

The Mediated Window: Enabling remote presence to cultural heritage sites

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Abstract

Based on a case-study where the Museum of National Antiquities in Stockholm, Sweden was extended to an archaeological excavation site, this paper addresses the potential for increased public access to cultural heritage sites by means of video mediated communications and outreach activities. A recently formed interdisciplinary research group representing skills in designing mediated environments as well as public archaeology have carried out the study in the summer of 2008. A “*Mediated Window*” was designed for the occasion, enabling visitors to remotely experience presence and interact between two locations, thus creating an architectural, mediated extension of space. Preliminary results confirm that presence in mediated spaces is to a high degree dependent on eye contact, can be achieved inexpensively but that many different design variables and illusory techniques borrowed from film, architecture and theatre must be addressed in designing presence. The paper argues that such new design contexts require combined skills in architectural design, user interaction and media technology. Results also show that large numbers of visitors, but also new categories of visitors, can be reached when mediated communication is applied to cultural heritage contexts, in combination with public learning activities outside museum buildings.

Keywords

Mediation, mediated museum, presence, presence production, design, museum architecture, video mediated communication, mediated spaces, *Mediated Window*, immersive environments, interactive exhibitions, cultural heritage processes, public archaeology, Stockholm Art and Industry Fair 1897, modern cultural heritage, collective memory, outreach, participatory design, participatory action research

Introduction

In 1897, Stockholm hosted a renowned art and industry fair, which, with its 1,5 million visitors over six months, is one of the largest public attractions in Sweden ever. The fairgrounds, located in a park area called Djurgården, constituted a pavilion-city specifically designed for the event. Both in form and content, the numerous buildings expressed high expectations and ambitions of a Swedish modern society, displaying industrial, societal, architectural and artistic innovations (Fig 1). The fair included a half-scale replica of the medieval city of Stockholm – “Olde Stockholm” – where visitors encountered modern inventions placed in a historic setting (Fig. 2). The fair is

well documented but most buildings were taken down and very few visible traces remain on Djurgården today. Due to its importance in its time, the large number of visitors and wide-spread souvenirs, the 1897 fair still reverberates in public memory. This part of Djurgården was frequently the setting for cultural events, also before 1897. It is today a very popular recreation area but, contrary to what its historical importance would imply, it is not at all recognized as a *cultural heritage site*.

The search for a lost city

During two weeks in the summer of 2008, the Museum of National Antiquities, which is situated in Stockholm, was extended by means of video mediated communication to a public archaeological excavation site on Djurgården. The location of the replica of the medieval city – “Olde Stockholm” – was selected as the excavation site. This is today an abandoned little island reclaimed by nature and it is very difficult to imagine the scale and amount of buildings that occupied the site in 1897 (Fig. 3). Guided by professional archaeologists, the general public was invited to participate in the excavation searching for remains of “the lost city”. The event also included an exhibition in the museum as well as an appeal to visitors, inviting them to contribute with oral histories and objects relating to the 1897 fair. The exhibition design included outdoor features to connect the two spaces. For example, a grass-green carpet and a park bench and road sign, identical to the kind used on Djurgården were used inside the museum. (Fig 4.) A “*Mediated Window*”, located by the bench, allowed museum visitors to see, talk and attend the excavation remotely. Approximately 7000 visitors took part in the event, either by extension from the museum exhibition or by visiting the excavation on Djurgården (Fig. 5-6).

The Mediated Museum

The project constitutes a pilot case study for the recently formed Mediated Museum research group (<http://www.mediatedmuseum.se>). This is a collaboration between researchers in archaeology, architecture and media technology aiming to inform cultural heritage pedagogy and museums practices by exploring the contribution from new participatory design contexts and public archaeology, involving media and communications. In combining our different research methodologies we strive to develop an interdisciplinary research strategy to this field of research, based on a *participatory action research* framework within archaeology (Reason & Bradbury (eds)

2008); and based on *research by design*; *user observations* and *design-driven innovation* from the fields of architecture, design and presence research.

The pilot study has explored the relationships between on the one hand prevailing museum theory and practices such as *visitor interaction*, *collection processes* (Bennett 1995; 2004; Pearce 1995; Knell 2004), heritage *definitions* and on the other hand new practices of a participatory excavation framework and collection process as well as an interest in collective memory by developing:

- innovative forms of communication between a museum and its visitors (*The Mediated Window*, *video mediated spaces*, *design of immersive environments*)
- public participation and access to cultural heritage sites (*public archaeology*, *participatory action research*)
- the definition and collection of *modern* cultural heritage sites and artefacts (cf. Lowenthal 1996; Buchli & Lucas 2001; Thomas 2004; Holtorf 2005).

