

The Effects of Online Catalogues in London and other Museums: A Study of an Alternative Way of Access

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What effects can museums expect from putting a database or catalogue of their collection online? While many museums do provide some sort of catalogue in order to improve access, there is still a great deal of doubt as to what are the actual effects and how the catalogue is being used. Some fear it will reduce visitor numbers or wonder how many more enquiries they will receive. By bringing together survey research with information from other studies this paper sheds light on effects on museums and on visitors. It is concluded that although much more methodological research is necessary to understand the visitors' uses of online catalogues, it can be said that they can have a positive influence on museums. Most importantly visitor numbers are not reduced. Museums should be aware, though, that careful planning is essential, coordinating target audiences and aims with design and contents.

Keywords

Internet, museums, online, visitor impact

Introduction

Museums and the Internet

Since the rise of the internet in the 1990s, museums have eagerly used the new digital medium to their best advantage (Keene 1998: 104; Semper 1998). Today nearly every museum has a presence on the web. Websites are an important source of practical information but today people expect more than just a tool for planning a visit (Smith 1998; Thomas and Carey 2005). Museums that have recognised this have added to the online experience by providing collections-related material. Additionally, in the UK, the government has urged museums to enhance access in all sorts of ways (Smith 1998; Davies 2001). The internet can play an important role in achieving this.

Online access to the collections can be realised in many different ways. The term can be used for a simple general description or history of the collections, or for virtual exhibitions, virtual museums, games, etc. Online catalogues distinguish themselves because of their form. An online catalogue is here defined as a systematic group of records giving detailed information about the collection's objects. In this paper we exclude library and archive catalogues. In principle the size of the group or the nature of the objects is unimportant since museums differ greatly in size. While a small local museum may only have a selection of ten objects online, this might be a much larger proportion of its collection than a huge national museum such as the National Maritime Museum with two million objects and *only* 8000 online (National Maritime Museum 2005).

The Questions

Without any doubt the internet can be a very useful tool for museums. Creating good quality tools and products can be a serious demand on time and resources however (Canadian Heritage Information Network (CHIN) 2000). The question is whether all this

effort is really worth it. Do online collections have the effects that museums envisage them to have? What effects do online collections *really* have?

This question is important because it taps into the broader issue of how museums can make optimal use of their collections. Open storage, hands-on collections, loan boxes, etc. are other ways of achieving this. *Collections for the future*, a recent report by the Museums Association (2005: 4, 8-9), brought this issue to the foreground and emphasised that museums can no longer afford to have their collections hidden away in dark corners just for the sake of preservation. Furthermore, because the collection is considered to be the essence of a museum (Museums Association 2005: 9), the issue of proper use of the collection brings us into the whole debate on the nature of museums as such. Online access is certainly an interesting issue to investigate.

Little research has been conducted along these lines however (Haley Goldman and Wadman 2002). So far, evaluations have focused on websites as a whole and have mainly been restricted to assessing technical quality such as fulfilment of W3C (World Wide Web Committee) criteria or the quality of the online experience (Soren and Lemelin 2004: 57). The different question of what outcomes result from the use of a database has so far remained unanswered.

Independent museums

Dulwich Picture Gallery
 Florence Nightingale Museum
 Gilbert Collection at Somerset House
 Linnean Society of London
 Old Operating Theatre Museum, London
 Ragged School Museum
 Royal Academy of Arts
 Royal Botanic Gardens, Kew
 The British Postal Museum & Archive
 The Library & Museum of Freemasonry

University museums

Constance Howard Resource and
 Research Centre in Textiles
 Courtauld Institute Gallery
 Galton Collection, UCL
 Museum of Domestic Design &
 Architecture
 Petrie Museum of Egyptian Archaeology

National museums

British Museum
 Imperial War Museum, London
 Museum of London
 National Army Museum
 National Gallery, London
 National Maritime Museum
 National Portrait Gallery
 Royal Air Force Museum, London
 Science Museum
 Tate
 The Wallace Collection
 Theatre Museum, London
 Victoria and Albert Museum
 Horniman Museum & Gardens

Local government museums

Grange Museum of Community History
 Guildhall Art Gallery, London
 Kingston Museum

Table 1. London museums with online collections in 2005 by governance type.

This paper aims at filling that gap by investigating the effects that museums experience. It is impossible however not to mention the visitors as well, as they are an essential part of the dynamics. Therefore, the ways the online catalogue can affect the visitor are also studied to make the picture complete.

The Context of Online Catalogues

Numbers

Although there are some very impressive museum websites out there, we are still far from having high-quality access to most museum collections. Bowen (1999; Bowen et al. 2001) and Kravchyna and Hastings (2002) have already remarked this, and Haley Goldman and Wadman provided some figures in a paper for the Museums and the Web conference (2002). Of 80 international websites randomly selected, 21% had an online database. A survey in summer 2005 of all London museums for this paper found a similar percentage.

