patterns, and productivity-related measures as a result of using the system. (Author)

ED213398 IR010020

Electronic Mail Among University Training Centers. A Demonstration in National Network Building. Report R-49.

McNeal, Barbara

Institute for the Future, Menlo Park, Calif.; New York Univ., N.Y. Alternate Media Center.

Nov 1980 41p.; For related documents, see ED 213 397-399.

Sponsoring Agency: Department of Health, Education, and Welfare, Washington, D.C.

EDRS Price - MF01/PC02 Plus Postage.

Document Type: EVALUATIVE REPORT (142); RESEARCH REPORT (143); TEST, QUESTIONNAIRE (160)

The activities described in this report were part of a demonstration project designed to test the feasibility of using electronic messages to support information and resources exchange among professionals who serve the developmentally

disabled (DD). The one year demonstration included the participation of 26 university based centers across the United States and over 40 of their staff members. The centers which participated are designed to provide training, research and clinical experiences for their professionals working in the DD field. Information sharing revolved around the needs of agencies, and typical messages consisted of updates on events of professional importance as they occurred in Washington, exchange of specific research articles and information on current research, announcements of continuing education opportunities, and job availability announcements. As a result of the demonstration project, a permanent network was developed that now links over 30 university based training centers as well as 14 State Developmental Disability Councils. (MER)

Satellite Communications

ED207597 IR009716

Satellite Applications for Public Service: Project Summaries.

Lauffer, Sandra; And Others

Agency for International Development (Dept. of State), Washington, D.C. Clearinghouse on Development Communication.

Apr 1979 33p.

EDRS Price - MF01/PC02 Plus Postage.

Document Type: PROJECT DESCRIPTION (141)

Summaries of 18 different projects involving the use of satellite communications are presented in this report, including PEACESAT Education and Communication Experiments, USP Network Satellite Communication Project, Project Satellite, Satellite Instructional Television Experiment (SITE), Appalachian Education Satellite Program, Alaska Education Demonstration: ATS-6, Telemedicine in Alaska, Satellite Technology Demonstration (STD), WAMI Regionalized Medical Education Experiment, Veterans Administration Health Communications Experiment on ATS-6 and HERMES/CTS, University of Quebec Omnibus Network, University of Western Ontario Telemedicine (Moose Factory Experiment), Memorial University Telemedicine, Project Interchange: HERMES/CTS, Curriculum Sharing by Digital TV: HERMES/CTS, Interactive Broadband Communication Network: HERMES/CTS, Personnel Development by Satellite: HERMES/CTS, and WA-WA-TA Satellite Radio Project: HERMES/CTS. Each summary contains a description of the target audience, project objective, type of media

used, donors/sponsors, duration of the project, and contact person. Descriptions and results of each project are given as well as references. (CHC)

CE512301

EJ266678

The Communications Satellite as Educational Tool.

Long, Peter

Convergence: An International Journal of Adult Education, v15 n1 p45-56 1982

Available from: Reprint: UMI

Document Type: JOURNAL ARTICLE (080); POSITION PAPER (120)

Drawing on the experiences of several countries, the author describes satellite technology, discusses the feasibility of satellite use in traditional educational institutions, and analyzes the role of satellites in social development. (SK)

IR009752

ED208843

An Experimental University Course via Interactive Satellite: Some Findings and Implications.

Martin, Yvonne M.

Mar 1981 11p.; Paper presented at the Annual SIETAR Conference (7th, Vancouver, British Columbia, March 11-15, 1981).

EDRS Price - MF01/PC01 Plus Postage.

Document Type: PROJECT DESCRIPTION (141); EVALUATIVE REPORT (142); CONFERENCE PAPER (150)

In the fall of 1979 a third-year course in educational administration at the University of Victoria was presented via an interactive communication satellite called Anik B. Students enrolled in this first Canadian university satellite course for credit were 65 administrators and potential administrators of schools, and classes met in community colleges in five interactive centers falling within satellite range. Meetings were once a week for ten weeks in classrooms equipped with television monitors and telephones. Instructors retained responsibility for course structure and content, as well as for the organization and administration of this distance study program. An evaluation of the first and last session of the series assessed the pedagogical moves (verbal and nonverbal) of the instructor, and instructor attempts to create and maintain a sense of a single class among the students in the five locations. It was found that: (1) the system allowed instructors to approach the face-to-face setting closely although the technology did not allow much interpersonal communication; (2) the instructor brought to

the experience cultural traditions and values from classroom teaching and television viewing; and (3) there was evidence of the instructor's domination of the lesson processes. (MER)

ED206267 IR009446

Satellite-based Distance Education: Canadian Experiences.

