Interactive and Hypermedia in Museums

David Bearman
Editor
Archives and Museum Informatics
Pittsburgh, Pennsylvania

Introduction

This volume is both the record of a conference and the first monographic publication devoted to interactive and hypermedia in museums. It is a great pleasure to be writing the introduction to a book of essays which contains so many important papers and which is addressed both to museum professionals interested in applying the technology and to interactive media developers interested in serving museum requirements. For several years I have looked forward to a meeting that could advance the state of the art by critically assessing current applications of interactive multimedia in museums, analyzing museum requirements and exploring technology issues. In this volume, and the conference whose Proceedings it represents, we have just such a critical perspective.

The organization of this volume does not follow the organization of conference sessions, nor do the contents represent all of the nearly 100 papers presented at the meeting. Instead, the papers are organized into five general sections: the Changing Museum, Museum Issues, Museum Projects, Broader Cultural Issues and Technological Issues. These sections are followed by a section of abstracts of some additional papers presented at the meeting. Papers in both the Museum Projects and the Abstracts sections are presented in alphabetical order by lead author. In the other sections they are organized thematically.

It goes without saying, especially at a meeting devoted to the concept of interactivity, that these static reports cannot convey all the excitement of the ICHIM conference, nor can their poor black and white photographs leave more than the faintest impression of the programs that were presented. Nevertheless, I hope that as readers study these papers they will find in them greater depth, and take from them stimulating ideas. In true self-exemplifying fashion, these Proceedings illustrate again that the best of all possible worlds is to both experience the original thing, and have the opportunity to study the surrogate.

I. The Changing Museum

Museums provide an opportunity to interact with artifacts, specimens, and realia from beyond our everyday experience. Their holdings include that which is unique, remote, or difficult to perceive, and are therefore exhibited to us with interpretive text, images and sounds. The museum is a multimedia experience. Since the early 20th century museums have strived to be more than "cabinets of curiosities" to be viewed passively. In this volume we witness the latest efforts to interact more assertively with visitors, but despite the introduction of a new technology, they represent a continuity more than a radical departure.

Stephen Alsford finds the technology of hypermedia is a metaphor for the museum. He doesn't have to reinvent the museum or change its course to tease from its methods the concepts of branching and linking and user driven navigation. Museums have these attributes. What is new is a software technology which behaves in many ways like the museum should, and does, at its best.

Indeed, this technology behaves like a museum without requiring the infrastructure of the museum. It can enable explorations of the unique, the remote and the difficult to perceive, which can take place in a school, in the home or on the street as easily as in the museum itself. In their thoughtful exploration of these possibilities, Dennis Tsichritzis and Simon Gibbs discover the "virtual museum", and in so doing force the real museum to define itself and its special role in preserving and studying material objects of our culture and of the natural world. Others are taking up the challenge of the virtual museum as an institution better suited to the handicapped and aged that the "real" museum, as reported by Margareta Jaric during the ICHIM conference.

II. Museum Issues

Whether hypermedia will be the museums of the future, and/or wheth the future will use interactive and hypermedia to augment the experience or real tnings along with interpretive drama, multimedia exhibitions, and textual labels, as they now do, will depend on the resolution of outstanding cultural and technical issues.

Can we design hypermedia that visitors will want to explore? Kathleen Wilson presents some of the groundrules for such designs and data to suggest that they might work, but what kind of institution will people come to in order to have in-depth experiences of the kind she describes? Will these be museums?

John Driscoll examines a way to make these experiences as attractive as television and other entertainment that our visitors have come to expect. We may not be able to afford this luxury, but if we can, will the museum experience be in some way different from that of a theater?

The ultimate challenge is to transport the interactive multimedia museum not just outside its walls, but where there are no walls. Katherine Woolsey and Robert Semper explore such extensions of multimedia into public spaces and identify the design problems that must be overcome to make such new realities effective. One issue we will certainly need to address is how to make interactive experiences meaningful for groups rather than only for individuals.

Some of the answers, I believe, will be revealed by rigorous evaluation of our hypermedia and interactive products in their installed settings. The papers by David Allison, Tine Wanning and Andrew Peterson should improve the questions we ask. Wanning makes it clear why we need to begin by asking ourselves what we know about our visitors and their interests before selecting materials and presentation methods, and how we can then study

user reactions by administering simple questionnaires. Allison introduces us to the enormous potential for visitor monitoring that is inherent in interactive multimedia and illustrates how this is being taken advantage of in the massive "Information Age" installation at the Smithsonian. Peterson presents an intellectual framework for the evaluation of interactive and hypermedia based on psychological models and educational technology standards. Without such models of what we are trying to achieve, evaluation will be an empty exercise.

Even the best designed programs must be implemented in such a way that they will work, and will continue to be working, for visitors. Jim Oker distills many years of experience in making reliable interactive multimedia in his paper. One hopes that his advice will be taken.

III. Museum Projects

Even though many design and evaluation issues remain unresolved, brave museum educators and collections managers have taken the plunge. In the section on Museum Projects we encounter an array of projects differing widely in their intentions and their approaches. Several take up a theme enunciated by Selma Thomas, that the museum interactive project should enhance the public experience of the museum collection. Thus Deborah Cooper and Jim Oker see the History Information Stations at the Oakland Museum as places where the visitors can take off from the collection, and John Loven emphasizes the ways in which museum visitors can see a kind of collection that is difficult to explore except through media since boats and ships are notoriously cumbersome to display.

