Video Collections: An uncertain - but exciting - Future

Daniel Callison
Assistant Professor
School of Library and Information Science
Indiana University

One of the major problems in the development of video collections is the evolving format of the video medium. Not only do the changes in format result in the need for new equipment and a new understanding of operation procedures, but the most recent format changes have begun to define the intended utilization of the video programming. We are on the threshold of the microvideo age with the hardware for visual delivery becoming more compact and the capacity for visual storage and rapid retrieval becoming greater. Further, laser technology is beginning to offer video programming involving nonlinear and interactive approaches. This new optical video format makes long range planning for video collections a very complex process.

Less than two decades ago the only possible video systems available to library or schools involved expensive and bulky recorders, players, cameras and monitors. Not only was the medium too expensive for most institutions but also very complicated for a small, inexperienced staff to operate. During the late 1960s and early

1970s, a drastic change occurred in video production possibilities and, thus, the beginning of the amateur video user. The term amateur is important here because it denotes the lay user who records programs and plays them back at home and the introduction of the video producer within schools and public libraries. Video equipment became manageable to the extent that only a few thousand dollars purchased all that was needed to get into the single camera business and the responsibility for operation of the equipment could be maintained by staff members who had limited technical training.

The video field moved from manual threaded, reel-to-reel, black and white videotape to pop-in, self-threading cassettes and color presentation. Equipment became less expensive, especially cameras. As the prices went down, so did the weight of the cameras and their potential for gathering visual information outside of a studio setting. It became possible for one, with limited training, to record presentations or happenings within the school or community with relative ease. The inexpensiveness of the medium was enhanced by the record-view-erase procedure, allowing one to dispose of any event that did not satisfy and then retain the raw videotape to record a new program at a later date.

The video cassette format has, of course, evolved over the past decade to include ½-inch and ¾-inch tape. This makes some cassettes pocket-size. With a smaller cassette came smaller recording units for more portability. Thinner and stronger recording tape allowed greater length, increasing the recording time for one cassette from 20 or 30 minutes to as much as three or four hours. The cassette thus allows one to gather more of the "action" for a longer period of time. Longer running cassettes, with their ease of loading and operation, have ushered in the home movie audience of the past few years. One can purchase major motion pictures from the local video store and view such programming over and over again at one's own convenience, or one can record television programming at home for viewing at some later time.

A boom in home recording of television programs is expected as the Supreme Court in January 1984 ruled that taping from television for home use did not violate the current copyright laws. The same ruling does not apply to libraries even though schools have gathered in many programs under the "educational fair use" agreement. With the ruling, however, may come a trend to increase the number of programs available for both the private citizen and public institutions to collect and share.

It is this rapid evolution in the video industry that has generated some difficult problems for those who must decide what video equipment and programming to purchase for the school or public library collection.

The changes from one tape size to another, the advancements in self-threading cassettes, the variety of connections from player to monitor, and the untested copyright laws, make the market very uncertain for the institution attempting to identify a standard. Such a standard is necessary of course, so that one can purchase titles from a program pool that will continue to grow, give variety, and be compatible with many home units. Well, just when it appeared safe to invest in one format, the video field is ready to split in a multitude of directions. Enter the videodisc, the latest format for video and a format certain to cause new concerns in program and equipment selection.

What's a videodisc? That depends on the purpose of the video programming. The three major purposes today are entertainment, information storage, and instructional. There is no hard rule that has been established, but generally speaking the mechanical videodisc is an entertainment medium and the optical videodisc provides the potential for a fantastic array of information storage and instructional approaches yet to move from the laboratory to the general market.

Most attention probably should go to the mechanical videodisc at this time because it is the format that will probably have the most immediate impact on video collections. Basically, the mechanical videodisc is a plastic disc that resembles a long playing record, and has the essential information for relay of the visual pressed into a track which is read by a stylus, very similar to today's audio systems.

At the present time, the mechanical videodisc allows for presentation of about 120 minutes of programming per disc. The plastic disc is covered with a durable plastic cover so that the user never touches the path of information delivery pressed into the inner disk. The entire package is loaded into a player and the program comes up on the screen to be seen in linear fashion. Linear is one of those terms that must be added to the video field, because it will define the

approaches which separate entertainment from information retrieval and from instructional programming. Linear means that the program is played from the beginning to the end without any rearrangement of the program by accessing various sections based upon the user's discretion. In even simpler terms, it means that the entertainment programming found on most mechanical videodiscs today is not different from the programming being marketed on videotape.

Both videotape and mechanical videodisc provide movies or some educational programs that are basically viewed as television or educational films have been for years. There are some possible advantages with the mechanical disc format.

First, the mechanical videodisc is read with a sapphire stylus. This means that each frame is delivered clearly to the monitor and slow motion or stop action can be controlled to a greater degree than with tape or film.

Second, the mechanical videodisc has the potential of more plays before the software begins to wear than does tape which can stretch and break or begin to deteriorate as the magnetic field is worn. Problems with 16mm film breaking and becoming scratched have always been frequent. The mechanical videodisc will provide thousands of replays before a trace of deterioration will be noticed. Videotape usually provides two or three hundred replays before problems arise, under normal use and care. A good run for 16mm film programming is in the 80 to 100 replay area. Films really never have much of a chance for longevity because this system requires plastic to be pulled through a series of metal gates by metal sprockets and even the slightest misthreading can cause damage.