Potter, Geoff D.

Mar 1981 19p.; Best copy available. Paper presented at the Annual Conference of the SIETAR (7th, Vancouver, British Columbia, March 11-15, 1981).

EDRS Price - MF01/PC01 Plus Postage.

Document Type: PROJECT DESCRIPTION (141); CONFERENCE PAPER (150)

This report traces the successful evolution of Canada's experiments in satellite-based distance education, which provided the framework for Canada's most recent investment in 19 new exploratory projects in satellite communications, as well as a commitment to the accessibility of satellite-delivered television for any Canadian who wants it. The early Canadian experiments in satellite-based education are described, including the first project begun at the University of Quebec in 1976, and later programs at the University of Carleton in Ottawa, the British Columbia Institute of Technology, and the University of Victoria. Also discussed is the growing understanding among Canadian educators of the nature of satellite-based distance education; i.e., how it works, the demands it makes upon designers and instructors and students, the problems it can create and resolve, and the challenge it presents to conventional educational practices. Recommendations based on the findings of the initial Canadian experiments are offered which pertain to the preparation of students prior to an interactive session, effective use of discussion techniques, consideration of the number of students assigned to a center, and some ideas on what to expect with regard to distance students' attitudes towards interaction. (MER)

ED206266 IR009444

Communication and Control in the Canadian North: The Role of Interactive Satellites.

Valaskakis, Gail G.

Mar 1981 18p.; Paper presented at the Annual Conference of SIETAR (7th, Vancouver, British Columbia, March 11-15, 1981).

EDRS Price - MF01/PC01 Plus Postage.

Document Type: PROJECT DESCRIPTION (141); CONFERENCE PAPER (150)

In 1972 the Canadian government launched its first domestic communications satellite, Anik A, which relays direct broadcast television and telephone messages to northern communities. The impact of television on Inuit life has raised issues and concerns pertaining to native language broadcasting, media access and control, and cultural identity among the Inuit people. In the past, without native-language information, Inuit could neither adapt their own institutions nor those brought north by southern Canadians. Two experimental communications satellites, Anik B and Hermes, now provide interactive audio and video links, and Inuit communities are being encouraged to experiment with interactive broadcasting as a means of controlling their acculturation and development through local-level initiative, integration, and cohesion. These experiments with communications satellites among the Inuit may re-direct patterns of institutional communication which have cemented over time and maintained outside control in northern communities. Twelve references are listed. (Author/MER)

ED214492 IR009882

Towards a Model for Satellite-Based Instruction at the University of Victoria. Report on the ANIK-B Experimental Project, September 1979 to June 1980. Summary Report.

Zuckernick, Arlene

Victoria Univ. (British Columbia).

Jun 1980 26p.

EDRS Price - MF01/PC02 Plus Postage. Language: English

Document Type: PROJECT DESCRIPTION (141)

This report on an experimental project in distance education via the ANIK-B satellite, which was undertaken by the University of Victoria in 1979-80, highlights in detail those aspects that could serve as components of a model for a similar effort, and incorporates the pertinent data obtained during a formal evaluation of the project. The report comments on the strengths and weaknesses of the satellite-based instructional system at the specific levels of administration and operation in distance delivery of university programs; assesses the success of the two education courses developed and produced by the project from the participant's viewpoint; assesses the technical viability of operating the satellite-based instructional system at the University of Victoria; and makes recommendations regarding the role of the satellite manager during the experimental period and in the future. The two courses presented, ED-B 435 "Supervision of Instruction" and ED-B 480 "Teaching Reading in the Primary Grades," are discussed in terms

of the ad hoc model that evolved. Components of this model include the project team, course components, the course design procedures, field arrangements, and University of Victoria project administration. (Author/MER)

Teleconferencing

ED211113 IR009943

Networking for Interagency Collaboration: Integrating Technology and Human Service Delivery. Report of a Satellite-Assisted Interactive Television Conference.

