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ABSTRACT

Videotex is a generic term used for any electronic system that can be used to retrieve both print and graphic computer-based information via video display monitors or specially adapted television sets. Both one-way (broadcast videotex) and two-way (interactive videotex) exist; these can be used as an information source, a delivery medium, a distance education manager, or a communication network between any combination of teachers and students. Seven experimental projects illustrate different approaches to the utilization of videotex: (1) Northeast Educational Technology Consortium (NETC)--teachers as subject matter experts consult online with teachers and students; (2) Annenberg/CPB (Corporation for Public Broadcasting) Project, University of Wisconsin-Extension, Madison--electronic text materials support Public Broadcasting Service television programs in a college political science course; (3) Satellite Syndicated Systems and Keycom Electronic Publishing--a nationally distributed electronic teletext magazine service; (4) Cyclops--system used for tutoring sciences at the British Open University; (5) Alberta Correspondence School--vocational education programs delivered to rural areas; (6) Indiana University--use of a commercial videotex service for a middle school science class; and (7) Shasta County Public Schools Media Center--live broadcasts via a two-way communication link from students at remote sites to on-campus instructors. A brief discussion of future uses of videotex and a 15-item bibliography complete the digest. (JB)

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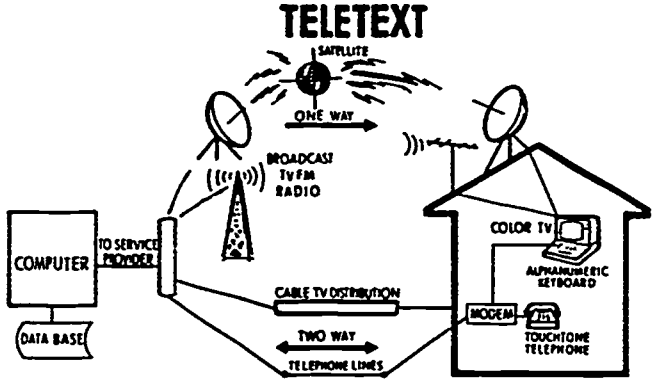
ERIC DIGEST

VIDEOTEX 1985: EDUCATIONAL APPLICATIONS

What is videotex?

Videotex is a generic term used for any electronic system that can be used to retrieve both print and graphic computer-based information via video display monitors or specially adapted television sets. There are two levels of service. *Broadcast videotex* (also called teletext) is a one-way delivery service which delivers information from a computer to a receiver via radio waves. Information is presented in a series of screen displays, or "pages," and the user selects the desired page using a keypad. The number of pages is limited to between 50 and 100. *Interactive videotex* (sometimes called viewdata) is a two-way system which uses cable—usually telephone lines—to deliver information to the receiver. Users can interact with the system using an adapted television set with a control unit, a computer terminal, or a microcomputer, and the amount of information that can be offered is limited only by the capacity of the computer used.



How can educators use videotex?

Videotex can be used as an information source, a delivery medium, a distance education manager, or a communication network between any combination of teachers and students.

As an information source, videotex can be used in the classroom to bring current news and data directly to students. Online access to library catalogs, information databases, current events, encyclopedias, newspaper articles, market quotations, job searches and referrals, and other data can be used by teachers as a motivating curriculum support tool.

As a delivery medium, videotex has attributes similar to those of computer-assisted instruction (CAI), with its associated strengths and weaknesses. Current research seems to indicate that videotex, like CAI, is at least as effective as conventional classroom methods.

The principal drawback to videotex as a delivery medium is the cost; however, the highest costs—which are incurred in creating a network and linking central computers—are not borne by the school system. Once a network is in place, start-up and maintenance costs for a school system which is already equipped with computers are relatively moderate. As with CAI, however, the availability of good quality software may be a problem.

How have educators used videotex in experimental programs?

The seven experimental projects reviewed in this digest illustrate some different approaches to the utilization of videotex.

Northeast Educational Technology Consortium (NETC). This consortium of five Minnesota school districts uses Control Data Corporation computers for access to a library of PLATO software, student recordkeeping, electronic mail, and telecommunications capabilities. Teachers as subject matter experts in mathematics, science, and business consult online with teachers and students. This project demonstrates the potential of videotex for enabling small rural districts to provide diverse curriculum and resist pressures to consolidate (Here's another "have". . . , 1985).

Annenberg/CPB Project, University of Wisconsin-Extension, Madison. This project developed electronic text materials to support the Public Broadcasting Service (PBS) television programs in a 26-part, 13-week series for freshman and sophomore college students in political science classes. It also conducted a research project to compare home use of videotex, laboratory use of videotex, and computer-emulator use. The project focused on problem solving techniques and cognitive simulations to support text materials (Pfaehler, 1985).

Satellite Syndicated Systems and Keycom Electronic Publishing. A nationally distributed electronic teletext magazine service called Keyfax delivers 100 pages of daily international and national news, games, book reviews, and special features. The content is geared for educational purposes and is available with a cable connection and access to channel WTBS in Atlanta, GA (Widing & Talarzyk, 1983).

Cyclops. Online since 1981, this interactive videotex system has been used for tutoring courses in biology and the other sciences at the British Open University. Evaluations indicate that the system has potential for science education (McConnell, 1983).

Alberta Correspondence School. A field trial of vocational education program applications was conducted which used videotex to deliver instruction to rural areas where further centralization was not feasible, and where school programs were economically restricted to academic programs. Students were dropping out

of high school in this Canadian province for the lack of well-rounded programs. A Telidon terminal was linked to an Apple II microcomputer, and a pilot test indicated a high level of success and a favorable reception by students and teachers. Materials for the project were developed by local teaching staff. Additional CAI-type courses are planned for electricity/electronics and building construction. The Telidon videotex system was found to be a promising method for extending educational opportunities for students attending small, rural high schools (Turnbull, 1984).

Indiana University. A Lilly endowment funded a study in which eighth graders used a commercial videotex service for a middle school science class. Students accessed an electronic encyclopedia and school library materials to write a science theme. They claimed that computers were easier to use than books, despite clear evidence to the contrary. Results also showed that students valued printouts for their portability and alterability, as well as being able to accommodate videotex in the school context. Students assigned greater value to the new technology than to traditional learning media (Eastman, 1984).

Shasta County Public Schools Media Center. This center serves 62 California schools with a variety of media support services which include microcomputers. The library is part of a statewide Teacher Education and Computer Center. The videotex application uses live broadcasts via a two-way communication link that allows students at remote sites to converse with the instructor. The center identified a need to specify and coordinate instructional outcomes with school districts and collaborate with other institutions and agencies for sharing resources when working with videotex (Johnson, et al., 1984b, pp. 55-71).

What does the future hold for videotex technology?

When the first videotex system was introduced in England (PRESTEL) in the mid-1970s, early forecasts predicted a "wired" society and skyrocketing growth. While growth has been steady, it has been slow, hindered by high investment costs for the information provider, the need for users to invest in personal computers or decoders, relatively high user fees, limited services, low public awareness, and the need for some degree of computer literacy.

One project currently being tested in the United States is the Education Utility™, which is designed to provide schools with an integrated way of bringing technology, information, and vital services to the classroom. Currently under development by the National Information Utilities Corporation (NIUC) and AT&T, this system combines computers, telecommunications, videocassettes, videodiscs, large screen projection, and instructional television to provide diversified instructional materials to subscribing schools. Interactive materials will be included, as well as online textbooks, which will be updated regularly by NIUC. Schools will be free to customize materials to provide individualized instruction and/or meet other local needs (Geffert, 1986).

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