DOCUMENT RESUME

ED 316 224 IR 014 224

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TITLE Videodisc in Higher Education: Flexibility and Impact.
PUB DATE Feb 89
NOTE 21p.; Paper presented at the Annual Convention of the Association for Educational Communications and Technology (Dallas, TX, February 1-5, 1989).
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Adult Education; Allied Health Occupations Education; *Computer Assisted Instruction; Computer Software; *Educational Planning; *Faculty Development; Higher Education; *Interactive Video; Lifelong Learning; Material Development; Professional Recognition; *Program Implementation
IDENTIFIERS *Michigan State University

ABSTRACT

This description of a plan to integrate interactive videodisk instruction into courses at the health science colleges at Michigan State University focuses on factors involved in planning and initiating such a project. Major features of the project are addressed, including: (1) theoretical concerns related to interactive video utilization; (2) funding proposals; (3) faculty role and faculty development; (4) equipment and software selection; (5) production concerns; and (6) advantages for adult/lifelong education. The overhead transparencies used for the conference presentation are included. (13 references) (Author/GL)

WELCOME TO

VIDEODISC IN HIGHER EDUCATION: FLEXIBILITY AND IMPACT

Dr. Susan Awbrey

AECT CONFERENCE --DALLAS 1989--PRESENTATION

OVERHEAD #1: WELCOME

Introductions

OVERHEAD #2: TOPICS LIST

During my presentation today I will be using the creation of a plan to integrate interactive videodisc instruction into the health science colleges at Michigan State University to illustrate some ideas related to theoretical concerns, funding proposals, faculty role and development, equipment/software selection, production concerns, and advantages for adult/lifelong education.

Because MSU's videodisc project is just beginning its implementation phase I will be focusing mostly on factors involved in planning and initiating such a venture.

OVERHEAD #3: THEORETICAL CONCERNS

First, I'd like to talk about why an interactive video system project was undertaken and what makes IVD a unique technology. Carla Seal-Wanner of Columbia University recently characterized the uniqueness of videodisc as being two-fold: 1) the learner is in control and 2) the learner receives immediate feedback and response. Her characterization like that of Dr. Negroponte's yesterday focuses on interactivity. Each new generation of learning technology reflects a different paradigm or pedagogic theory.

For example, the behaviorist stimulus-response theory was reflected in the early teaching machines. Today's prominent, cognitive science learning theory is an inquiry oriented approach that is well matched by the IVD. As was noted recently at the EDUCOM conference, our concept of what it means to be smart is changing from one of knowing alot of facts to a process approach to learning. No longer can we teach solutions before problems. This is especially true in the health sciences. The sheer volume of knowledge needed to provide quality health care has increased dramatically. We must rethink our definition of knowledge and the ways in which students interact with content. While computers, television, and databases have been available for some years, the ability to tie them together via videodisc opens new avenues of learning. It allows the freedom to use the widest array of symbol systems in a single interactive learning environment.

All of the health science colleges are being challenged to provide experiences that require students to become independent, active learners and problem solvers. IVD can respond to diverse learning styles of students while allowing them to experiment in non-threatening ways.

Psychologists Olson and Bruner note that information gained through an activity is also stored in a form shaped by that activity. When students study they learn two things at the same time. They acquire knowledge about content and gain skill in dealing with the content in a particular way.

For these reasons the four health science colleges at MSU initiated the videodisc program. MSU is unique in having four colleges of health science. These include: Osteopathic Medicine, Human Medicine, Veterinary Medicine and Nursing. Goals of the videodisc project are

- -the demonstration and evaluation of the effectiveness of videodisc in health sciences instruction
- -the selection and production of accurate, credible software for individualized, videodisc instruction in the professions
- -the formation of long-term intercollege linkages to effectively use the scarce resources of the university

OVERHEAD #4: PROPOSALS

The proposal was interanl and funded by MSU's central administration (Academic Computing). Funding the first year was approximately $76,000. This allowed the purchase of IBM Infowindow authoring units for faculty development. Units were placed in each of the four colleges as well as at the Main Library and in the Computer Laboratory. This year, a $106,000 videodisc classroom has been installed for presentation to students. The new laboratory contains sixteen Infowindow systems and four Machintosh II systems with videodisc.