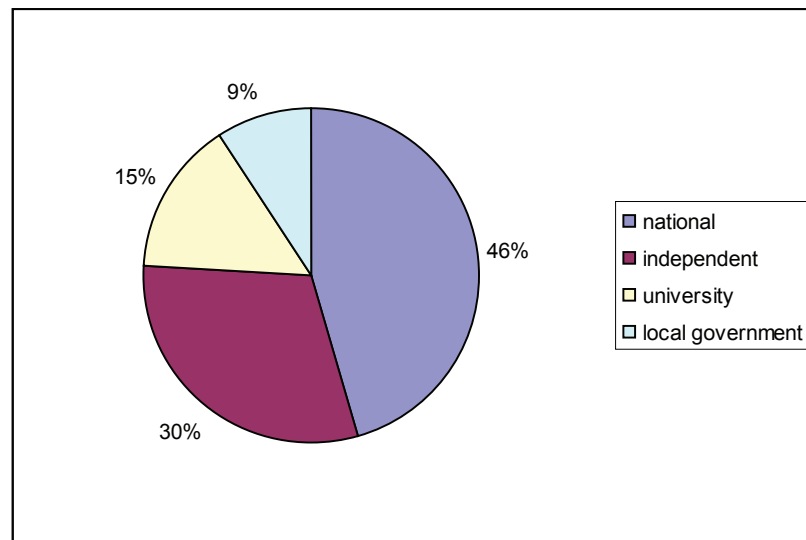


Figure 1. London museums with online collections by governance type.

Museums in London were chosen because they offer full representation of museums of all sizes and types. Institutions in London listed on the 24 Hour Museum's website were checked for their online presence and content. Excluded from the survey were libraries and archives, and museums or galleries with no permanent collection. Of the 164 London institutions in the survey, 33, i.e. 20.1%, had some sort of online catalogue as defined for this paper. This is nearly the same figure as Haley Goldman and Wadman (2002) found three years before. So although the samples differ in size and constitution

and a different definition of online catalogues may have been applied it seems as though there has been a standstill in the last couple of years.

A number of museums mention on their website that although they do not yet have an online catalogue they are working on putting one online, such as the Hackney Museum and the Hayward Gallery (see Websites), so there is some sign of progress. It should be borne in mind however that the proportion of museums with online catalogues can vary from place to place. Museums in Australia for example have been quick and eager to produce a database online (Australian Museums and Galleries OnLine (AMOL) 2004). A much higher figure might be found there.

When we look more closely at the 33 institutions that have an online catalogue it is very apparent that most of them are big, well known or national museums (see Table 1 and Fig. 1). The largest group, nearly half of them, are nationals such as the National Gallery. The group of independent museums takes up a third. Here we find both well known names such as the Royal Academy of Arts and less well known museums such as the Old Operating Theatre. Five out of 33 (15%) are university museums. Most of these are important museums: the Petrie Museum, the Museum of Domestic Design and Architecture and the Courtauld Institute of Art. Very under-represented are local government museums with only three museums having a collection catalogue online, one of them being the Guildhall Art Gallery of the Corporation of London.

This situation is of course particular for London which has many national and well known museums, but if it has any general relevance it shows us that we can expect online catalogues much more often from large museums. Larger museums, of course, often have more resources and are under more pressure to make the collections accessible. The survey also shows us that online catalogues are beginning to become an access tool for the entire spectrum of museums even including smaller museums.

The provision of online catalogues will undoubtedly be affected by the sources of and criteria for external funding. For example, university museums may well be able to access funds designated for higher education. This was the case for the Petrie Museum of Egyptology which obtained £137 000 of higher education funding for an online teaching resource using the collection (Kilmister 2005). UK museums with so-called 'designated collections' will also have access to funding for this. However, museums must make the case for such funding since it is often claimed that online catalogues are of little benefit to users or visitors.

Appearance

It also became very clear that online catalogues can come in many different shapes and sizes. In fact not a single one looks remotely the same. Let us now look at the different forms they come in, this time selecting examples from the wider world of museums on the web.

First of all, catalogue records can contain data and/or images (in this paper a collection of images with no data is not considered to be a catalogue). Although the public has a

strong preference for images (CHIN 2005; Bowen 1999: 165), not all museums provide them in their database. Lack of resources or copyright issues might prevent a museum from putting images online. Some catalogues contain several images of the object or alternatives such as drawings (e.g. Website: Ashmolean Museum - *Ancient Near Eastern Terracottas*). The Powerhouse Museum even offers a few three dimensional images where the visitor can rotate the object and look at it as if it were in front of them in the museum.

In addition to this there is also much variation in the amount of data that is given. Examples range from very limited information (e.g. the object number, a description and the object name) to a whole list of data with interpretation and further reading. An average catalogue will be somewhere in between. While most museums arrange the information in a clear and orderly fashion, there are no fixed rules for presentation.

Online catalogues that include the entire collection of a museum are rare but can be found, like the National Museum of Ethnology in The Netherlands (see Website). Most museums provide only a selection of objects, often with the intent of adding to the database over time. Alternatively only particular collections may be available, such as the Glass and Ceramics collection of the Museum of London (see Website). An online catalogue can span several museums. Collections can for example be linked thematically, like the Global Egyptian Museum, or geographically as with the Hampshire County Council Museums Service.

There is also variation in the accessibility of the records. Most online catalogues provide a search tool, ranging from a single field where a keyword is entered, to advanced search options with combined terms (Peacock, Ellis and Doolan 2004). Often the user has to come up with a search term but some museums provide keywords to assist (e.g. Dulwich Picture Gallery – see Website). An alternative to searching is browsing, that is, choosing from a preset structure. Sometimes the catalogue is presented as a tour, choosing from a range of subjects which leads to a selection of objects.

Finally, a number of online catalogues differentiate themselves in other ways. The Giza Archives Project database is somewhat special because it combines records of objects with that of archive material and photographs, all on one subject. Some catalogues provide the ability to purchase images of the objects. One combined catalogue, the Global Egyptian Museum, even asked for paid membership in order to access the collections.

