Memory Connection
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Abstract

The new museum is interactive; it entertains and informs the public about the past and thus connects museum visitors with heritage and history. New-media (or digital) interactive installations are not new to the museological environment. Simulated scenarios, aimed at educating children, have long been implemented in museum learning zones. With digital technology now a part of our everyday interactions, museum visitors of all ages are seeking the same level of immersion from their museum installations. New-media technology has afforded a substantial development to the way museums attribute memory testimony to collections of tangible artefacts. The digital environment enables a multi-layered platform for memory testimony exploration, which connects contextually displaced artefacts to environments, individuals, and society. Modern museums now have the difficult task of reviewing their archives and translating the rich history of this material through an interactive narrative. The successful employment of new-media technology is therefore an ever-evolving paradigm, with some museums implementing it more effectively than others. This article focuses on how new-media technology is currently implemented within museum exhibition design. It examines three projects currently installed within a museum context from the perspective of experience design generation practice and user-driven interactive development. The discussion seeks to identify good practice and formulate key areas in which to engage the audience through the development of new-media design.

Keywords: digital media, new-media technology, museum, interactive installations, augmentation, storytelling, memory media

This article will discuss the different ways that memory testimony is preserved and displayed within a museum context through a digital experiential discourse. First, it will describe what elements make for a good memory experience, and the problems encountered within a digital experience system. It will then discuss the differing levels of successful design implementation through a case study analysis of three interactive interfaces: (1) *Lifeline* at the Churchill Museum in London; (2) *Ourspace* at the Museum of New Zealand Te Papa Tongarewa; and (3) *Storytelling Memories*, the author's own work, created in completion of a Master of Design. [1,2,3]

The new museum

Museum exhibition design is in a state of change as visitors are seeking a more interactive and engaging experience with museum content. In response to this visitor museum experience, museum exhibition designers have implemented elements of new-media technology with varying effects. Museums have traditionally been repositories of collection and cultural preservation; large collections of artefacts and sorties, which cannot all be displayed at the same time due to their scale and quantity. The implementation of new-media technology has the potential to make available to the public vast quantities of content, enable them to view work not currently on display, and provide a more in-depth narrative into the history behind the artefact.

Another element of change is the desire from the public to be educated and entertained (or "edutainment"). This has created a new role and purpose for the museum: one of entertainment, engagement, and education. The application of new-media technology is not without problems. Edutainment is prone to be implemented to the detriment of the discourse of the actual memory in any depth. Technology itself is often implemented inadequately, relying on the interactive "magic" that new-media proclaims, rather than looking at situations where it can be seamlessly integrated into exhibition systems that extend meaningful narratives and display.

The importance of memory

A museum is a "house of memories", and these memories exist within every object and collection. They are what give each object a purpose and context within the display and are manifest in many forms (such as oral, physical, and sensory). However, it is still unclear as to how memories are best presented. The method of recording of memories through oral history programmes can inhibit flexibility in the way memory is displayed, due to the risk that descriptions can be portrayed out of context from the original meaning intended by the interviewee.

Many artefacts retained by museums do not contain "explicit memory" and therefore any narrative is implied based on association when displayed. There

is also a risk that, with the sheer number of artefacts collected and stored by museums, some objects are removed in favour of those with more depth of memory testimony and personal connection.

A museum may record a woman in her home or kitchen, but not her other lives, say as Friday night dancer, or bingo player, or cashier or daughter, or closet Tory, or lay preacher.[4]

New-media design has the capacity to maintain large databases of objects and associated memory—easily catalogued and accessed by visitors. For example, the Museum of Anthropology in Vancouver recently photographed and made available online their entire collection of indigenous artefacts.[5] Although the visitor can now experience each object, the scope of the database does not provide much depth of memory context behind each submission. Providing access for the visitor to more objects does not necessarily give a stronger picture of the memory testimony of each object. The narratives still need to be curated and formatted in order to create a meaningful experience for visitors.

What is a memory and what is an experience?

The overriding theme within the development of new museum installations is to create "experiences" and new-media technology provides a flexible and expansive format to recreate "worlds" behind any artefact. However, it is important not to confuse memory with experience. Memory is a witness of a previous experience, prompted by sensory recollection to recreate a scene personal to the remembered. Memories can be passed on and rebuilt from previous memories, but the important factor is that they have a personal connection and are built on the narrative of a personal experience. The sensation of creating a memory is the experience.

Experiences in a new-media context are also a fabrication, but rather than focusing on looking back, experience design is about projecting forwards, providing context for people to immerse themselves within (rather than be receptacles of) reflection and contemplation. If I experience something it is my memory; if I package it for you and tell you about this memory from my perspective, it becomes an experience for you. If the experience generation becomes too much the dominant force, then the visitor just witnesses the experience without any remnant of the original memory.