Brown, Alan R., Ed.

Vermont Univ., Burlington. Teacher Corps Youth Advocacy Loop.

1979 95p.

Sponsoring Agency: Office of Education (DHEW), Washington, D.C. Teacher Corps.

EDRS Price - MF01/PC04 Plus Postage.

Document Type: CONFERENCE PROCEEDINGS (021); EVALUATIVE REPORT (142)

This monograph is the report of an experiment to utilize technology to assist in the addressing of a major national concern: the education of troubled youth. The major concern is whether satellite-assisted, interactive television can be utilized effectively to assist in conferencing, workshops, and other information sharing and problem solving endeavors. This question is addressed in five major sections: (1) Introduction, (2) the Framework for Networking and Interagency Collaboration, (3) the Satellite-Assisted, Interactive Television Conference, (4) Assessment, and (5) Implications and Directions for the Future. The Framework deals with what is known from national reports and studies about the problems of educating troubled youth in America, and presents a theoretical perspective about the problem, as well as concepts and ideas about networking and interagency collaboration. The Conference section details the background of and planning that went into the 2-day conference, highlighting the conference design and its proceedings. The Assessment section reports on the extensive conference evaluation which was conducted. The final section looks at the lessons learned from this first experience, alternative telecommunication technologies, ideas to develop networks, and targets for reform. The Appendix includes lists of participants and conference implementors, as well as summaries of major national reports and supporting documents. (Author/CHC)

ED192756 IR008827

The Use of Telecommunications in the Training of Rehabilitation Personnel. Final Report.

Bruyere, Susanne M.; Chambers, Anne E.

Seattle Univ., Wash.

Feb 1980 233p.

Sponsoring Agency: Rehabilitation Services Administration (DHEW), Washington, D.C.

EDRS Price - MF01/PC10 Plus Postage.

Document Type: PROJECT DESCRIPTION (141)

The purpose of this national short-term training project was to provide trainers of rehabilitation personnel with the knowledge and skills necessary to make informed choices when considering telecommunications technology as a delivery approach in training. Training content was designed to provide both an overview of the telecommunications technologies available and an in-depth coverage of an experience with the technology which would be the most immediately accessible to the trainers. The telephone was chosen for in-depth coverage, and a teleconferenced approach was subsequently used to deliver the training in 21 locations throughout the United States. Curriculum content included an overview of existing telecommunications technologies and current applications in the delivery of continuing education and human services. Results of a post-program survey showed that 70 percent of the participants were "likely to very likely" to use teleconferencing in their work. Participants also indicated that they were able to learn new information from the teleconferenced instructional approach. (MER)

ED216676 IR010108

Establishing a Telephone Conferencing System: The Dynamics of Doing It.

Connell, Eileen

Institute of Electrical and Electronics Engineers, Inc., New York, N.Y.

Sep 1980 15p.; Paper presented at the National Teleconferencing Conference (Houston, TX, November 30, 1980-December 4, 1980.) documents, see IR 010 019-021 and IR 010 097.

Sponsoring Agency: Department of Health, Education, and Welfare, Washington, D.C.

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CLASSROOM MATERIAL (050); POSITION PAPER (120); CONFERENCE PAPER (150)

Based on experience gained in a project in Vermont that is demonstrating potential applications of telephone conferencing to services for the developmentally disabled, this paper summarizes the most important factors in establishing a telephone conferencing system. Basic terminology is described and factors to be considered in selecting telephone instruments are discussed. Some simple guidelines are provided on how to deal effectively with telephone companies and some general statements are made about costs of various services. The importance of good training for users is also discussed. The appendices include descriptions of eight kinds of end instruments that were tested for the Vermont project and a list of eight publications on telecommunications and service to the developmentally disabled. (CHC)

EJ267944 CE512455

New Dimensions in Distant Learning.

Eldridge, John R.

Training and Development Journal, v36 n10 p42-44,46-47 Oct 1982

Available from: Reprint: UMI

Document Type: JOURNAL ARTICLE (080); EVALUATIVE REPORT (142)

The author discusses computer teleconferencing and electronic bulletin boards (EBB) and gives reasons why trainers need to understand this technology's potential in international training. An evaluation of the use of an EBB in an undergraduate engineering course is provided. (CT)

ED207524 IR009608

Implementing Interactive Telecommunications Services. Final Report on Problems Which Arise During Implementation of Field Trials and Demonstration Projects.