Issues

Interoperability

The variety in different online catalogues is somewhat disturbing, however, since the obvious ideal would be for all databases, both those of museums and of other organisations, to be searchable as a whole (Keene 2005: 141, 147). Difficulties in achieving a unified database are organisational as well as technical. Collaborative databases are already eagerly being developed, however. Examples are *JOCONDE* and *MUSENOR*, national and regional collective catalogues in France. One project that sees things at an even more ambitious level is the European BRICKS Integrated Project (Website:

BRICKS). It aims at establishing a European Digital Library, a system that can encompass collections of multimedia digital documents on a European level, including museum collections among others.

Language

Another important issue for online collections is the use of language. The problem is similar to that of the use of language in the physical museum, but on a much larger scale since the internet is capable of drawing in a much larger international audience. How to cater for non-native speakers that visit the online catalogue? In practice, a large and internationally famous museum like the Louvre limits its databases to French, a language that not everyone understands. We live in a world with numerous different cultures and languages. The question is not whether museums should provide an alternative database in English (not everyone speaks English) but how international does a museum want to be?

For All Museums?

Next, one might also ask if online catalogues are really suitable for every museum. The director of a numismatic museum in Sweden pointed out that it would be an impossible task to digitise all of its few millions of coins and medals (Ian Wiséhn, pers.comm., 3 June 2005). He questioned whether anyone would be interested in having this information online. The same remark has been made about natural history collections (Anon. pers. comm., 5 September 2005). However, it can be assumed that research and greater access will practically always generate demand. The size of the collection should not be an argument against digitisation, but of course resources are always a determining factor. The subject of the museum may also have an influence. Art museums have been much quicker and more thorough in providing online access (Keene 2005: 142). Their collections consist mostly of flat, highly visual objects: the objects lend themselves more to virtual representation so to speak.

Interest

Touching upon the matter of interest and demand raises the question of why museums should put their catalogue online in the first place. Kravchyna and Hastings (2002: 6-7,9) found that collections information was the second most important reason why visitors go to museum websites. They found that 63% of people wanted to search the collections database, 48% indicated that they use the website for research and 49% were looking for images. Online databases are major resources for these. An older study by Bowen (1999: 170) also indicated that online collections databases and information was the main content people were looking for. This gives a good initial indication of the importance of online catalogues.

Effects of Online Catalogues

Now that we have had a look at the context of online catalogues it is time to focus on the particular effects they can have. This section attempts to bring together the possible effects and study in which way they occur. Of course, online catalogues will, as information technology evolves, be subject to new uses and new possibilities which will bring new effects with them.

The Research

To discover the effects of online catalogues, 25 museums from all around the world including all types of collections and forms of governance were circulated with a questionnaire. They were selected because they had put their catalogue online within the past five years, so that they would still be aware of the motivation for doing so. One museum that chose not have a catalogue online was also contacted to comment on their situation. Of the 25 museums only eight responded. Due to this and the apparently much larger proportion of English speaking museums with online catalogues the sample is much less international than was the intention. The museums that participated are:

- Los Angeles County Museum of Art (LACMA)
- Museum of London
- Museum of the History of Science, Oxford
- National Maritime Museum
- Rijksmuseum voor Volkenkunde (National Museum of Ethnology)
- Powerhouse Museum
- Royal Academy of Arts
- Southampton Archaeology Museum

To gauge visitor's uses of online catalogues, a question was also posted on the Egyptologists' Electronic Forum mailing list, used by specialists and researchers in Egyptology. This resulted in eight answers, giving valuable information. The respondents come from all over the world: UK, Canada, USA, Germany, Sweden and Israel. Various museum professionals and consultants were also asked for their insights. Relevant literature and other studies are also brought in to the discussion.

Results

Effects on Museums

Visitor Numbers

The effect of online access on the number of actual visitors has always been a major concern to museums (CHIN 2005; SMC 2005: 46). They fear that an online visit to the catalogue might become a substitute for a real-time visit. However, alternatively, the catalogue might function as a marketing tool and encourage people to come. Davies (2001) points out that lack of knowledge and awareness of a museum's collection is an important barrier to visiting.

In 2003-2004 CHIN carried out a study on the relationship between visits to museums' websites and actual visits (CHIN 2005; Thomas and Carey 2005). Although this Canadian study does not focus on online catalogues specifically, its conclusions are still valuable for this paper. It reveals that there is no harm in putting information about the collection and images online, thus confirming earlier anecdotal evidence that this was the case (Haley Goldman and Wadman 2002). Instead of endangering visitor numbers collections information stimulates real-time visits because people are likely to become interested in seeing the objects in reality. This is also what the Scottish Museums Council (2005: 33-34, 51) discovered in their recent study of four Scottish museums. They

found that visitor numbers at the Aberdeen Art Gallery and Museum had increased since the museum put its collections online, while figures of other museums that had not stayed the same. In our survey the Museum of London gave some examples of visits prompted by their Ceramics and Glass collection database.

It is of course inevitable that in some cases the online catalogue will make a visit unnecessary, as the Museum of London has also experienced. If this avoids research visits this can benefit the museum, as these are costly to provide for (Thomson 2002: 63-65).

Enquiries

Some museums are concerned that putting a database online might increase the number of enquiries (Ward 2005). This is indeed one possible effect, but the opposite can also be true. Putting detailed information about the collections online might meet the person's requirement. And, because some information is already available online, people who have an enquiry might be more specific and make the curators' job much easier.

