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**CONVENTIONAL ART AS WEB EXHIBITS: A  
NEW ELECTRONIC ART FORM**

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SUMMARY

A new art form is emerging, almost without being noticed. All around the world, major art institutions are representing their conventional collections digitally on the World-Wide-Web. This paper reviews the way institutions are building these extensions to their galleries. We show how the potential of such galleries is being limited. The problem lies in the way the Web is being treated as a sophisticated publishing channel; just another way of reproducing a gallery's physical reality. We argue that engaging, effective virtual galleries can be produced if fundamental computer qualities are understood and exploited. The use of computer power to organise information, facilitate communication and process data is illustrated with reference to initial work we have carried out with the Royal Academy of Arts, London.

Introduction

Walk into any real art gallery, one with physical walls and floors. Art works hang on the walls or stand on the floors. Usually, they are placed not arbitrarily, or by chance but through a careful process of planning and thought by the exhibition curator. The curator will take account of the physical context of the "story" they want to tell. Which room would be best for a particular painting; what about the light for that sculpture? The characteristics of the space directly affect the design of the show.

Many art institutions, from the Louvre to the New York Met, are beginning to use the World Wide Web (Web) to show their collections. Those who are not yet wired are enthusiastically planning to be ... soon. It appears, though, that there is much less thought about how to use this electronic space to display conventional art. Great opportunities will be missed if art galleries, artists, and technologists fail to think about what new possibilities are opened by the technology.

The Interaction Design Centre at Middlesex University has been working with several major institutions, providing expertise on Web design and management.

One of these is the Royal Academy of Arts, London (RA), the oldest Fine Arts institution in Great Britain, founded in 1768 by George III. During the past year, the RA has been considering the possibilities of using the Web. We have assisted in these early stages of planning by developing prototype ideas. The prototypes used exhibit resources (text and images) from the successful exhibition, Africa: the Art of a Continent.

Through these studies, we have started to explore ways of using the power of networked art information and in this paper we describe some of our initial ideas and prototypes. Although our approach is driven by computing science, we do not present detailed technical arguments. The discussion, here, is at

a higher level. our purpose is to explore what can be achieved by 'hanging' art exhibits in a web gallery.

### Current Web Galleries

To help us develop ideas for the RA we looked at the use of the Web by other art institutions. We used the popular and comprehensive Web index, Alta Vista [1] [AEB1] to locate art gallery web pages. Search terms included generic ones like 'art gallery' and 'exhibitions' and institution specific phrases such as 'National Gallery' and 'Warhol Museum'.

There is a vast number of Web documents that contain such phrases - 90,000 for example, contain 'art gallery'. However, we were only concerned with pages produced by major, public art institutions. Our review did not take account of the private galleries which use the Web to present details of their artists and sales. Individuals with interests in particular galleries have also created web pages with major gallery information. These were ignored too. We wanted to see how the institutions and the people who were actually involved with the real, physical collections, represented themselves. The search also identified several 'virtual' galleries like the WebMusuem [2]. These sites bring together eclectically art from many institutions. Again, these were not considered. The remit of our work is not to suggest alternatives for art galleries [3] but to discuss how the Web can extend their reach and contribution.

After filtering the search lists, we looked at ten Web sites relating to institutions such as the Warhol museum [4], the Louvre [5] and the Metropolitan, New York [6]. In reviewing these sites, we were interested in how the collections had been presented; how they could be accessed and engaged with

Most of the institutions reviewed, simply reproduced the physical arrangement of their collections in the Web pages. Typically, Web site visitors are presented with a map or text listing showing how the collection is organised in the actual gallery. They are then able to select sections of the collection they want to view. For each area of the collection, the usual approach is to display sample images and some accompanying text; no site contained extensive information on their collections. This reproduction of the physical layout of the collection is a simple and effective way to give the visitor an idea of the scope and content of the collection and insight into the nature and purpose of the institution.

Some of the institutions had Web offerings which were not structured to reproduce the physical galleries. These sites included a limited description of the collections along with some images. The type of information on these pages were much like that one would find in conventional, paper-based, exhibition brochures and tri-folds and brochures.

None of the Web galleries used any advanced techniques such as virtual reality imaging to display their collections. However, we expect that tools like QuickTime VR™ and Virtual Reality Mark up Language which can be used to present 3-D representations will be widely used in such sites in the near future.

As well as mirroring the physical arrangement of the gallery on the Web, institutions have also reproduced, perhaps unintentionally, their physical environment. In physical art spaces, people pass by the work, unable to engage with other visitors, unable to ask questions of the scholars, with the collection being passively presented to them. Similarly, in the Web galleries we reviewed, visitors enter a silent, still world. A high-tech, clean, mausoleum of art.

### The Hidden Computer

Many human-computer applications suffer because the computer is neglected [7]. The result is poorer systems. Witness to this is the deluge of disappointing interactive multimedia and, more recently, Web sites.

Much effort seems to be channeled into using the computer's power to generate surface level aspects: digital sound and smooth animations seep off the screen. All of these features make the products wonderfully marketable but cloak the lack of real interaction design. Art gallery Web site developers appear to be wandering into the same wood as other interactive system designers. They are neglecting the computer.