But other museum projects take quite a different tack. Jim Hoekema and Peter Lewis describe products for the visitor to take home, not so much to enhance the experience of the collection as to extend it. Deborah Howes and Howard Litwak describe products that are experiences in themselves, valid independently of the exhibits in which they reside. Certainly such an independent experience is at the heart of the theoretical concerns confronting Nobuyuki Ueda and Mark Gross as they seek a definition of the NeoMuseum.

Harrison Eiteljorg and Larry Friedlander go a step further in seeking to create experiences of other worlds with scholarly tools rather than exhibit artifice, but seek as well by building complex databases to achieve a holistic perspective from which the past can be viewed, analyzed and understood, if not experienced. Richard Llewellyn describes a contrary tendency, to use multimedia and imaging technologies to describe objects in the custody of the museum, not for public interpretation, but for staff use.

Each project, of course, was planned and implemented in a unique management context. Each, we would hope, formulated objectives and strove to realize them by their designs. What they have in common is the need to develop appropriate content, to select appropriate delivery technologies, and to deploy the installation in an appropriate venue, which is the broadest kind of user interface consideration. They have this in common be-

cause they are applications, and it is as applications that we must gauge their success, not as pure designs, or clever implementations, or gripping content.

And interactive multimedia has too often come up short when assessed as applications because so often the authors are intent on breaking through a technical barrier, or plunging into new cultural domains, rather than contributing to the museum.

IV. Broader Cultural Issues

How often do we tell ourselves that a picture is worth a thousand words? We assure ourselves that images are a universal means of communication which will enable us to carry our message across different age groups, cultural groups, and languages. It is therefore an extremely useful corrective that Chantal Cornuejols and Kathryn Murphy-Judy deliver in exposing just how learned our understanding of images is, and how radically the thousand words conveyed by an image will differ depending upon the cultural experience of the viewer.

Matthew Hogan, Corinne Jorgenson and Peter Jorgenson suggest that some of the cultural bias of images can be controlled, as vocabularies can be controlled, through hierarchical thesauri. Their proposal for a true visual thesaurus however takes the concept of image recognition in information retrieval applications far beyond where it has been to date.

If still images can convey meanings so diverse, imagine the potential meanings attached to body language in the full-body interactive exhibit. Myron Krueger, in his provocative keynote presentation to the ICHIM conference, suggested that such full body interactives could become vehicles for communication in our future culture. They could certainly transform our experience of museums.

Communication problems of a different sort impede our development of interactive and hypermedia for public use; these are the difficulties we encounter in satisfying intellectual property claims of the owners and creators of the media components of our multimedia products. The problem is universal, so it is appropriate that it was addressed here by a Dane, and American and a Briton who barely drop a stitch between their respective papers. The scope and character of the problems of intellectual property are first deftly sketched by Peter Looms. Nathan Benn explains why copyright had become such an issue in multimedia publications since the advent of optical discs, and how it is likely to become more of a barrier unless approaches in which rights holders are justly remunerated can be made to succeed. He proposes a rights collective, which is part of the proposal made by Jeremy Rees and the European Visual Arts Network, but Rees goes beyond simply positing a collective, to outline plans for full scale collaborations between all the parties.

V. Technological Issues

If the cultural barrier to acceptance of copyright for digital media can be overcome through collaboration and broad cultural re-education, there will remain numerous technological barriers to full implementation of interactive and hypermedia in museums.

Until recently the most serious of these barriers was the poor visual quality of most interactive and multimedia products. For a community which prides itself on connoisseurship, television quality images, and even images displayed on high end engineering workstations, were simply inadequate to convey the detail and the richness of color in unique objects of great cultural value. As the team of Biribeau, Taylor, Rioux and Godin point out, research has progress significantly in the past decade. Some art historians, such as Anthony Hamber, are now able to explore the potential of such high resolution images thanks to support from the European Economic Community and others for projects like VASARI. We can almost certainly expect the quality issues to be resolved soon, and costs associated with high quality to fall dramatically in the near future.

If only we could be equally sanguine about the problems associated with scale. Robert Glushko exposes what we alert observers have vaguely known; hypertext and hypermedia projects to date are largely prototypes for the great cultural knowledge-bases on which so many of our visions of the future depend. Like so many prototypes they will not scale up easily, if at all. Peter Looms returns in a second article to explore in detail the economic and design implications of scaling up, and leaves us properly concerned.

Last, but hardly least, the barriers to adoption of interactive and hypermedia in museums are the absence of standards. These barriers will inhibit the development of a consumer market, which will dampen museum enthusiasm for such projects and keep the costs of implementations higher than they would be with a vibrant consumer market. Incomplete standards will have a greater impact on museums however because museums cannot afford to recapture, and recreate, their information about their holdings on a continuing basis. Information about museum collections is a valuable resource, gained at considerable cost over many years as prudent museum administrators recognize. It is therefore heartening that Judy Moline concludes this volume with a blueprint for using standards already in place to achieve reasonable stability in multimedia resources. Only with such stability at a technical level can the re-use of resources take place.

This volume, like the conference which it reflects, presents the best thinking worldwide about a complex subject. If it leaves readers with no simple answers, it is because there are none. Interactive and hypermedia holds tremendous promise for museums if good design and evaluation can be tied to visionary objectives and well conceived applications, but the broader culture and the technical milieu constrain us, and smart museum professionals will take these constraints seriously while striving to overcome them.

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