Third, the mechanical videodisc can be stored in a fashion similar to the long-playing audio recording. The cover allows for the same impressive labeling to help the patron quickly identify the programming. Often the cover will display in full color the original movie poster which allows the patron to flip through a variety of entertainment offerings.

Fourth, both videotape and mechanical videodiscs have stereo sound reproduction potential. The new wave of visual music being lead by videorock, and probably to be followed by a variety of other musical offerings, is often stereo. This audio element, of course, adds yet another demand on the hardware systems and the video market will see more and more multispeaker components.

Even though these advantages of mechanical videodisc over videotape and film are present, one would be advised to wait before committing to the mechanical videodisc as the format upon which to

build a future video collection. There are too many other factors that enter the picture. The videotape entertainment programming is essentially keeping pace with, if not offering more of a variety than, the mechanical videodisc format. Videotape players outsold mechanical videodisc players 5 to 1 in 1983. In addition, videotape has become a major format for production of educational programming. The greatest growth in number of titles for educational purposes can be found through the videotape format from universities to public television stations. Rental, free loan or purchase of videotapes in any format one might request is now to the point where it is feasible to plan a videotape collection which can grow in variety of titles and audience levels.

A large clientele for the mechanical videodisc format is yet to exist, if it ever does. Videodisc formats at this time do not allow for home recording of programming. Such recording hardware may enter the market over the next three to five years, but this will also call for a new phase in combination videodisc recorders/players which do not exist on the public market today.

In the early spring of 1984, RCA announced that they would stop production of the mechanical or stylus videodisc. Their investment in the mechanical format was in the red by over $170million. The company began marketing the videodisc in 1980 with the expectation of providing full length movies at a lower cost than the videotape machines. Between 1980 and 1982, however, just the opposite pricing adjustments took place. In tow years the videotape software costs dropped 100 percent and the videotape format increased in program storage time, in some cases up to seven hours of play time. In addition, videotape players dropped dramatically in price, and offered off the air recording which the videodisc machines have never been able to do. Finally, the RCA programming never offered the interactive possibilities that are such an exciting part of the laser format yet to be described. The RCA stylus format is a linear program presentation with no major advantages over videotape other than being slightly more durable.

In addition, the ease of loading a mechanical videodisc is not major compared to the ease of loading a videotape cassette. Current video programming does not really lend itself to reasonable use of slow motion or stop action, and as long as the mechanical videodisc retains a half-hour to one-hour format, only the tapes will contain the full-length movie on one piece of software. Further, it is possible to damage a mechanical videodisc if the patron removes it from the protective plastic covering.

The major factor to consider, however, involves the second type of videodisc, the optical format. This laser-read medium offers the potential for major changes in how we store and access visuals as well as how we deliver instructional programming. Generally speaking, the optical videodisc is a plastic disc that has pressed in it a series of connected tracks containing holes of various microscopic length. Unlike the protective plastic cover of the mechanical videodisc which is removed when the disc is inserted into the player, the optical videodisc is protected by a clear plastic coating that allows one to handle the optical disc without fear of scratching the program field. The laser focuses on the program track, by-passing the protective plastic coating. Thus any scratches or dust on this coating do not affect the reading of the program track and the visuals presented on the monitor. In short, the optical disc can receive great abuse from handling or mailing and remain operational.

Again, the key term which separates the mechanical videodisc from the optical videodisc is linear. The laser-read videodisc provides a number of viewer options not available in the stylus-read format. The optical videodisc can be viewed from the beginning to the end, from the first frame on the disc to the last frame (usually a total of 50,000 frames or one-half hour of programming). The optical videodisc also can allow the viewer to move from any one frame to another with a remote control, permitting the viewer to bring up a specific single frame from anywhere in the 50,000 frame field.

The stop action and slow motion (actually one step frame at a time) is so clear that one single frame can contain a visual that is completely separate in nature and content to the next frame. This is, of course, different from the series of related visuals necessary in a motion picture or videotape. An examination of a motion picture film which shows someone throwing a ball will reveal a series of still pictures (frames) which show the ball-throwing process captured step-by-step in linear fashion. When the strip of film passes through the projector, one still frame overlaps another in our vision creating the illusion of motion. Such a series is also possible on the optical videodisc, but because the laser can focus in on one specific frame and hold it without any damage to the videodisc, the series of visuals may consist of picture, then a frame of verbal information, then a frame with a graph or map, and then another frame giving written information. The viewer can step through these in any order desired. The variety of instructional programs possible from this format when coupled with a microcomputer has hundreds of instructional design-

ers fascinated. Several major insurance, automobile, and communications companies already have training programs using this "interactive" and nonlinear programming. Educational programs in this format may be entering the schools by the end of this decade.