What evidence can we find? First of all, the National Maritime Museum is very clear that it experiences a slow fall in enquiry figures. Researchers are the primary audience for their information resources and the National Maritime Museum has a large amount of very detailed collection records online. A researcher from the Egyptologists' Electronic Forum recounted that consulting an online database sometimes made an enquiry unnecessary. The Royal Academy on the other hand feels that their catalogue acts as a catalyst for requests for more information. This might be expected if less information is available online, as is the case for the Royal Academy. Its online catalogue is very recent and will provide more information in a second version. It would be interesting to compare the level of enquiries before and after the second version becomes available. The Museum of London, the National Museum of Ethnology and Southampton Archaeology Museum actually hoped an increase in enquiries would be the case as they see this as a positive result that would prove that their collection is better used and more accessible. Mail and fax enquiries have dropped in number at the Powerhouse Museum, but then these might have merely been replaced by emails.

So either an increase or decrease is possible but it does seem that the effect on the number of enquiries is related to the amount and quality of information that the museum puts online.

The nature of the enquiries changes as well. At the Powerhouse Museum they have found that enquiries become more complicated and knowledgeable, while enquiries at LACMA are on a wider variety of objects and not just on the highlights anymore. The Royal Academy in turn receives less inappropriate enquiries because the range of the collection is much clearer to the public. Certainly, more knowledgeable and less inappropriate enquiries are exactly what museums would want.

Accuracy of Data and Knowledge

In 2000 Marty and Twidale examined whether alternative methods of quality control for museums' records could supplement in-house checks (2000). They proposed taking advantage of the main characteristic of online databases, the worldwide access to the data, and invited users to suggest improvements or corrections to the object information. By offering facilities as simple as an email address or a feedback form museums can receive help from outside the museum. Examples given in the paper are from the Spurlock Museum at the University of Illinois, which received help from a specialist in African art, a university professor and a museum curator, via comments emailed to the registrar. We found a few other examples in our museum survey. The Museum of London received some corrections to mistakes for example. At LACMA they received one such email. The Royal Academy gained new information on artists such as birth and death dates. The amount of feedback is strongly influenced by the ease with which people can contact the museum.

Museums should be careful however in applying changes because no matter how experienced the persons are, they are not necessarily always right (Marty and Twidale 2000). So while it is clear that users of online catalogues can improve the accuracy of the data, the challenge is not to create more mistakes by adopting badly informed suggestions.

Security

Certain online catalogue information could be used in a harmful way, to locate valuable objects or target donors (Bowen 1999: 170). However, security does not seem to be an issue for the museums who participated in the questionnaire. The Royal Academy suggested online catalogues form no greater risks than published catalogues. Other museums, however, feel differently. One museum hired a consultant to assess the security risks of putting their database online and was advised against it (Anon. pers. comm., 31 August 2005). The suggestion was that an online catalogue could serve as a sort of 'shopping list' for criminals. So this particular museum chose to be cautious and take no risks rather than have the 'unregulated' access the online catalogue provides. This had nothing to do with the nature of their collection which is valuable in many ways but not renowned. They are satisfied with their physical security arrangements. They simply prefer to know who is accessing the information, by having people to contact the museum personally.

The same kind of concern was voiced by Ian Wiséhn, director of the Royal Coin Cabinet of the National Museum of Economy in Sweden (pers. comm., 3 June 2005). With a numismatic collection the situation of sharing all object information is of course more delicate due to the value and portable nature of these objects.

Internal Functions

Having an online catalogue could improve internal working, as the museum's staff can easily search for catalogue information to aid their work. Like the collections management system, the online catalogue could become an additional work tool, especially as

it comes to serve as a repository for interpretative material. Museum professionals can also use other museums' online catalogues to find information they need. Preservation benefits can be predicted as well, such as reducing handling by using three-dimensional images for research instead of the real thing (Smith 1998).

Evidence from the museum survey does indeed suggest that there are benefits to the internal functions of museums from putting their catalogue online. One frequently mentioned advantage is the speed and ease with which enquiries can now be handled (National Maritime Museum, Royal Academy and Southampton Archaeology Museum). Both the Royal Academy and the Museum of the History of Science say that non curatorial members of staff, such as education officers and volunteers, can thus become better acquainted with the collections for their work. The staff of the Museum of London apparently use the catalogue of their Ceramics and Glass collection extensively. It contains very good quality images and the records are grouped in a convenient way. In the National Maritime Museum images from the catalogue are drawn on for illustrated talks, and it is reported that the catalogue improves the opportunity for publications as well. The Southampton Archaeology Museum in turn looks at other online museum catalogues to help them identify objects.

Other studies confirm this effect as well. The Shetland Museum's staff has become much more familiar with the collection, and the Aberdeen Art Gallery and Museum recounts in the Scottish Museums Council's report (2005: 46, 35) that it experiences general curatorial work benefits. In a conference paper the University of Alberta Museums report that the online database has helped them to assemble datasets for researchers (Rennick et al. 2004).

All these effects and uses of the catalogues are very varied. They differ for each museum and are due to different factors. It would not be possible to predict what specific effects the catalogue would have on internal working, but the evidence from these museums indicates that it would be almost sure that there will be some. There certainly were no reports of negative effects.