Elton, Martin C. J.; Carey, John

New York Univ., N.Y. Alternate Media Center.

Apr 1977 105p.

Sponsoring Agency: National Science Foundation, Washington, D.C.

Available from: Alternate Media Center, 725 Broadway, New York, NY 10003 ($5.00).

EDRS Price - MF01/PC05 Plus Postage.

Document Type: NON-CLASSROOM MATERIAL (055); EVALUATIVE REPORT (142)

Intended primarily for use by individuals about to assume responsibility for the implementation of field trials and demonstration

projects built around interactive telecommunication systems, this report provides brief descriptions of 20 telemedicine projects, 12 teleconferencing projects, and seven involving two-way applications of cable television; three case studies providing fuller descriptions of the Nursing Home Telemedicine Project in Boston, Massachusetts, the Educational Telephone Network at the University of Wisconsin-Extension, and the Peoria Interactive Cable Television Project; and discussions based on the findings of this study including research context and objectives, needs assessment and project planning, system installation, users, implementation process management, and conclusions reached. A bibliography of 35 items is attached. (CHC)

ED211064 IR009883

Bridging the Distance. An Instructional Guide to Teleconferencing.

Monson, Mavis

Wisconsin Univ., Madison, Univ. Extension.

1978 72p.

Available from: Center for Interactive Programs, University of Wisconsin-Extension, 975 Observatory Drive, Madison, WI 53706 ($9.00; $6.00 per copy for orders of 25 or more).

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: TEACHING GUIDE (052); TEST, QUESTIONNAIRE (160)

Designed to present instructors, moderators, and program coordinators with techniques for better planning, presentation, and evaluation of teleconferencing programs, this manual is based on research and practice findings in the areas of adult education, communications, and learning and listening skills. The characteristics of two-way teleconferencing are reviewed and suggestions are offered for humanizing the techniques used, developing interactive tools for participants, examining message style, and utilizing participant feedback. Checklists for organizing and evaluating teleconference programs and a discussion of the overall effectiveness of teleconferencing are also included. (MER)

ED196427 IR009035

Visual Systems for Teleconferencing: Telewriting, Televideo, and Facsimile.

Olgren, Christine

Wisconsin Univ., Madison, Univ. Extension.

May 1978 29p.; Reprinted from Technical Design for Audio Teleconferencing, University of Wisconsin-Extension, May 1978.

Available from: Center for Interactive Programs, University of Wisconsin-Extension, 975 Observatory Drive, Madison, WI 53706 ($15.00).

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: REVIEW LITERATURE (070)

Telewriting, televideo, and facsimile systems are new forms of teleconferencing which can transmit a variety of graphic and pictorial information on voice-grade telephone lines. All of the equipment employs solid-state circuitry to enhance performance and to exploit the limitations of a narrowband channel. Telewriters range from simple electro-mechanical pens through complex computer graphics systems. All forms generate graphic or written information. Slow scan televideo systems, which add the capacity to present pictorial information, transmit the picture over regular telephone lines or FM radio channels for display on a television monitor. The facsimile system, which can transmit documents over long distances within a few minutes, requires a transmitter and a receiver (or two transceivers) to convert the printed document into electrical signals to be sent over telephone lines. Such advancements in electronic technology as miniaturization of integrated circuitry for processors, dense memory chips capable of greater bit-packing, charge-coupled devices to increase storage capacity, and fast multiplier chips for more complex signal operations are chiefly responsible for improvements in these systems. As data compression becomes feasible, the total number of bits transmitted can be reduced to improve the image quality over a voice-grade telephone line. Tables and graphs are included. (BK)

ED192719 IR008632

More Than Meets the Eye. The Effectiveness of Broadcast Audio and Two-Way Audio Instruction for Distant Learning.

Parker, Lorne A.; Monson, Mavis K.

Wisconsin Univ., Madison, Univ. Extension.

1980 96p.