There is an urgent need for developers to resist these surface level seductions. We need to shift our focus to fundamental computer qualities. If this does not happen, such interactive systems are going to be no better (and in fact probably worse) than their non-digital siblings.

Computers are good at organising information, facilitating communication, and data processing. These qualities are discussed, below, along with ways of exploiting them to make gallery Web sites more than what they are today. These applications are only examples of what can be done: we look forward to all those with a stake in web galleries taking the discussion further.

### Organisation

#### Flexibility

In a physical gallery, and a Web site that reproduces that physical structure, exhibits can only be presented in one order. The single arrangement is not adequate even in the real gallery. Visitors deviate easily from the curated sequence, their detours prompted by their own interests (or whims). Sometimes, institutions provide alternative tours tailored to particular needs. In the RA Africa exhibition, for example, the Education Department produced resources for different school subject areas highlighting relevant objects and visit sequences. Following these alternative tours can require lots of movement between galleries. In the Africa exhibition, comparing the art of North-East Africa with that of the North-West meant several journeys through the six or seven rooms that separated the exhibits of those regions. A computer-based presentation of a collection should not be so limiting (or tiring).

In business computing, the ability to present multiple views of the same set of data has long been taken for granted. The logical content of the data is separated into a database. This database can then be used to serve many needs. This form of principled design is not apparent in Web site developments. On the whole, Web production is approached as a publication process; the Web used as just another communication medium. The hyperlinks joining the web pages together are embedded within the content of the page - there is no separation of content and structure. This makes changes and reorganisations difficult to do and prone to errors.

At the Interaction Design Centre, Thimbleby has produced a web development tool, Gentl [8]. This separates out navigational and structural aspects from the actual web content. The tool can automatically generate different presentations of the same material. For example, two versions of the Royal Society of Arts web site has produced [9]. With the sort of separation that Gentl enables, it is possible to present multiple orders of web exhibits with little overhead.

## Directing visits

It is rare to find an exhibition whose exhibits are displayed in a random order. Usually, the order presented to the public is designed to present themes, to make statements. However, it is usually impossible for an institution to ensure that visitors follow this curated sequence.

In a Web gallery, though, within the multiple organisations, discussed above, such directed visits are possible. For the RA prototype, we took one of the gallery-guide brochures and produced a set of Web pages showing the exhibits in the order given in the guide. Within these pages, users can only move forwards and backwards in the sequence. There are no hyperlinks on these pages; no opportunities to wander off the path.

## Communication

When people visit an art gallery, inter-person communication is effectively blocked. Visitors are unable to share their thoughts and feelings, to ask questions or respond to fellow visitors. People do not interact extensively because of social inhibitions and because they do not want to disturb others. Furthermore, unless on a specialist prearranged tour, visitors are unable to get access to any of the experts - curators, lecturers, artists - associated with the exhibition.

A Web art gallery should not be such a silent, inhibited place. The RA prototype demonstrates communication-freeing possibilities. Users are invited to 'attach' comments, questions or responses to exhibits. These notes can be organised in several ways including topic and source (expert, visitor etc.). This form of communication is asynchronous. users can submit and respond to comments independently of others. So, for example, exhibition experts can contribute to the discussion in their own time, without being distracted from their other, 'real' gallery duties.

A further development, not in the present prototype, would be to allow 'live' discussion pages. Visitors could contribute directly with other visitors who were visiting the site at the same time.

## Computation

Computers are about computation. They can process data, responding and manipulating input to generate output. The Web is not just a sophisticated publishing medium; it is an information processing system.

## Active learning

In a section of the RA prototype, users are invited to respond to exhibit related questions by selecting an answer from a set of choices on screen or from a pull down menu of alternatives. After making their selection, the prototype illustrates how the input could be processed by an associated program to provide appropriate feedback.

## Capturing experience

When visitors interact with a Web site it is possible to record the page-to-page selections they make. These traces of movements through the collection can be processed to provide some useful information.

A simple way to use the information is to discover what are popular and unpopular sections of the collection. With this information, the site can be enhanced. For example, the reason why one part of the site is less visited than another may be because the access paths to that part are less direct or the

'signposts' to it less clear. If this is the case, more direct routes or better directions can be added to the site.

It may also be possible to use the traces from many visitors to discover popular routes through the collection. Giving access to these information would allow new users to see how others have made use of collection and enable them to take advantage of the implicit knowledge those paths contain.

But these electronic memories should not just be used to improve the Web site but to also enhance the real, physical gallery. Where, today, galleries model their Web sites on the actual gallery; in the future, the physical exhibition could be prototyped on the Web. Analysis of the use of alternative arrangements could influence the final physical gallery arrangement.

## Conclusions

A new form of electronic art is emerging with many major art institutions beginning to present their exhibits on the World-Wide-Web. However, the power of these virtual collections seems to be fettered by two problems. Existing web offerings suffer from being too much concerned with reproducing the physical arrangement of collections in the real art galleries. In addition, the Web is being viewed only as a sophisticated publishing channel. Institutions need to free themselves from these limitation to produce Web sites that provide experiences that no visit to a real art gallery can provide. To do this, developers should use the real power of the computer to organise information, facilitate communication and process interactions.

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