I believe the internal proposal to central administration was successful for several reasons:

-most importantly, it was collaborative across four colleges
-the college and departmental administrations approved of the proposal and supported its presentation to central administration
-it fit within the missions of the university and promoted MSU an innovative institution
-there was some coordination with an externally funded W.K. Kellogg grant in the college of nursing to review software

A second possible type of proposal for such a venture is a request for funding from an external foundation or vendor. In reviewing various vendor proposals put forward by faculty one common problem emerges. People like to promote their ideas and discuss the projects importance to their field. However, they often don't make a clear linkage to the goals of the agency from whom they are requesting funds. If I were to give advice about external proposals, it would be that a clear, concise statement of the benefits to the funding organization (or to the projects relationship to the goals of a foundation) be made at least by the second paragraph of the proposal. Also, it is helpful to show how a project will exploit the unique characteristics of a particular vendor's equipment or may be marketable in the future.

Finally, there is a level of proposal that is important but not for funding reasons. The MSU health science colleges have created a multi-college committee to review proposals for videodisc development projects from faculty. This process is designed to improve the quality of the projects. Basically, the proposals require faculty to put their ideas in writing and to begin a planning process. MSU health science colleges have two videodisc projects almost to completion in pathology for human medicine and pharmacology for veterinary medicine. A third project on sensory deficits in rehabilitation nursing is underway.

OVERHEAD #5: FACULTY

There have been some fortunate events or addendums that have enhanced this MSU project. Most of them relate to faculty.

Development and roles:

Most faculty are content experts with little interest in programming and authoring. Therefore, they require support. Some of the support opportunities available at MSU may not be available at your institution. But some may be worth discussion with your administrators and others do not require substantial resources.

-As part of the health sciences project, one FTE in interactive videodisc design was hired to assist the faculty of the health science colleges
-A CAI grants program is in the planning stages. It would provide an opportunity for faculty to request funding for instructional development or programming assistance with some funding for necessary software or equipment.
-A series of workshops have also been held to create faculty awareness of the potential of videodisc. (Nursing--Kellogg funds)
-External lecturers and demonstrations have been arranged for faculty and administrators of the colleges (e.g., Dr. Allen from Intelligent Images--CHM)
-Finally, IBM graciously agreed to present training on their LS/1 authoring system to faculty and staff from the health science and other interested colleges at MSU

Faculty Rewards:

As we are all well aware, software development does not fit into the promotion and tenure criteria of most universities. Although EDUCOM is exploring the potential of peer review at the national level, the reality is still a ways away. In the meantime what rewards can faculty be given?

-publicity (examples)
-joint research papers with instructional designers
-loaned or donated equipment
-contests for equipment from vendors (Hypercard contest)

Access to software for selection:

Some faculty will not want to produce software. However, they will want to effectively select and use it in their instruction. Michigan State University has created a Software Collection in its Main Library The Collection purchases software based on faculty and staff recommendations for instructors to review and assess prior to their departments investing in multiple student copies. The Collection is jointly administered by Academic Computing and Technology and the MSU Libraries (handout in packet).

Dissemination:

Like any new idea videodisc and videodisc software development must go through the diffusion process. We are all familiar with Havelock's model and the importance of finding opinion leaders and innovators within your college. One source of enthusiasm that has been available within MSU's health science colleges has been the students themselves. Currently, there are 38 college of medicine students working on a program on anemia in hypermedia. (discuss student response in nursing, etc.)

OVERHEAD #6: VIDEODISC ELEMENTS

Software:

In addition to locally produced software two types of videodiscs can be purchased. One is premastered with the sound, video and text in place. These discs are intended for specific purposes and cannot be easily repurposed. Other discs are simply collections of slides or vignettes of motion video and these can be reauthored in many different forms. For example, the MSU pathology project used a disc called Slice of LIfe which was a collection of thousands of pathology slides.

Equipment:

Equipment selection depends upon purpose. Hypercard driven videodisc is quick and easy (i.e., user friendly interfaces). It is excellent for creating prototypes. However, it requires a two-screen system that is not appropriate for all types of material. The IBM Infowindows system is more professional and has all the bells and whistles such as student tracking, etc. However, it requires a larger investment of time to complete the authoring and a knowledge of moderately complex authoring systems such as IWPS or LS/1. IBM has come out with a new product called Linkway that is similar to Hypercard. It will be available for demonstration in March.

Mastering:

The mastering of almost all videodisc requires that the materials (including slides) first be placed on a one-inch videotape. (There are trial systems that use 3/4". However, 1" is the most common still.) This conversion to videotape is termed "premastering".

Because of the extreme expense of actual mastering equipment, most institutions send their videotapes to professional agencies for actual conversion to disc. Organizations such as 3M Optical in St. Paul or Technidisc in Troy, Michigan charge approximately the same amount. On a ten day turnaround, a master costs about $1800 with additional discs running $18-25 each.