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: REVIEW LITERATURE (070); BIBLIOGRAPHY (131)

This report on the effectiveness of radio instruction and teleconferencing is presented in three chapters: (1) One-Way Audio Instruction--Radio, (2) Two-Way Audio Instruction--Teleconferencing, and (3) Comprehensive Bibliography on Teleconferencing (annotated). Chapters 1 and 2 include sections on determining effectiveness, research, functions, implications,

advantages, and selected bibliographies on radio instruction or telecon ferencing. Chapter 1 also provides a description of the Subsidiary Communications Authorization. (CHC)

ED194045 IR008637

Teleconferencing and Interactive Media.

Parker, Lorne A., Comp.; Olgren, Christine H., Comp.

Wisconsin Univ., Madison. Center for Interactive Programs.

1980 488p.

EDRS Price - MF02 Plus Postage. PC Not Available from EDRS.

Document Type: COLLECTION (020); GENERAL REPORT (140)

This publication contains more than 50 papers on the latest developments and applications of interactive media to link distant locations. The contributors, who represent business, government, education, medical, and telecommunications organizations in the United States, Canada, England, and Australia, have had direct experience with the full range of interactive systems including audioconferencing, audiographics, slow scan televideo, full motion video conferencing, computer conferencing, computer messaging systems, and videotex service. Further, they have used all channels to reach distant locations, i.e., telephone, cable, microwave, and satellite. The intent of the publication is to give a perspective on the field from the vantage points of the user, administrator, instructional designer, researcher, technical designer, and product manufacturer. The papers are grouped in five categories: Teleconferencing in Business and Government, Teleconferencing in Education, Teleconferencing in Health and Medicine, Program Design and Research, and Computer Conferencing and Messaging Systems. (Author/MER)

ED213399 IR010021

1981 Audio Conferencing Handbook. Paper P-117.

Rowan, Paul D.

Institute for the Future, Menlo Park, Calif.; New York Univ., N.Y. Alternate Media Center.

Feb 1981 36p.; For related documents, see ED 213 397-398.

Sponsoring Agency: Department of Health, Education, and Welfare, Washington, D.C.

EDRS Price - MF01/PC02 Plus Postage.

Document Type: EVALUATIVE REPORT (142); CLASSROOM MATERIAL (050)

This handbook outlines ways to conduct audio conferences, provides a review of the kinds of equipment needed, analyzes various

cost factors, and offers guidelines for establishing an appropriate role for this technology in a human service environment. The results of an audio conference project designed for a service dealing with developmentally disabled persons in Vermont illustrate decision-making and problem solving techniques that can be used in any type of human service organization to help choose an appropriate communications channel for the desired services. The handbook includes sections on assessing organizational needs, setting up a conferencing system, designing an audio conference, and maintaining a conferencing network beyond its preliminary funding stages. Appendices provide information on equipment suppliers, providers of conference bridging services, and publications pertaining to teleconferencing programs and techniques. (MER)

ED198813 IR009189

Teaching by TELNET: A Guide to Teleconference Teaching.

Searfoss, Robert; Doyle, Pam

Georgia Hospital Association, Atlanta.

1976 10p.

EDRS Price - MF01/PC01 Plus Postage.

Document Type: TEACHING GUIDE (052)

This guide for conducting classes via the Georgia Hospital Association's teleconferencing network provides a brief description of the interactive TELNET classroom, including equipment and student participation capabilities; a list of media used in TELNET teaching; and guidelines for teleconference teaching. Designed to assist in adapting teaching techniques to this medium, the guidelines include a number of specific suggestions presented in four categories--assessment, pre-planning, presentation, and evaluation. Four references are listed. (MER)

Videodisc

ED217884 IR010270

The Videodisc and Implications for Interactivity.

Allard, Kim E.

Mar 1982 11p.; Paper presented at the Annual Meeting of the American Educational Research Association (New York, NY, March 19-23, 1982).

