16 INTERACTIVE MULTIMEDIA FOR MUSEUM PUBLISHING

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Interactive multimedia has made progress in becoming accepted within the world of museums the last few years. As evidence of this trend, the revised edition of Roberta Binder's report, *Videodiscs in Museums: Project & Resource Directory* lists exhibits in more than a hundred U.S. museums, as well as a selection of about 30 sites from other countries. Today, proposals for special exhibitions and new museums routinely include a budget item for interactive displays. The number of attendees at multimedia conferences also demonstrates increased knowledge and more positive attitudes, though I'm sure most can tell of protracted campaigns of education and persuasion among colleagues, curators, and administration.

Despite these gains, several factors have kept multimedia from going farther in the museum field. One factor has been the difficulty of "spreading the word" - both among museum professionals and to the museum-going public. Disseminating information about multimedia has always been difficult in one sense, because you have experience it to understand it. In addition, the majority of museum-based interactive programs have been isolated, single-site installations. Those designed for exhibit support tend to be on display for a while and then removed; those meant for archival or research support are usually even less accessible, especially after the "experiment" is over. Finally, it seems that the teams organised to conduct these "pilot" projects tend to be disbanded rather than reconstituted into an on-going function of the museum.

Another limiting factor in the success of multimedia to date has been an economic limit imposed on the audiences who view the programs. Often involving large, heavy and expensive pieces of equipment, interactive installations sometimes seem less transportable than the precious collections they support. As a result, the fruits of the effort and cost expended to create these programs are often enjoyed by a small population. This is a great shame: after all, the whole point of recording information on media is to allow it be preserved, replicated and distributed.

Multimedia is in the midst of a transformation from a special-purpose technology into a medium of publication. Museums can take advantage of this transformation and thereby extend their mandates for outreach and education. The power of interactivity to entice, inform, and stimulate has been demonstrated many times, both within and outside the museum context. Now the opportunity exists to bring information and education about a museum's collection or mission to future visitors, past visitors, or those who may never be able to visit in person.

Platforms for publishing

Before describing some instructive examples of museum multimedia publishing, let me pause to consider the ever popular question, "Which platform?" In other words, which combination of computer, storage, and display will yield a program of highest quality, largest market, and most reasonable cost of production? The answer, of course, depends on the situation. In each case, a museum must identify the audience it would like to reach (and who is likely to buy), which platforms look promising for the next five years, and which production methods will put the museum as publisher in the best position to migrate the program to another platform when the current one loses its lustre (as it inevitably will).

This choice of multiple platforms changes almost daily - a fact which tends to distract people from concentrating on more important issues, such as how to structure content for interactive delivery. Without going into detailed definitions, here are a few thoughts on the most talked-about formats.

CD-ROM

CD-ROM is a booming industry, providing massive stores of information for those who own a computer and a CD-ROM drive. The first wave of CD-ROM titles has concentrated on reference areas, and most titles are predominantly text databases, but both the content and the media mix is becoming broader, as shown in some recent titles from Microsoft on topics such as dinosaurs, the Beatles, and musical instruments. The main thing to remember about a CD-ROM product is that it must fit into a computer system, such as Mac or an IBM PC, with the correct software and hardware requirements. Each computer system has its own set of video, audio, and performance characteristics, and there are limits on the extent to which "one size fits all" in digital media. Also, as computer peripherals, CD-ROMs are typically found on office desktops, rather than in living rooms.

Videodisc

Videodisc or "laserdisc" still has much to recommend it: the image quality is acceptable for many purposes; image capacity is tremendous (54,000 per side); motion video can be incorporated more easily than in any other format; and, once produced, the same videodisc can be used together with software programs designed for more than one platform. The disadvantages of videodisc are: images gathered and archived in analog video format will have limited value in future digital projects; professional studio costs can be high; delivery systems require the addition of a videodisc player (although these cost no more than the special display boards required for most digital formats). The so called "Level 3" format (videodisc with computer) has another advantage for educational applications: programs in this format can allow students and teachers to create and save their own presentations and personal information. The National Geographic's *GTV* series and the more recent *STV* series have demonstrated the success of this format in the school market.