Designing presence and mediated spaces

There is a large body of existing research into the experience of presence over the past 15 years, which informs the design of video-mediated spaces and environments.

Research was initially based on the assumption that an improved medium and improved sensory channels automatically generated better presence. Later studies involving user perspectives have explored presence as a ‘product of the mind’, more independent of technology (Freeman et al 2001; Ijsselstein & Riva 2003). Scientific results from the study of human cognition and perception in virtual and video mediated environments have been based on confirmatory methods to advance our understanding of the presence experience as “a perceptual illusion, presence is a property of a person” (Lombard & Ditton 1997).

In recent years the cost of media and communications technology has dropped dramatically in conjunction with improved technical performance. Presence technologies are currently widely accessible at a lower cost. Quite surprisingly, and perhaps due to a lack of interdisciplinarity, research has had little influence on the parallel development of presence technologies. Over-engineered technologies promoting “immersive” environments and meeting spaces designed for “telepresence” frequently ignore how users collaborate and communicate across time and space. There are, for example, few commercially available products that enable eye contact and few

which convincingly incorporate design variables and illusory techniques, imminent to relating practices such as architecture, film and theatre.

Previous research also addresses the experience of place and space as an important contribution to our understanding of presence for different applications (Dix et al 2005, Marti 2004), which is beneficial to recent attempts to specifically address the design context of mediated environments (Törlind 2002; Sallnäs 2004; Junestrand 2004; Ilstedt Hjelm 2004; Knudsen 2004; Gullström 2006; Chertoff 2008). Such *mediated spaces*, constituted of both physical and virtual tools, demand a resolution of contrary experiential and spatial concepts but there appears to be limited research concerning the impact of new media on the architectural language. The works of Manovich (2001) and Bolter (e.g. Bolter & Gromala 2003) feature architectural examples, Perrella (1998) has developed a *Hypersurface Theory* for architecture that does not assume real/unreal, material/immaterial dichotomies; and Zellner (1999) uses the term *hybrid space*, to challenge long-held conventions of space. *Hybrid spaces* are created in the breeding of ideas with form, the real with the virtual. A similar concept is *cybrid* space introduced by Anders (1999). One may argue that any derivation from physical space is to some extent *hybrid* or *cybrid*, making it a very broad, mixed reality-like, concept. Technologically enhanced physically environments are also explored within human-computer interaction (HCI) research (e.g. Turner & Davenport 2005) and often applied to interactive museum contexts (Taxén et al 2003; McCarthy & and Ciolfi 2008).

User-driven innovation and practice-based research at the Royal Institute of Technology (KTH) over the last ten years has focused on the development of video mediated environments and the importance of eye contact in presence design for work and learning contexts (Enlund 2001; Knudsen 2004; Gullström 2003, Gullström et al 2006; Handberg et al 2007, Räsänen 2007). The current case study applies such research to the context of museum and cultural heritage sites. The case study is carried out within a three-year research project funded by the Swedish National Heritage Board addressing the potential for mediated communications for remote presence and access to cultural heritage sites and other environments which (for different reasons) may be inaccessible, difficult to access or where physical presence would require physical alterations in risk of damaging the original artefact. The project involves the development of prototypes and installations which allow people to remotely experience cultural environments as an alternative, or complement, to actual visits.

Public archaeology and outreach

An interesting context is created when presence research and studies in public archaeology meet. In Sweden, Public Archaeology is a new multidisciplinary research area dealing with the relationships between professional archaeology and the general public (Marshall 2002; Derry & Malloy 2003; Merriman 2004; Svanberg & Wahlgren 2007; Little & Schackel 2007; the journal *Public Archaeology*). The emphasis is on creating interactivity in meeting the public, a broadening of archaeological mediation and reflection on, as well as developing, the significance of public interaction. The activities offer participation and co-creation by actively seeking new forms of collaboration with new partners (cf. Jason 2004). Public archaeology can be seen as a form of participatory action research (cf. Reason & Bradbury 2008), in which it is important to include a learning perspective. Such activities give access to archaeological knowledge and invite people to become partners in exploring the past (cf. Hooper-Greenhill 1995, 2000, 2007; Lang, Reeve & Wollard 2004).

Public Archaeology also brings to the fore the importance of understanding the contexts of archaeological and cultural-historical activity in present society. It is about increasing consciousness regarding how history and archaeology are created and function, as well as their relationships to other goals than the purely cultural-historical. In this way, it is also an undertaking that encompasses much more than the mediation of (popular) scientific results.