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CONFERENCE PAPER (150); POSITION PAPER (120); PROJECT DESCRIPTION (141)

This review of videodisc technology and its potential for use in conjunction with microcomputers in the development of interactive instructional systems includes: a brief discussion of the background and current state-of-the-art of videodisc technology; a review of videodisc formats and the costs and advantages of particular formats in the development of interactive educational systems; an outline of the unique instructional capabilities of interactive videodisc systems; a description of the Interactive Videodisc for Special Education Technology (IVSET) project, the equipment it employs, and the types of instructional materials it has produced for mentally handicapped non-readers; an account of the processes involved in developing and producing a videodisc for instructional purposes; and a concluding statement on the potential of the videodisc as an educational tool. (JL)

ED220071 IR010156

Instructional Systems Development Model for Interactive Videodisc Training Delivery Systems. Volume I: Hardware, Software and Procedures.

Bunderson, C. Victor; And Others

WICAT, Inc., Orem, Utah.

Jun 1980 108p.; Some figures will not reproduce. For related document, see ED 196 413.

Sponsoring Agency: Army Research Inst. for the Behavioral and Social Sciences, Alexandria, Va.

EDRS Price - MF01/PC05 Plus Postage.

Document Type: NON-CLASSROOM MATERIAL (055); EVALUATIVE REPORT (142)

Developed for use by army authors, this report provides information to assist in the step-by-step production of interactive videodisc training delivery systems (VTDS). The first of three volumes describes the hardware and software for VTDS, as well as videodisc authoring and production systems (VAPS). The range of capabilities of consumer-model videodisc players and intelligent videodisc systems is explained and three levels of authoring/production software are summarized. Systems design, potential applications, and a description of levels of learner/computer interaction are examined. Included in the discussion of authoring and production processes and premastering considerations are the constraints involved, the relative merit of tape

versus film-based production, and alternatives for text and graphics production, editing, and proofs. A list of available hardware and software necessary to facilitate authoring and a 31-item bibliography are included. (LMM)

ED208877 IR009791

Integrating Testing and Instruction Using the Videodisc.

Hiscox, Michael D.

12 Aug 1981 12p.; Paper presented at the Annual Conference of the Society for Applied Learning Technology (Los Angeles, CA, August 12, 1981).

EDRS Price - MF01/PC01 Plus Postage.

Document Type: POSITION PAPER (120); CONFERENCE PAPER (150)

This paper argues that the most important role the intelligent videodisc can fulfill is to provide a mechanism for effectively integrating testing and instruction. This integration will produce at least four important benefits: (1) increased learning by the student, (2) more interesting instructional materials, (3) gains in the efficiency of testing, and (4) less clerical work for the instructor. The success of videodiscs in instruction will depend largely on how well they maintain student motivation by providing attainable goals, frequent feedback, appropriate difficulty, and minimized failure, and whether they allow for such individual differences as attitudes and interests, time required for learning, student's knowledge base, and generalized ability. Difficulties in implementing a proposed diagnostic-prescriptive model and steps toward improving the chances for success in implementing the model include the need for large item pools and infinite numbers of different tests, scoring problems, burdensome recordkeeping, and complexity of the prescriptions. Some challenges to the advocacy of this model and its implementation are discussed. (CHC)

ED200227 IR009261

Videodisc: An Instructional Tool for the Hearing Impaired.

Propp, George; And Others

Nebraska Univ., Lincoln.

1980 43p.

Sponsoring Agency: Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C. Media Services and Captioned Films Branch.

EDRS Price - MF01/PC02 Plus Postage.
Document Type: PROJECT DESCRIPTION (141)

The strong potential of videodisc technology for improving the education of the hearing impaired is described in this report on the Media Development Project for the Hearing Impaired (MDPHI) at the University of Nebraska. The topics covered include: (1) the history of the use of technology in deaf education; (2) the history of videodiscs and their capabilities; (3) a comparison of the optical and capacitance systems of videodiscs; (4) an overview of the systems currently being produced; (5) a description of the instructional design, development, and evaluation efforts carried out by MDPHI on videodisc technology for deaf education; and (6) the production techniques used to edit and caption videodiscs. Extensive bibliographies are included after each chapter. (BK)

ED206563 SO013599

Art History Interactive Videodisc Project at the University of Iowa.