Intel DVI

The technology known as "DVI" is often cited as a multimedia platform. This is misleading, because DVI is simply a method of compressing motion video, and playing it back, within the MS-DOS platform. Unfortunately, the additional circuit boards required for playback cost about $2,000, more than an external videodisc player; moreover, the cost of compressing the video comes on top of the cost of producing it by conventional means in the first place. As a publishing format, then, DVI has severe limitations, although it offers some advantages in more controlled forms of distribution. For example, it works

well in a distributed network system, where digital video files are downloaded from a central server to multiple terminals.

Amiga CD-TV

The Commodore Amiga system known as CD-TV is a multimedia platform offering one great advantage: low-cost authoring. While this may be welcome news for museums' notoriously low budgets, the image-quality is rather poor, and seamless filmlike presentations are not possible. In addition, few people own the machines. At this point, CD-TV does not seem a promising publishing format.

Compact Disc-Interactive

The most established multimedia publishing system on the market is CD-I (Compact Disc Interactive). Designed for TV display, CD-I offers moderate picture quality, comparable to videotape, but it has other advantages: the cost of the delivery system is very low, and it offers a worldwide standard, whereby a single program can play on any CD-I player anywhere in the world. Unlike videodisc, CD-I is a digital medium, so that images gathered in the course of production can be archived in higher resolutions than will actually be seen by program viewers, to take advantage of future developments. Another advantage is that the "point and click" interface of a CD-I player not only enforces a certain amount of good design, but it is also well suited to adaptation (using touchscreen, for example) to a museum exhibit setting.

3D0 System

In multimedia, the best system is always the one that is not here yet: a potential future always compares favourably to any present reality. In that respect, the 3D0 system must be the best, since it has no proven flaws. On the other hand, at this writing, there are no players, no operating software, and no tools. For the moment, it represents a future option that should be similar to CD-I with improvements in 3-D graphic animation.

Recent projects of interest

There are probably dozens of examples of museums throughout the world beginning to move into publishing, but the following seem particularly noteworthy, either because they are complete and currently available as products, or because they demonstrate a forward-looking approach aimed at preparing for future multimedia publishing.

Museo Amparo, Puebla, Mexico

Perhaps the most instructive example of museum multimedia used for both exhibit support and publication is the CD-I program developed by the Museo Amparo, a privately funded archaeology museum in the Mexican province of Puebla, southwest of Mexico City. Offering background essays and brief audio descriptions of about 200 objects, the program was unveiled at the opening of the new museum in March 1992. Supervised directly by the museum's director, Angeles Espinosa Yglesias, it was produced by Capitol Disc from an original design by Rod Daynes. Program divisions match the layout of galleries in the museum, so that visitors in any gallery can quickly look up a presentation on any object they see, using an extended scrolling picture menu several screens wide. Presentations are in four languages (Spanish, English, French and German).

As it happens, the qualities of a good exhibit design - attractive, modular, understandable without prior knowledge, and self-contained - also characterise good consumer products.

Thus, six months later, it was fairly simple - mainly by adding menus, and changing the input from touch-screen to a remote-control cursor device - to adapt the program to a stand-alone publication. Now anyone can sample the treasures of the museum for the price a CD-I player.

Smithsonian Institution, Washington D.C.

Speaking of sampling treasures, another example of museum publication is *Treasures of the Smithsonian*, a CD-I sampler of 150 objects from the Smithsonian's 14 museums. From the day of its publication (on the closing day of the last conference on hypermedia and museums), it has been one of the top four or five best-selling programs in the CD-I format, is Europe as well as the U.S. (Honesty and pride happily converge on my admission to being the designer-producer.) The keys to the program's success, in my opinion, are its multiple layers (breezy audio-visuals supported by more detailed text and occasional "toys") and the sense of personal authorship that comes through the writing by a popular magazine columnist (Edwards Park). Of course, high production values, good music & effects, and a sound user interface are also essential, but they are not sufficient in themselves to make a program engaging.