Loans

When museum professionals are preparing for an exhibition they might use the internet to help find objects to borrow from other museums and institutions. Some museums in our survey agree it is possible to receive loan requests through the online catalogue, but the National Museum of Ethnology is the only one that has actually experienced this. The Museum of the History of Science may have, but they have not yet collated the data. At the Museum of London they suggest they might use other museums' online catalogues for this purpose in the future. It seems that this is at present not a common effect, but it does occur.

In the Scottish Museums Council's report the Shetland Museum indicated that its staff use their online catalogues to prepare for loans. So the catalogue may also help internally.

Repatriation

It might be that online catalogues will stimulate requests for repatriation, since it becomes much easier for individuals and rights groups to find objects they want returned. Only two of the museums in the survey commented on repatriation. The National Maritime Museum says it has not happened yet, and the Royal Academy thinks it is not relevant to their collection.

In practice, repatriation of museum objects will mostly result from provenance research conducted by the museum itself, guided by the several guidelines and laws that exist on the subject. LACMA for example has been involved in such a Provenance Research Project since 1999. Again, although there is still very little known about this effect, it seems not to be very important.

Other Effects

An effect indicated by the museums is income generation. Museums which include images in their catalogue and have a reproduction department that sells images can gain additional income when they combine both. At the National Maritime Museum this is the case for example. There is no information on the amount of income or the impact of this. At Southampton Archaeology Museum they hoped they would experience this effect but they did not say if it had occurred.

Effects on Visitors

Access

Online catalogues might open up access materially, geographically and intellectually. More of the collection will be open to the public than can possibly be presented in the museum's galleries because objects that are in storage or on loan can be enjoyed as well if they are included in the catalogue. People who cannot physically visit the museum because of long distance or disability or who refrained from visiting because of all sorts of practical problems can now enjoy the objects online (Bowen et al. 1998; Smith 1998). Finally, with the online catalogue museums might be able to give more information or information than could not be supplied in an exhibition (Smith 1998). The physical space of an exhibition is always limited and it has often been questioned whether visitors read much of the text anyway (Coxall 1996: 204; Kentley and Negus 1989: 1; Screven 1995: 97). The internet is perhaps a more textual medium, where people can visit as often as they want (Davies 2001).

Obviously, access is facilitated by online catalogues. Statistics have already shown that the number of visitors to museums' websites is much larger than the number of actual visitors (Soren and Lemelin 2004: 71, 80). So the amount of people that have access to the collections via the online catalogue will be potentially larger as well. There is one barrier though. The visitor has to have all the necessary equipment and skills for surfing the internet. Its users are often as limited in terms of age, ethnicity, social class, etc., as are real-time visitors (Haley Goldman and Wadman 2002).

Online catalogues do have a positive effect on access. Museums participating in the survey give plenty of evidence. The Southampton Archaeology Museum principally serves people from the local area. It receives comments on its online catalogue from people all over the world, for example from Belgium, Iraq and the USA. Similarly the Powerhouse Museum receives more overseas enquiries. At LACMA they feel that a wider variety of people request permission to use images from the catalogue. This means their audience has broadened, now including a broader range of people, who for example want to use the images for their websites. A different study has shown that online users are younger, live further from the museum and are more often employed than actual visitors (Herman et al. 2004). These last two elements are factors which would indeed deter them from physically visiting the museum due to distance and time limitations.

The conclusion is here that the audience of online catalogues differs from the actual audience which means that access is improved.

Research

Depending on the quality and depth of the data provided, researchers should be able to find information more easily, whereas before they had to visit libraries and museums or ask them for the necessary information. Research that would have otherwise taken months or years could now be achieved in far less time (Bowen et al. 1998).

Indeed, the researchers contacted for this paper were all very enthusiastic about online catalogues. Half of them expressed the wish that more museums would put their collections online in such a way. The advantages they collectively list are the following: research is quicker, it is made easier by search facilities, it is cheaper than buying books and having to travel, the catalogue is accessible to anyone who wants to do research without having to present credentials, there are no time restrictions or opening hours and you can work from a more comfortable environment of your choosing. One researcher also described how the catalogue can be used to prepare for a visit, so that no unnecessary questions are asked and no time is wasted.

However, the researchers made it clear that this is only true for catalogues which have good illustrations and which comprise the full collection. Nothing seems to frustrate them more than partial catalogues. Images appear to be of the utmost importance to researchers. Every single one of them mentions that he/she uses the catalogue primarily for images or emphasises their value.

The Museum of the History of Science, whose collection is especially aimed at researchers, is sure of the worth of its online collection as a resource because of the many complaints they receive when it breaks down. The National Museum of Ethnology is also aware of a more intensive use of their collections for research. Museum curators themselves also use online catalogues for research. The Powerhouse Museum, the National Maritime Museum, the Museum of the History of Science and the National Museum of Ethnology indicated this.

Learning

A more problematic question is: Do people really learn from online catalogues? To prove that learning is stimulated would be very difficult, as it is for real-time visits (Hein 1998: 134-5; Falk and Dierking 2000: 149-150). Visits to a website, or online database, tend to be much shorter than a visit to the museum (Haley Goldman and Wadman 2002; SMC 2005: 34). This would mean that learning from virtual visits is less likely. There have been no studies on the direct effect of online catalogues on learning, but what we can see is that the databases are being used for educational purposes, by teachers, students and lifelong learners. For example, one of the researchers mentions that she uses the Petrie Museum's catalogue for teaching in adult education by collecting picture material for lectures. Another person recounts how the same database has helped her solve weekly tasks for an online Egyptology course at university. The Southampton Archaeology Museum knows of students and teachers being among the users of the online catalogue, though not for what purposes. A curator from the National Museum of Ethnology testified how students of all ages refer to the catalogue in their enquiries. Kravchyna and Hastings (2002) have also noted that students are the second largest group of users to search collections, although they do not say if this is for educational purposes or not.