Sustik, Joan M.
Iowa Univ., Iowa City. Weeg Computing Center.
Jul 1981 14p.
Sponsoring Agency: Iowa Univ., Iowa City. Office of Research and Development.
EDRS Price - MF01/PC01 Plus Postage.
Document Type: PROJECT DESCRIPTION (141); EVALUATIVE REPORT (142)

A project which developed a retrieval system to evaluate the advantages and disadvantages of an interactive computer and video display system over traditional methods for using a slide library is described in this publication. The art school slide library of the University of Iowa stores transparencies which are arranged alphabetically within historical periods. Study cards, prints, and photographs supplement the collection. A subset of these-- 1000 black and white, glossy, 5" x 7" photographs of woodcuts and engravings by Albrecht Durer and by Raimondi--were selected as the sample for this retrieval project. These original photographs were transferred single frame to 16mm film. From this film the transmissive videodisc was mastered and pressed. The following information on each photo was then entered into files on the computer: videodisc frame number; the Bartsch catalog number; the artist's name, the medium used, the date of completion; the state of rendition; title;

and theme. Users can use any of these variables to retrieve the photos. The entire system was installed in the art school for evaluation by faculty, staff, and students. The major strengths of the system were identified as speed, ability to retrieve large amounts of information in one place, coordinating verbal information with visuals, research possibilities, and fun. Major weaknesses were poor image quality, the inability to compare two images simultaneously, the inability to interrupt the search, and the limited range of material on the system. Overall, the system was viewed favorably, subject to improvements and modifications. (Author/RM)

ED219867# EA014918

A Microcomputer/Videodisc System for Delivering Computer Assisted Instruction to Mentally Handicapped Students.

Thorkildsen, Ron

Jul 1982 2p.; In: The Computer: Extension of the Human Mind. Proceedings, Annual Summer Conference, College of Education, University of Oregon (3rd, Eugene, OR, July 21-23, 1982). For related documents, see ED 219 859-881.

Available from: Not available separately; see ED 219 859.

Document Type: CONFERENCE PAPER (150); PROJECT DESCRIPTION (141)

The Interactive Videodisc for Special Education Technology Project being conducted at Utah State University is developing and field testing a system to provide computer-assisted instruction to mentally handicapped students. The system combines an industrial videodisc player, an Apple II microcomputer with two floppy disc drives, a color monitor with a touch panel, and instructional programs utilizing prepared videodiscs. The system presents audio instructions to the student and displays a visual image on the monitor. The student can respond by touching the image of an object displayed on the monitor screen. The touch panel determines the coordinates of the object touched, triggering the next step in the program. Six instructional programs have been developed and are currently being field tested. (Author/PGD)

ED206328 IR009715

An Overview of Videodisc Technology and Some Potential Applications in the Library, Information, and Instructional Sciences.

Wood, R. Kent; Woolley, Robert D.

ERIC Clearinghouse on Information Resources, Syracuse, N.Y.

Dec 1980 37p.

Sponsoring Agency: National Inst. of Education (DHEW), Washington, D.C.

EDRS Price - MF01/PC02 Plus Postage.
Document Type: REVIEW LITERATURE (070); ERIC PRODUCT (071)

This discussion of several of the issues and systems of videodisc technology as applied to the library, information, and instructional sciences is based upon the Utah State University Videodisc Innovation Projects. Descriptions of the major marketed videodisc systems, as well as those soon to be marketed, are given. A critique of the ABC/NEA Schooldisc Program is also included. A 72-item list of references and selected bibliography is provided, which includes references dealing with fault tree analysis (sometimes referred to as "fault free analysis") as a recommended tool to assist with the smoothing out of the diffusion process for videodiscs. Library, information, and instructional specialists are seen to be in a position to play a major role in that diffusion process. (Author/LLS)

Videotex

ED192816 IR008904

A General Description of Telidon: A Canadian Proposal for Videotex Systems. CRC Tec Note No. 697-E.