Not only does the optical videodisc have frame-by-frame stop motion and allow for rapid access of any one frame, because it is laser-read, nothing touches the information base and nothing in the visual field wears out. This is an archival storage medium. One can replay any single frame or entire optical disc as many times as desired or needed.

So what does this nonlinear, single-frame concept have to do with the information storage and retrieval field? It means that a combination of visual and written information can be gathered and stored in new ways that are beyond current microform methods. Currently the United States Patent Office is experimenting with the storage of diagrams, legal documents, and photographs all stored on the same disc. These visuals can be recalled in any order. Within the past year, printing methods from the videodisc visuals have been refined, and although more advances are necessary, it is realistic to expect that hardcopy can be printed from videodisc frames displayed on a monitor within the next few years.

This nonlinear storage may result in new information arrangements we have never had before. Combinations of still and motion visuals on one format are now possible. In addition, the optical videodisc currently has two audio tracks for stereo sound or the provision for a second language. Beyond this, optical videodisc experiments are being conducted involving compressed speech to allow for extensive narrative information related to the 50,000 or more still visuals. Such programs may include in-depth information on art masterpieces or various travelog programs taking one to any place in the world during any season in the language of one's choice.

Some believe that this new laser medium will allow for storage, in full color, of volumes of periodicals, through which the reader can skim and print out whatever desired. Probably a more realistic vision is that of new periodicals which use the optical videodisc as a delivery system, allowing the viewer to keep current by seeing motion demonstrations as well as reading the text. Several of the major publishers who specialize in reference materials have begun to experiment with the possible search for information through an encyclopedia which has been placed on videodisc. Imagine the library patron able to hear Bach, see the Wright brothers fly, and view those

dark days in late November 1963. Each of these events would be accessible with the correct code input and only seconds apart. Motion displays of evolving political boundaries and physical changes in the earth's terrain will be possible in future optical videodisc topography. Yes, an atlas on the video screen.

Some envision new mystery stories on optical videodisc. The viewer may have several decision points where the path of the plot will depend on what elements the viewer adds to the story. Alternatives selected would allow for a different "who-done-it" with each new viewing.

Some imagine indexes in the manner of print format as we know it today but each citation being followed with a bar-code. A light pen connected to an optical videodisc would scan the code of the citation and bring up the visual within a few seconds. A hard-copy, full color reproduction of the image on the screen then could be printed.

Such visions will not be that far from reality by the end of this century in many of our public schools, public libraries, or homes. The point is that optical videodisc really means a future of video materials, a vast array of bits and pieces of information which can be accessed as we currently access information by moving through the book stacks and flipping pages. Videodisc really represents a coming age of rapid information access for motion and still visuals and an exciting future for interactive instructional programming.

The collection of video programming, therefore, may be determined more and more by the specific purpose of the information stored on the medium. Public collections of video programming will probably see continued growth in the videotape format for some years to come. Depending on the demands of the community, the library collection may need to direct attention to collecting both tape and mechanical videodisc formats over the next five to ten years. Beyond this decade, however, laser technology seems to be the dominant force in video programming. Laser technology may establish itself more in the audio recording field by 1990 than in the video field. Digital audiodisc players are on the commercial market now with the addition of visuals not far behind.

It is not only essential that video program collections at the school and public libraries continue to grow in offerings but also essential that collections grow with a vision of the future. We have not seen the end of changes in video formats and delivery systems. Continue to expect length of playing time, options for recording or multisound channels, and new approaches to program content to be a part of the future.

ADDITIONAL READINGS

"A Blank Tape for Hollywood." *Newsweek*. January 30, 1984. 57-8.

Callison, Daniel. "Fair Payment for Fair Use in Future Information Technology Systems." *Educational Technology*. January 1981. 20-5.

Fleischhauer, Carl. "The Library of Congress Optical Disk Pilot Program—Research Access and Use: The Key Facet of the Nonprint Optical Disk Experiment." *Library of Congress Information Bulletin 42*. September 12, 1983. 312-6.

Hahn, Ellen Z. "The Library of Congress Optical Disk Pilot Program: A Report of the Print Project Activities." *Library of Congress Information Bulletin 42*. October 31, 1983. 374-6.

Leveridge, Leo L. "The Potential of Interactive Optical Videodisc Systems." *Educational and Industrial TV*. April 1979. 35-8.

Lunin, Lois F., ed. "Videodisc and Optical Disk: Technology, Research and Applications." *Journal of the American Society for Information Science*. November 1983. 406-40.

Riddick, John. "Videodisc Technology: Developments 1980-82." *Library High Tech*. Summer 1983. 93-6.

Savage Maria. "Beyond Film: A Look at the Information Storage Potential of Videodiscs." *American Society for Information Science Bulletin 7*. October 1980. 26-9.

Schneider, Edward W., and Junius L. Bennion. *Videodiscs*. Educational Technology Publications: Englewood Cliffs. 1981.

Sigel, Efrem. *Video Discs: The Technology, the Applications and the Future*. Knowledge Industry: White Plains. 1980.

Sonnemann, Sabine S. "The Videodisc as a Library Tool." *Special Libraries*. January 1983. 7-13.

"What's New in Video." *Instructional Innovator*. February 1981. Special Issue.