This bibliography lists 360 monographs, journal articles, research reports, and conference proceedings on interactive videodisc and educational applications of this technology. Materials through December 1988 are included. A sidebar provides background on interactive video technology. (MES)
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A Selected Interactive Videodisc Bibliography

Rae Montgomery and Scott Sayre

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During 1988-89, TDC is supporting five staff-directed projects. The projects explore the use of satellite teleconferencing, low-cost interactive videodisc systems, CD-ROM (compact disc—read only memory), audioographics conferencing, and interactive television in the delivery of outreach education.

### Interactive Videodisc

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(Reprinted from March 1988 issue of TechNotes)

People have been "interacting" with computers for several years through the use of computer databases, tutorials, decision aids, and expert systems. In addition, VCRs (video cassette recorders) and educational video have become affordable and popular. The combination of computer and video has resulted in a remarkable new educational technology—interactive videodisc.

The merging of the two technologies into a single educational tool takes advantage of the searching and branching capabilities of the computer and the visual learning support of video. Branching, an action by which the user triggers a range of responses depending on previous actions, aids in the tutorial application of the technology, as well as having great potential for individualized instruction. And, video has proven to be an effective and efficient method of learning.

Research on the educational effectiveness of interactive videodisc technology has shown some interesting findings. It shows that students need significantly less time (up to 50 percent less) to complete the training, that they retain the information longer, and that they prefer it to other modes of instruction.

The videodisc is a flat, round, silver disc about the size and shape of a long play (lp) record. Compared to videocassettes, which can contain two hours of footage, videodiscs can contain action video and sound totaling one-half hour per side. However, the interactive nature of videodisc technology allows for quick, random access of the information contained on the disc.

Videodiscs can contain over 50,000 still frame video images per side, or they can contain a combination of action and still frame video images. Any of these frames can be accessed within three seconds. The discs feature two audio tracks over a single video segment. The dual audio tracks increase the audio capacity and are useful for remediation and foreign language tracks. The contents of the videodisc are permanent; no material can be changed, added, or deleted.

There are two components to interactive videodisc technology: the disc itself, and the computer program. The disc contains the video images and audio tracks. The computer program is written to access the videodisc, and it determines which video segments or still frames, along with audio messages, are presented to the user. The computer program also generates and determines what text will appear on the screen.

Videodiscs are created by first transferring slides, video, and audio to one-inch magnetic tape. The contents of the tape is then etched into a glass master disc. The master disc is used to stamp out identical copies of the optical discs. This process is not inexpensive. A videodisc production—including designing, filming, editing, mastering, and programming—can run from $50,000 to over $100,000.

Approximately 500 videodiscs are available commercially on a wide range of topics. Many of these discs can be repurposed for specific education and training needs. A computer program can be written that accesses only the parts of the disc desired.

As the following bibliography reveals, several versions of the presentation of the term "videodisc" are used. TDC has adopted the convention of this usage. However, titles in the bibliography were left as the original.
A Selected Interactive Videodisc Bibliography

Rae Montgomery and Scott Sayre

ABSTRACT

This monograph provides 360 interactive videodisc references compiled through December 1988. Interactive videodisc technology combines the searching and branching capabilities of the computer and the visual learning support of video. This technology provides an ideal system for individualized, self-paced instruction. Initial research in the effectiveness of interactive videodisc has identified three significant findings: reduced learning time, increased learning retention, and reduced training costs.


Grabowski, B. (1982). A symposium: relevant cue research, a program of systematic evaluation: Considerations for sustaining instructional design research using an integrated learning system. Paper presented at the Annual Meeting of the Association for Educational Communications and Technology, Research and Theory Division (Dallas, TX, May 1982). (ERIC Document Reproduction Service, ED 223 198)


Laumer, M. (1982, June). Interpretive language used to program the CPR system. BYTE, 7(6), 126-130.


The authors acknowledge the contribution of the following citations from which some references for this monograph were drawn:


The Telecommunications Development Center (TDC) will mail these monographs to interested individuals at no cost. Individuals requesting copies of the research reports should send a self-addressed mailing label (the size of a computer-generated label, with the number of the monograph on the label) to TDC. (Address is on page 2.) For multiple copies, contact TDC:

TDC Research Report No. 1  
"Developing Telecommunication Linkages for Microcomputer-Aided Instruction"  
Blinn, C., Flack, J., and Bates, P.  
January 1989

TDC Research Report No. 2  
"A Selected Interactive Videodisc Bibliography"  
Montgomery, R., and Sayre, S.  
February 1989