However, if this is too great an expense for your budget, you can also explore the sharedisc option. This allows you to purchase space on a joint disc with other users. Costs can be as low as $1.00-1.50 per slide. If you have only a few hundred slides this option can realize a substantial saving.

OVERHEAD #7: FEATURES

There are several features of videodisc that contribute to its unique character. Some of these include (refer to overhead : mass storage, durability, speed of access, multiple codes, full indexing, etc.

OVERHEAD #8: PRODUCTION CONCERNS

Team effort:

As with most instructional design projects, the development of professional quality videodisc is best accomplished as a team effort. Faculty may only be interested in approximately 50% of the production. They will want to be involved in the needs analysis, design and implementation. However, other personnel may be better suited to the development of storyboards and scripts, video production, authoring and other aspects of the process.

Peer review:

We have discussed peer review breifly. However, the purpose of review can be two-fold. It also creates an awareness in the reviewer. If you have faculty whom you believe are excellent instructors, but they have not been interested in videodisc, putting them on your review committee can stimulate their awareness of this medium's potential.

Marketing:

MSU has a small program related to CAI projects that has not yet been used for videodisc although it may be in the future. Through this program, site licenses are sold to institutions wishing to us faculty developed CAI software from MSU. Some of the money from these sales goes to the faculty developer and some of it is put into a fund for new projects. (example)

Costs:

Development costs for videodisc can be substantial, your institution will not have faculty expertise in all areas, and commercial software will not always match your instructional objectives. The College of Veterinary Medicine at MSU has taken the lead in addressing these problems for its area by creating a consortium of colleges from around the country (CONVINCE). Members of this consortium will be using local expertise to develop discs which can then be shared with other member institutions. (handout in packet)

OVERHEAD #9: RESEARCH QUESTIONS

The use of videodisc for health science instruction needs careful evaluation. There are many aspects of research that can usefully be explored. Some of the questions that will be examined within the College of Nursing at MSU are:

-how the degree of interactivity impacts learning
-how the variety of symbolic codes impacts specific types of learning
-how the design elements in the user interface impact learning
(note: Cognitive Science and Machine Intelligence Group research at University of Michigan)

OVERHEAD #10: ADULT AND LIFELONG EDUCATION

-Discuss Patricia Cross's studies on adult learning and characteristics
-Discuss how flexibility of videodisc enhances environment
-situational and time barriers
-25% of nation's hospitals now have videodisc
-not replace continuing ed workshops but cost-effective alternative

REFER TO DISPLAY MATERIALS NOT IN THEIR PACKETS:

-DXTER videodisc in medicine critical care series info.
-Minnesota Educational Computing Corporation list of videodisc software
-information on Sharedisc
-information on Linkway
-IBM videodisc software guide
-Hypercard guide
-Summary of effectiveness studies appearded in Videodisc Monitor

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ELEMENTS IN SUCCESSFUL USE OF VIDEODISC

* THEORETICAL CONCERNS

* FUNDING PROPOSALS

* FACULTY ROLE AND DEVELOPMENT

* EQUIPMENT/SOFTWARE SELECTION

* PRODUCTION CONCERNS

* ADVANTAGES FOR ADULT/LIFELONG EDUCATION

THEORETICAL ISSUES

PROPOSALS

* INTERNAL: ADMINISTRATION

* EXTERNAL: VENDORS, FOUNDATIONS

*INTERNAL: DEPARTMENT OR COLLEGE

FACULTY

* ROLES

*REWARDS AND QUALITY

*ACCESS

*DISSEMINATION

VIDEODISC ELEMENTS

* SOFTWARE

* EQUIPMENT

* MASTERING

CHARACTERISTIC	ADVANTAGE
* 54,000 SLIDES	*EQUIVALENT TO 675 SLIDE TRAYS
*READ BY LASER	*DURABILITY STABILITY SPEED OF ACCESS
*STILLS OR 30 MIN MOTION VIDEO	* CAN CHOSE BEST REPRESENTATION
*TWO AUDIO TRACKS	* TWO LANGUAGES REMEDIAL TRACK
*FULL INDEXING	* SINGLE SLIDE ACCESS

PRODUCTION AND DEVELOPMENT

* TEAM EFFORT

* ID PROCESS

* PEER REVIEW

* MARKETING

RESEARCH QUESTIONS

ADULT AND LIFELONG EDUCATION

* ADVANTAGES

* EXAMPLES

QUESTIONS ?????