Design context

Based on previous prototyping, the design concept for a “*Mediated Window*” was adapted for this case study, in order to enable users to achieve eye contact and to experience presence remotely. The *Mediated Window* is, therefore, both a medium and a design feature delimiting the physical space in the two locations involved: the museum exhibition and the outdoor excavation site. The museum exhibition was designed in such a way that the window was perceived as a natural extension. Its measures (height 2m, width 0,9m) in the museum allowed visitors to follow what was going on at ground level (the digging) as well as experiencing people further back and sensing the landscape, trees and surrounding sky. The verticality of the window, its form and materials, suggesting a glass-door with a horizontal bar, contributed to the architectural and spatial qualities of the *Mediated Window*.

Aiming to show that remote presence can be achieved at limited cost, the designs were based on commercially available audiovisual communication equipment of good quality, however not the most exclusive, and a beam-splitter design concept enabling eye contact which had been previously developed and tested as a prototype (Fig 7.). To enable communication in real-time and minimize delay, a direct fibre link was set up between the museum and the excavation site. Technically, it was a new challenge for the design team to work out of doors with demanding and varying climatic and lighting conditions during the two weeks the installation endured. A small tent was used to protect the construction and communications technology for the *Mediated Window* which was dismantled at the end of the day and recomposed every morning. The window on the excavation site had smaller measures (height 1,2m, width 0,9m) than the museum window, but was similarly designed in the form of a glass-door.

Prior to the event, it was difficult to foresee how mobile and flexible the *Mediated Window* would have to be in relation to the excavation process and assumed weather changes. Because many visitors were expected on the island, there was initially a focus on establishing a well-functioning excavation site that would expand over the two weeks of public activities. In consequence, the window would have to follow (or at least swivel to provide a different camera view) if the digging activities moved. To protect the main excavation site, a light roof construction was decided upon. This provided a space where visitors would receive information about the digging procedures, where queue-lists were made and where findings were assembled, sorted and categorised, and which naturally directed the placement of the *Mediated Window*.

User Context

Almost 5000 people visited the island during the two weeks the *Mediated Window* was in use. In addition, several thousand visited the museum – but our statistics do not distinguish those who specifically visited the 1897 exhibition and the *Mediated Window* in the entrance hall of the museum. Compared to last year's figures, however, the museum recorded an increase which suggests that about 2000 visitors approached the *Mediated Window* in the museum, hereby indicating a total of approximately 7000 visitors. All in all, 400 people (of whom approximately 70% were children under 15 years of age) signed up for an hour of digging alongside professional archaeologists.

Many of those visiting the island were passers-by who were spontaneously attracted by the event. They therefore constitute a different category to those usually

visiting the museum. Most had never come across anything similar to the *Mediated Window* before. Other visitors had been especially invited to experience *The Mediated Window*, some of whom may be referred to as ‘*experienced users*’ of mediated communication. Although no measures were taken to identify the number of visitors belonging to different categories, a difference in the perception of ‘*new users*’ versus ‘*experienced users*’ could be detected. Some of the observations were recorded through interviews and discussions.

Many visitors who arrived on the island appeared either stunned by the big images visualising the past, or intrigued by the activity of archaeologists and consequently asked questions – or waited to be informed. An almost passive consumer attitude could be noticed, characterised by questions such as “–What is going on here?” and “–Were all this buildings actually built in 1897?” or “–Why are they no longer here?”. This initial hesitation was soon contrasted by the open invitation and possibility to (1) actively participate in the digging; and (2) interact with people remotely present, which many visitors responded to.

A visitors’ tour emerged – partly guided remotely

At both locations and at all times, several members of the research team including professional archaeologists were on site to inform and guide users. It had been determined that all researchers would actively participate in guiding visitors through the different activities. The roles of ‘guides’ vs. ‘observers’ had been discussed prior to the event but no clear definition had been decided upon. Instead, the roles were defined through practice and depended greatly on the interest and skills of those present. What emerged over the two weeks was “a visitors’ tour” where researchers had taken on informal roles as ‘guides’ and would lead visitors between 3-5 distinctly defined spaces which may be referred to as: the *reception area*; the 2-3 *digging sites*; and the *Mediated Window* e.g. the museum extension. In the reception area, a guide would provide the context of the current excavation, inform about the exhibition of 1897 and typically answer questions such as “–Why on earth were all these buildings taken down?” or “–Will you rebuild them later?”