At LACMA however they have very recently concluded an evaluation session with teachers (D. Folsom, pers. comm. 18 August 2005). Out of nine teachers, seven found the object information provided by the catalogue useful for planning lessons. Five of them thought it could be used for student assignments. The teachers were also very enthusiastic about the Image Viewer in the online catalogue. Six out of eight responded with a firm 'yes' to the question if they would ever ask their students to use this feature. In their professional opinion they noted that school children could gain a lot from looking at the Collection Online.

This shows that LACMA's online catalogue has a serious potential for educational use. Combined with the other information given here, it therefore seems very likely that online catalogues are being used in this way. What LACMA's study also shows is that the educational use greatly depends on the amount and quality of the information. Interpretive information will obviously facilitate learning much more than purely descriptive data (Bennett and Jones 2001). Also important are the extras that come with the online tool, such as the Image Viewer. So we cannot generalise from LACMA's results, although they reinforce other sources which have found that teachers value online catalogues for images and for the information available (SMC 2005: 17; Kravchyna and Hastings 2002).

A project that should be mentioned is the Digital Cultural Heritage Community Project which digitised material from Central Illinois museums, archives and libraries especially for school curricula (Bennett and Jones 2001). Online catalogues can be tailored for teaching, just as for research.

So the online catalogue is only a tool in addition to teacher resources and special educational packs, but it seems it is nonetheless useful.

Real-Time Visits

For the visitor there might be a link between a visit to the online catalogue and a real-time visit to the museum. Consulting the catalogue before the visit might have an influence on what objects are actually seen. The museum experience might be more structured and planned in advance. It might have a broad effect on the choice of galleries for example.

We have not been able to gather much data on this effect. CHIN's 2005 study reports that visitors are very keen to find images of objects online after a visit to the museum. An online catalogue would of course be a primary resource for this. When planning for a visit, though, only 8% said they were looking for images of objects. The Royal Academy on the other hand mentions that visitors who come to look at objects in store have often been to the website beforehand. The Hunterian Museum in Glasgow, too, reports how visitors use the catalogue to review the collection and save time and effort to decide what they want to see in the galleries (SMC 2005: 40). More research will be necessary to draw firm conclusions.

From the Scottish Museums Council's report (2005: 45) we also learn that the Shetland Museum has computer terminals for collections access in the gallery. They appear to be so popular that staff believe they actually attract visitors in their own right.

Creativity

When people interact with the online catalogue, become inspired and consequently do something with the information in a constructive way, it has had a creative effect, similar to that which could arise from an actual visit to the museum. Artists might find inspiration in the works or objects they are able to see. Someone from the general public might just be moved or inspired by something they see or read.

For example, from the questionnaire we learn that the Museum of London has had two artists who came to the Ceramics and Glass store to sketch pots after seeing the collection online. The Museum of the History of Science claims its database has been used by artists as well.

Enjoyment

At home in a comfortable chair or even in the garden with wireless networking, the user can be fully at ease and enjoy using the online catalogue (Keene 2005: 154). It might just function as another form of entertainment, like watching TV or reading a book. By using the search tools visitors can reduce the collection to a selection of their preference. In a way, they can build their own perfect personal virtual museum (Smith 1998).

Some of the researchers indeed say they find using the catalogue more comfortable because they can access it from home. No other data was available to us however.

The Brooklyn Children's Museums however shows that online catalogues can aim to be fun (Fruchter and Alberty 2005). Their database is aimed at giving children an interesting experience. Some online catalogues are also made visually attractive, like the Canadian Museum of Civilization which presents the online collection as a store with the objects on racks (Keene 2005: Fig. 9.2).

Conclusions

In the first part of this paper we looked at the context for online catalogues. Research on the number of London museums with such an online database gave a figure of 20.1%, little different from the one Goldman and Wadman found in 2002. Although the figure is relatively low and museums with online catalogues are obviously mostly still the large ones, all the different museum types are represented and growth is expected.

In the remainder of the paper we have asked the question *What effects can museums expect their online catalogue to have?*. So far, little research has been done on this topic. We found a rather fragmented answer. It is certain that online catalogues can boost visitor numbers and increase access. They facilitate research and internal working and they can easily be used for educational purposes and loans. In contrast, there are many issues which remain uncertain. For security we have two opposing opinions. Repatriation requests through the catalogue do not seem to occur, but we need more information. Income generation can be a real effect but to what extent we have not been able to say. Finally, due to a lack of information from the visitors themselves, this paper could not shed much light on the effects on creativity, enjoyment and real-time visits.

If these results do not seem substantial, we can ascribe this to the fact that the museums that participated had not themselves investigated the questions addressed in this paper. Still, we can learn much from the replies.

First, it must be clear that there are no universal answers that apply to all online catalogues. They can come in an infinite variety of designs and contents. These two factors have an enormous influence on the nature and extent of effects that occur. Museums must be aware that they are very much in control. If they choose their design and content carefully, they can pretty much dictate what will happen. This requires thoughtful consideration of target audiences and aims.