Bown, H. G.; And Others
Canadian Communications Research Information Centre, Ottawa (Ontario).
Dec 1978 30p.; CRC Technical Note No. 697-F is in the French language. Fine print in figures A2 and A4 may not reproduce. For a related document, see ED 194 058.
EDRS Price - MF01/PC02 Plus Postage.
Document Type: PROJECT DESCRIPTION (141)

This report describes the videotex system, which allows access by the general public to large computer-based information sources, which contain pages of information to be displayed on suitably supplemented television receivers or newly designed videotex terminals. Some problems in introducing a videotex system suitable for today's technology which also allows for future expansion are discussed, and one solution proposed by the Canadian Department of Communications is outlined. The overall system of Telidon, the Canadian approach to videotex systems design, is described, with illustrations of various options and their components. Picture

Description Instructions (PDI's), the proposed method of storing and communicating visual images and textual information, are explained, and approaches to the design of terminals to operate from the PDI codes are presented. PDI interpretation and execution, character-oriented terminals, bit-map display terminals, and future developments are discussed. The conclusions summarize the strengths of the Telidon system, and a brief list of references is followed by appendices which include an introduction to PDI's and examples of videotex display pages. (CHC)

EJ268697 IR510590

A Public Access Videotex Library Service.

Phillips, Roger

Online, v6 n5 p34-39 Sep 1982

Available from: Reprint: UMI

Document Type: JOURNAL ARTICLE (080); PROJECT DESCRIPTION (141)

Outlines the contracting of systems--CompuServe, The Source, and Dow Jones News Retrieval--as well as the purchasing of hardware with easy access and low cost and development of procedures for a videotex information service at Wheaton College Library. Examples of usage of the systems are provided. (EJS)

ED210718 CS503639

Videotex and Education: A Review of British Developments.

Real, Michael R.

Sep 1981 22p.

Sponsoring Agency: San Diego State Univ., Calif.

EDRS Price - MF01/PC01 Plus Postage.

Document Type: REVIEW LITERATURE (070); PROJECT DESCRIPTION (141)

Defining videotex, viewdata, teletext, and their cognates as systems that transmit computerized pages of information for remote display (on a television screen, variously integrating computers, and video, broadcasting, telephone, typewriter, and related technologies), this report explores educational and related applications of videotex technologies in Great Britain. Topics discussed are: (1) the standard videotex terminology, (2) operating British videotex technologies (CEEFAX, ORACLE, and Prestel), (3) previous studies of videotex and education, (4) current videotex education projects in Great Britain (among them videotex as an

informational listing of educational opportunities, multiple choice learning on Prestel, CEEFAX in classroom experiments, and the BBC's computer literacy project), and (5) videotex potential for education. (HOD)

EJ268704 IR510616

Videotex in Education.

Thompson, Vincent

Media in Education and Development, v15 n3 p118-20 Sep 1982

Document Type: JOURNAL ARTICLE (080); PROJECT DESCRIPTION (141)

Examines the use of teletext and viewdata in education in the United Kingdom and, in particular, the British viewdata system Prestel. (Author/JJD)

AUTHOR INDEX

How to Order ERIC Documents

The ERIC documents (those with ED numbers and EDRS price codes) which appear in this publication are available from the ERIC Document Reproduction Service (EDRS). Price code tables for both microfiche and paper copy are provided on the EDRS order blank on the next page, as well as shipping costs.

However, in some cases, a report which is cited as an ERIC document is available only in a collection of papers or reports. Such documents are indicated in this publication by a # immediately following the ED number. A note is also given to indicate the ED number of the collection in which that document is included.

There is one report listed on page 47 which is available only through ED 219 859. This report is available as indicated below:

ED219859
The Computer: Extension of the Human Mind. Proceedings, Annual Summer Conference, College of Education, University of Oregon (3rd, Eugene, Oregon, July 21-23, 1982).
ERIC Clearinghouse on Educational Management, Eugene, Oregon. July 1982. 241p.
Available from Editor, ERIC Clearinghouse on Educational Management, University of Oregon, Eugene, OR 97403 ($10.00).
EDRS Price - MF01/PC10 Plus Postage.

Reprints of journal articles are not available through EDRS. Those articles carrying the note "Reprint: UMI" may be ordered from University Microfilms International at either of the following addresses:

Article Copy Service--CIJE
UMI Article Reprint Department
300 North Zeeb Road
Ann Arbor, Michigan 48106
(800)521-0600

Article Copy Service--CIJE
18 Bedford Row
London WC1R4EJ
01-242-9845
TELEX: 8811363 EXEL G.

The price is $8.00 for each article, if identified as coming from CIJE and if accompanied with an EJ number ($10.00 for articles dated prior to January 1981), and must be prepaid by cash, credit card (MasterCard or VISA) or deposit account. Additional copies of the same article are $1.50 each.