Curiously, while you can view the *Treasures* program in CD-I kiosks at over a thousand retail locations in American and Europe, you can't see it or buy it at the Smithsonian itself. This is partly because the function of visitor orientation is served by a similar program (using videodisc and touchscreen) developed, by coincidence, at the same time as the CD-I. (In fact, the two teams traded lists of "treasures" and photo research sources.) Why visitors cannot purchase the program at any of the Institution's retail outlets, on the other hand, remains a mystery to this author.

Maritime Museum, Rotterdam

Another interesting CD-I project is the "Flying Dutchman" CD-I being developed by the Maritime Museum of Rotterdam in the Netherlands. In this case, a project initially conceived as a simple videodisc documentation became expanded, first as an interactive exhibit in CD-I format, then as a consumer title with an ambitious desire to reach broader and younger audiences. Over time, the design was expanded to include a kind of discovery game, in which viewers would travel on an imaginary submarine, picking up objects from the ocean floor that, through a series of questions and gamelike accumulation of marks, tell the story of sea-going life in the golden age of Dutch maritime exploration. Striking the right balance between the fictional motivations of game play and the factual interest of a fascinating period of history has added an extra level of difficulty to the design task. The project was incomplete at this writing, but the fragments of artefacts, documentary accounts, and maps, not to mention beautiful photography and haunting original music, promise an impressive foray in new territory for museum publication.

National Gallery of Art, Washington D.C.

Techno-enthusiasts tend to forget how long it takes technological innovations to become widely accepted, especially in institutions like schools, library, and museums. In that respect, videodisc is a medium not to be dismissed lightly - at least not yet. It was ten years ago that the National Gallery in Washington published its seminal videodisc, with video tours complemented by 1,400 images with captions; a few year later, sales were boosted by the release of Voyager's Hypercard stack, giving access and additional information about those still frames. According to Gallery reports, the videodisc continues to sell about 1,500 - 2,000 copies every year.

Now, ten years later, the Gallery has released a new videodisc, concentrating on the American collections. The differences between the product reflect all the lessons learned in

the interim. While the new disc retains conventional video "essays" and tours by the director, the still frame section has been expanded to 13,000 still frames, relating to 2,600 works. This profusion of detail views offers an effective antidote for the often repeated (and perfectly valid) objection about the poor quality of vido images in general.

Most significant, however, was the production process. Starting from the best-available 4 x 5" transparencies, the images were first scanned and stored as high-resolution digital images. (Digital is not "automically" better: considerable experimentation was required to achieve optimum results.) The outstanding video images, whole views as well as details, were created from the digital master images, which remain on hand (albeit on sixty 600-megabyte cartridges) for use in future publications and multimedia applications. Through good planning and carefully crafted production processes, the Gallery now has one excellent product, but it also has the resources to create several more in the future.

Wolfsonian Foundation, Miami Beach, Florida

Another interesting exemplar is the Wolfsonian Foundation, which will open to the public in January 1995 with an exhibition on "The Arts of Reform and Persuasion, 1885-1945." After considering including an interactive component for the opening exhibition, the foundation decided to concentrate its resources on the show itself and a major accompanying catalogue. But in the meantime, this small institution is doing something similar to the National Gallery, but on a smaller scale. The Wolfsonian is sending out its best 35mm slides (larger transparencies will be possible later) to a digitising service, which captures and records them on Kodak's Photo-CD format. In Photo-CD, each image is recorded at several different resolutions, so that the same inexpensive CD can be used for viewing on a Photo-CD or CD-I player, or as source for print-quality images in publications. This solution thus meets immediate needs, including the availability of images for research purposes, but it also lays a foundation for future projects, including interactive multimedia exhibitions and publications.

Conclusions

Multimedia will continue to be a fast-changing and confusing area of high technology, but museums can build for the future by separating out some of the components of multimedia design and production. First, concentrate on image gathering of the highest quality, and investigate ways to store these images in a format that anticipates future needs. Second, focus design efforts on the "interactive" part rather than the media: develop an interactive program that helps viewers understand the collection as you would like them to. Use any medium available. If the educational approach is successful in one format, it can be adapted (not copied) to other formats as well. Finally, consider the "multimedia" not just for archiving and exhibit support but for international publishing as well.