After an introduction and depending on the curiosity of the visitors, the guide would point out the on-going digging and visitors would move on to the next space, asking “–What have you found?” and “–What is the oldest item you have found so far?” Archaeologists in charge of the digging would then take over the tour. Many visitors

were interested in seeing the findings from previous days and a box would be pointed at which contained the bits of glass, china, bone and building materials found over previous days. The box was placed by the bench or just beneath the *Mediated Window*. Similarly, visitors in the museum were curious to see what was in the box, which was visible on the ground as one looked ‘through’ the window. This placement allowed for ‘remote guides’, as well as remote visitors to engage in conversation across time and space, explaining and discussing what the objects in the box were.

The role of the *Mediated Window* – Was the museum extended to the island or was the island extended to the museum?

As the excavation proceeded, more ‘guides’ and ‘observers’ were always at hand on the island than at the museum, and although the museum exhibition was informative and contained interactive elements, it remained static in comparison to all the activity on the island. One Sunday, for example, the island had more visitors than the museum as a whole.

Some *experienced users* at the museum expressed that, although they felt present whilst communicating with people on the island, they also felt they were ‘looking out onto’ activities on the island. They were, in other means, not fully participating on equal terms. Some referred to a feeling of separation, which is quite naturally embedded in the experience of remote presence. The *Mediated Window*, after all, represents a physical separation. Furthermore, once visitors realised that digging activities also (and increasingly) took place outside the window frame, there was a curiosity and a wish to see more. In spite of a relatively large window, there was a limit to what the camera view allowed museum visitors to see. For this reason a mirror was temporarily introduced to the user context on the island – thus enabling museum visitors to see ‘a little more’ (an experiment that has been taken a step further in later prototyping for ‘a mediated scientific conference’)

Some *experienced users* on the island also expressed that they felt little inclined to follow what was going on in the museum which may partly be explained by their personal interest in the excavation process. Perhaps also because they were out of doors e.g in a brighter space and were looking into a darker one, it was difficult to adjust to the darkness and, in consequence, the interest in a general conversation with researchers and visitors at the museum, was limited.

Both visitors and guides contributed in defining the spatial experience; little by little a feeling grew that the *Mediated Window* was directed in the sense towards the island – users would preferably look out, into the landscape – rather than look into an enclosed space. Here, one might argue that windows in traditional physical settings similarly have a ‘sense of direction’. Looking out onto a busy street is different, and never the same, as looking into someone’s kitchen. Similarly, the benefit of speaking through such a window will always depend on the context and narrative of the dialogic interaction. It is not our ambition here to further explore the individual experience of participants on different sides of a *Mediated Window*. Instead, we have wished to understand the benefit of the *Mediated Window* in a context of learning and knowledge dissemination, e.g. the museum practice. We can conclude that the *Mediated Window* has functioned well in such a context; many users experienced a strong sense of presence and often forgot they were talking through a *Mediated Window*. Our experience shows that it was more rewarding to look out (onto the island, rather than into the museum), which suggests that the museum building incorporated the excavation site: a mediated space was created, and the museum was *spatially extended to the island*. We also noted that the interaction through the *Mediated Window* depended greatly on the visitor’s personal interest in learning or discussing ‘1897’ or the findings; from which we conclude that narrative aspects are of great importance and that we, ourselves, played key roles as ‘guides’ in this process.

Personal accounts and narratives

As part of the exhibition and excavation process, visitors were also asked to contribute with personal accounts and memories concerning the 1897 events. We received all kinds of accounts. One visitor spoke of her grandparents who had attended the fair and showed us souvenirs and keepsakes she had inherited. Others related stories about relatives who had lived in the Djurgården area prior to the development or who had visited the fair. Many emphasised that, based on the accounts, the fair must have been ‘a once in a lifetime experience’ for those who had the chance to participate; and something that they, supposedly, would have returned to in memory for the rest of their lives. All in all, about 60 people contributed with personal narratives.

The process clearly showed that such objects are important features for storytelling and oral traditions in a modern society. Interestingly, several public narratives included previously unknown information, such as e.g. the existence of a shanty town

on the site before 1897 and from which the inhabitants were evicted, in order to make space for the fair.

A new interactive museology

We know that many visitors were interested in the unique possibility for non professionals to participate in an archaeological excavation and also wanted to contribute with personal perspectives on past events. Many of these chose to visit the island instead of the museum. Although there was staff on both locations, one may argue that the museum extension on the island had more potential to act as "a forum" than the indoor exhibition, which means it could meet many of the characteristics for "new museums" (Message 2006).