Secondly, images have proven to be a very important part of the design. Both visitors and staff use them for all sorts of applications and expect to find them. Completeness and good quality information are also essential, especially to researchers and museum professionals.

Thirdly, this paper has shown the need for more specialised research. A methodological survey that questions the visitors should shed some more light on issues that have remained unexplored here. Hopefully, this paper will have opened the way and be of some use to further research.

A further question was: *Are online catalogues useful?* The evidence presented here shows that online catalogues are useful and meaningful tools with which to reach out to the public. With this conclusion we follow previous studies by Bowen and Kravchyna and Hastings. In 2002 the latter showed that searching the collections database is the prime reason for visiting a museum's website. The picture we get from this paper is not all sunshine and roses, but the positive effects have certainly outnumbered the negative ones.

References

- AMOL, 2004. AMOL's history and structure. Australian Museums and Galleries OnLine. [http://amol.org.au/about_amol/about_amol1.asp] [Accessed on 29 August 2005].
- Bennett, N. A., and Jones, T. 2001. Building a web-based collaborative database-does it work? Bearman, D. and Trant, J. (eds.), *Museums and the Web 2001: Proceedings*. Pittsburgh: Archives and Museum Informatics. [<http://www.archimuse.com/mw2001/papers/bennett/bennett.html>] [Accessed on 12 June 2005].
- Bowen, J., Bennett, J. and Johnson, J. 1998. Virtual visits to virtual museums. Bearman, D. and Trant, J. (eds.), *Museums and the Web 1998: Proceedings*. Pittsburgh: Archives and Museum Informatics. [http://www.archimuse.com/mw98/papers/bowen/bowen_paper.html] [Accessed on 13 June 2005].
- Bowen, J. 1999. Time for renovations: A survey of museum websites. Bearman, D. and Trant, J. (eds.), *Museums and the Web 1999: selected papers from an international conference, New Orleans, Louisiana, March 11-14, 1999*, 163-172. Pittsburgh: Archives and Museum Informatics.
- CHIN, 2000. *Capture your collection: a guide for managers planning and implementing digitization projects*. Canadian Heritage Information Network. [http://www.chin.gc.ca/English/Digital_Content/Managers_Guide/] [Accessed on 30 December 2005].
- CHIN, 2005. *2004 Survey of visitors to museum's web space and physical space: Survey documentation and findings*. Canadian Heritage Information Network. [http://www.chin.gc.ca/English/Digital_Content/2004Survey/index.html] [Accessed on 20 July 2005].
- Coxall, H. 1996. Issues of museum text, in Durbin, G. (ed.), *Developing museum exhibitions for lifelong learning*, 204-212. London: The Stationary Office.
- Davies, R. 2001. Overcoming barriers to visiting: raising awareness of, and providing orientation and navigation to, a museum and its collections through new technologies. *Museum Management and Curatorship* 19 (3), 283-295.
- Falk, J. H. and Dierking, L. D., 2000. *Learning from museums: visitor experiences and the making of meaning*. Oxford: AltaMira Press.
- Haley Goldman, K., and Wadman, M. 2002. There's something happening here, what it is ain't exactly clear. Bearman, D. and Trant, J. (eds.), *Museums and the Web 2002: Proceedings*. Pittsburgh: Archives and Museum Informatics. [<http://www.archimuse.com/mw2002/papers/haleyGoldman/haleygoldman.html>] [Accessed on 12 June 2005].
- Hein, G. E. 1998. *Learning in the museum*. New York: Routledge.