An interactive perspective is very much needed in the field of cultural heritage. A public oriented focus would not only enable increased public access to important sites, but also provide institutions with new opportunities to develop their practices. Our case-study illustrates the potential for such an inclusive public approach, where the gathering of personal narratives can provide a new basis for public dissemination contexts, as an alternative to prevailing outreach activities where museums traditionally target community groups. The process of renegotiating the relationship between a museum and its users may generate new museum practices and by consequence benefit more people. Such interactive approaches to future museum practices (including self-reflection) have been referred to as *the new museology* (Vergo 1989; Weil 1990; Applegate Krouse 2006).

Concluding remarks

The public activities of this pilot study ended in September 2008 and the assessment of the study is still in progress. For now, we can provide the following preliminary conclusions and reflections:

(1) *The Mediated Window* as an enabler for remote presence

–The extension of the museum to the 1897 cultural heritage site by means of the *Mediated Window* enabled an increase in public access, also for new categories of visitors, as well as an increased understanding for cultural values.

–The *Mediated Window* successfully enabled a sense of presence between users in two locations, many of whom expressed they “forgot” they were in an artificial mediated environment.

– The experience of presence was supported by the design of the *Mediated Window* which enabled eye contact and embedded features from other disciplines, such as architecture, theatre and film, designs which requires combined skills in architectural design, user interaction and media technology.

–The experience of presence is highly dependent both on narrative aspects of the dialogic interaction; as well as on the interest to communicate; and the personal experience of those involved.

(2) The interactive approach to museum outreach and public archaeology

–Public activities outside a museum evoke an increased public interest in the museum and provide an inclusive learning context. The interrelation between different historical sites, museum displays and communicating parties addresses the concepts of time and space in relation to historical events. The discursive framework also addresses questions about the meaning and usage of history and heritage.

- The public excavation, in conjunction with the invitation to contribute with personal accounts, souvenirs and memories, engaged a wide range of people. Hereby questions were raised regarding cultural heritage as well as the value of a site, an artefact and of collective memory processes. Such interactive processes may contribute to a renegotiation of the relationship between the museum and its users and, in turn, inform museum practices.

- Public accounts and narratives added new perspectives to previously articulated knowledge regarding the Stockholm Art and Industry Fair 1897.

(3) The Mediated Museum and its potential for the field of cultural heritage research

By its extension to a recreational area, where people prefer to spend time in late summer, the museum was able to attract new categories of visitors. A general curiosity was evoked by many parallel activities; the exhibition; the open invitation to participate in the excavation; informative staff and researchers on site; the *Mediated Window* enabling remote presence; press coverage; findings from 1897 and earlier; as well as the joint presence of a museum and a university on such an unlikely location.

The current pilot study does not allow us to distinguish one specific activity which was more effective than others in terms of attracting new user groups. Instead, we suggest that the interactive process as a whole has contributed in creating a renewed public interest in this cultural heritage site which, despite its role in development of modernity in Sweden, has been almost forgotten. The pilot study has illustrated the potential for a new context for disseminating knowledge, and it is the intention of the Mediated Museum research group to continue our exploration of how presence research may inform both cultural heritage pedagogy and museum practices. We aim to use similar user studies with a focus on enabling remote presence to and from cultural heritage sites:

–by further exploring the Djurgården example; its value as a modern cultural heritage site and collective memory collection processes;

–by designing prototypes that enable remote presence through larger mediated windows and walls, and involving several locations, hereby addressing the concept of mediated architectural extensions of museum buildings;

–by selecting other sites and artefacts which (1) are currently inaccessible for visitors, either because they are geographically separated from visitors and cannot be moved; or because they are inaccessible to visitors; and/or sites which (2) have the potential to address important issues for cultural heritage practice, such as the assessment of cultural heritage sites and the implementation of new procedures.

– thus focusing on designing public and interactive activities enabling physical as well as remote presence to cultural heritage sites, also through participatory design and collaboration with specific user groups, such as disabled persons.

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Figure Captions

Fig 1. The Stockholm art and industry fair in 1897

Fig 2. The 1897 half-scale replica of the medieval city of Stockholm – “Olde Stockholm”

Fig 3. Cf.. Fig 2. The same view in 2008 overlooking the excavation site

Fig 4. The exhibition design at the museum included outdoor features for example a park bench (replicated on the island) placed by the *Mediated Window*.

Fig 5. Visitors at the excavation site with the *Mediated Window* in the background

Fig 6. Visitors at the museum talking through the *Mediated Window*

Fig 7. The design concept of the *Mediated Window* enabling a sense of presence and eye contact between visitors in two locations