- Herman, D., Johnson, K., and Ockuly, J. 2004. What clicked? A report on audience research and media resources. Bearman, D. and Trant, J. (eds.), *Museums and the Web 2004: Proceedings*. Pittsburgh: Archives and Museum Informatics. [http://www.archimuse.com/mw2004/papers/ockuly/ockuly.html] [Accessed on 11 June 2005].
- Keene, S. 1998. *Digital collections: museums and the information age*. Oxford: Butterworth-Heinemann.
- Keene, S. 2005. *Fragments of the world: uses of museum collections*. Oxford: Elsevier Butterworth Heinemann.
- Kentley, E., and Negus, D. 1989. *Writing on the wall: a guide for presenting exhibition text*. London: National Maritime Museum.
- Kravchyna, V., and Hastings, S. 2002. Informational value of museum web sites. *First Monday* 7 (2). [http://www.firstmonday.org/issues/issue7_2/kravchyna/index.html] [Accessed on 12 May 2005].
- Marty, P. F., and Twidale, M. B. 2000. Unexpected help with your web-based collections: encouraging data quality feedback from your online visitors. Bearman, D. and Trant, J. (eds.), *Museums and the Web 2000: Proceedings*. Pittsburgh: Archives and Museum Informatics. [http://www.archimuse.com/mw2000/papers/marty/marty.html] [Accessed on 12 June 2005].
- Museums Association, 2005. *Collections for the future*. Museums Association. [http://www.museumsassociation.org/asset_arena/text/ns/policy_collections.pdf] [Accessed on 6 July 2005].
- National Maritime Museum, 2005. *Collections online*. [http://www.nmm.ac.uk/collections/] [Accessed on 2 August 2005].
- Peacock, D., Ellis, D. and Doolan, J. 2004. Searching for meaning: not just records. Bearman, D. and Trant, J. (eds.), *Museums and the Web 2004: Proceedings*. Pittsburgh: Archives and Museum Informatics. [http://www.archimuse.com/mw2004/papers/peacock/peacock.html] [Accessed on 12 June 2005].
- Rennick, P., Gatnicki, V., Whittome, J., Andrews, J. and Blondheim, F. 2004. The little search engine that could: how an on-line database is paving the way for enhanced access to research collections. Bearman, D. and Trant, J. (eds.), *Museums and the Web 2004: Proceedings*. Pittsburgh: Archives and Museum Informatics. [http://www.archimuse.com/mw2004/papers/rennick/rennick.html] [Accessed on 30 December 2005].
- Screven, Ch. G., 1995. Motivating visitors to read labels, in Blais, A. (ed.), *Text in the exhibition medium*, 94-132. Montreal: Société des Musées Québécois.
- SMC, 2005. *Museums, galleries and digitisation. Current best practice and recommendations on measuring impact*. Scottish Museums Council. [http://www.scotishmuseums.org.uk/pdfs/Publications/Digi_impact_full.pdf] [Accessed on 30 December 2005].
- Semper, R. 1998. Bringing authentic museum experience to the web. Bearman, D. and Trant, J. (eds.), *Museums and the Web 1998: Proceedings*. Pittsburgh: Archives and Museum Informatics. [http://www.archimuse.com/mw98/papers/semper/semper_paper.html] [Accessed on 7 June 2005].
- Smith, S. 1998. Digitising collections: the redefining of museums. Bearman, D. and Trant, J. (eds.), *Museums and the Web 1998: Proceedings*. Pittsburgh: Archives and Museum Informatics. [http://www.archimuse.com/mw98/papers/smith_s/smith_s_paper.html] [Accessed on 7 June 2005].
- Soren, B., and Lemelin, N. 2004. "Cyberpals!/Les Cybercopains!": a look at online museum visitor experiences, *Curator* 47 (1), 55-83.
- Thomas, W. A., and Carey, S. 2005. Actual/virtual visits: what are the links? Bearman, D. and Trant, J. (eds.), *Museums and the Web 2005: Proceedings*. Pittsburgh: Archives and Museum Informatics. [http://www.archimuse.com/mw2005/papers/thomas/thomas.html] [Accessed on 12 June 2005].

Thomson, K. 2002. *Treasures on earth*. London: Faber and Faber.

Ward, K. 2005. *The impact of online search tools*. Museums Computer Group, email list, 30 June. [http://www.museumscomputergroup.org.uk/email_list.htm] [Accessed on 2 July 2005].

Websites

24 Hour Museum

<http://www.24hourmuseum.org.uk/>

Aberdeen Art Gallery and Museum

<http://www.aagm.co.uk/code/emuseum.asp>

Ashmolean Museum (Ancient Near Eastern Terracottas) <http://www.ashmol.ox.ac.uk/ash/amocats/anet/HomePage.html>

BRICKS Integrated Project

<http://www.brickcommunity.org/>

Brooklyn Children's Museums

<http://www.bchildmus.org/>

Canadian Museum of Civilization

<http://www.civilization.ca/>

Courtauld Institute of Art

<http://www.courtauld.ac.uk/>

Digital Cultural Heritage Community Project

<http://images.library.uiuc.edu/projects/DCHC/>

Dulwich Picture Gallery

<http://www.dulwichpicturegallery.org.uk/>

Egyptologists' Electronic Forum

<http://showcase.netins.net/web/ankh/efmain.html>

Global Egyptian Museum

<http://www.gloalegyptianmuseum.com>

Guildhall Art Gallery

http://www.cityoflondon.gov.uk/Corporation/leisure_heritage/libraries_archives_museums_galleries/guildhall_art_gallery/

Hackney Museum

<http://www.hackney.gov.uk/index.htm/cm-museumhtm>

Hampshire County Council Museums Service

<http://www.hants.gov.uk/museum/>

Hayward Gallery

<http://www.hayward.org.uk/>

Horniman Museum

<http://www.horniman.ac.uk/>

Hunterian Museum

<http://www.hunterian.gla.ac.uk/>

JOCONDE

<http://www.culture.gouv.fr/documentation/joconde/fr/pres.htm>

Los Angeles County Museum of Art

<http://www.lacma.org/>

Louvre

<http://www.louvre.fr>

MUSENOR

<http://www.musenor.com/>

Museum of Domestic Design and Architecture

<http://www.moda.mdx.ac.uk/>

Museum of London (Glass and Ceramics

collection) <http://www.museumoflondon.org.uk/ceramics/>

Museum of the History of Science

<http://www.mhs.ox.ac.uk/>

Museums and the Web

<http://www.archimuse.com/conferences/mw.html>

National Gallery

<http://www.nationalgallery.org.uk/>

National Museum of Ethnology Leiden

http://www.rmv.nl/rmv/e/index/fr_opening.html

Old Operating Theatre
<http://www.thegarret.org.uk/>

Petrie Museum
<http://www.petrie.ucl.ac.uk/>

Powerhouse Museum
<http://www.phm.gov.au/>

Royal Academy of Arts
<http://www.royalacademy.org.uk/>

Shetland Museum
<http://www.shetland-museum.org.uk/>

Southampton Archaeology Museum
<http://sccwww1.southampton.gov.uk/archaeology/>

Spurlock Museum
<http://www.spurlock.uiuc.edu/>

The Giza Archives Project
<http://www.gizapyramids.org/code/emuseum.asp>

University of Alberta Museums
<http://www.museums.ualberta.ca/>