Modern museums want to engage their visitors, enlighten them, and give them something to take home. However, there is a real risk that if designers focus too much on the creation of the "experience", they miss the opportunity to exhibit the original experience (and therefore the original memory). It is within this translation that the meaning behind the memory becomes lost and potentially overwhelmed by the experience.

Usability for all ages

New-media technology in the form of touch screen interactives and digital games has been implemented over the past 10 years within a museum environment, in particular within children's educational sections. The use of technology such as touch screens, augmented reality, and video games has been regarded as more relevant to younger target groups and for aspects of exhibition design that may not require accurate credibility and seriousness. For example, there is an interactive kiosk within the Te Papa *Passports* exhibition which narrates through a game context how migrants were accepted into New Zealand.[5] The data is factual without reference to personal memories, but has the potential to be enriched with personal testimony. The visual language of the interface and step-by-step navigation enables visitors to gain a valuable insight into migrant culture. However, the interface is targeted towards children, and adults who seek a more mature discourse could disregard its validity as a tool of experience for all ages.

Usability for all ages is a very pertinent issue; younger audiences adapt easily to different forms of interaction, but older generations are also keen to explore new systems. However, modes of activation (from graphic icons to animated reactive content) can still baffle many visitors who do not understand new-media forms of navigation. This can cause visitors to feel marginalised and unable to access the exhibition. Even the use of a mouse to control a computer screen interface can be unintuitive for some visitors.-In contrast, other users may become bored if they already have familiarity with more advanced forms of technology.

The rules for a good experience

According to Nathan Shedroff, a leading researcher in "experience design": *Media has always facilitated the telling of stories and the creation of experiences, but new media technology offers capabilities and opportunities not yet addressed in the history of interaction and performance. … There are also few sources of information about these issues and the techniques used to meet them. This is new territory that is desperate for some new ideas and convincing explanations. It is also the most critical component to the success of interactive products and experience generation.*[6]

Digital experience design is not really any different in the way that a museum wants to target an audience to any other form of installation design. However, it is a fine line between implementing new-media design effectively, and allowing the media to overshadow the narrative and make an experience out of the technology alone. Another issue with new-media experience systems, as discussed by Carl Carliner in *Sensing Architecture*, is that "as museums attract a large number of diverse visitors, the technological components are not 'one-size-fits-all'".[7] This makes the technology difficult to manage by a percentage of visitors unless the

mode of interaction is intuitive. Visitors need to understand how to manipulate the tools they are given.

Another issue surrounds the content itself. It is not enough simply to add content into a database; the artefacts need context, a visual or literal descriptor to give them placement and meaning. Nathan describes data or content as fairly worthless in an experience generation scenario. To give the data any meaning it needs to be "organized, transformed, and presented in a way that gives it meaning".[8]

In a positive light, new-media interfaces can provide live feedback to the visitor with real-time reactions. For example, when visitors search through files within the Churchill *Lifeline* installation at the Churchill Museum (held in the Cabinet War Rooms in the United Kingdom), the folders automatically open for viewing. New-media can also recreate scenarios long past; Maya Zack's *Living Room* installation in the Jewish Museum in New York uses digital modelling to recreate a 1930s apartment in Berlin at the time the family fled.[9]

There is a formula to effective experience design, but as the subject is in its infancy, it is not a definitive solution to creating meaningful installations. However, there are several pointers that resonate amongst the research of experience designers. Carliner has summarised several elements pertinent to good new-media application within exhibition design.[10] He suggests that data or "memories" should be presented in a modular form, under an umbrella thematic that ties the shorter elements of narrative together. Data needs to be layered in a hierarchical manner so that the information can be "skimmed" and accessed in differing levels of immersion. The manner in which memories are displayed needs to be engaging and "capture curiosity" so as to encourage visitors to delve deeper to learn more. The technology used needs to be seamlessly "integrated into the exhibition language, so the visitor experiences the exhibit rather than simply a manner of dissemination".

The development of the Virtual Museum of the Collective Memory of Lombardia (MUVI) project also suggests ways to best implement memory within a new-media design context. Elisa Giaccardi states that within the project there is the suggestion of "interconnection". This means that the new-media technology has the ability to connect artefacts and memory in innovative ways to "virtually rebuild collections scattered around the world, organize exhibitions that last forever, produce virtual restorations and reconstructions, and have access to specialized information".[11]

This element of interconnectedness enables the modern museum to transcend physical boundaries of what is able to be exhibited and facilitate virtual representations of memory and objects, both within and without the museum itself. Giaccardi describes "iridescence" as a dominant factor—as a perception of how we "see" an object or a memory and how that object might be "seen" by different visitors. Iridescence in a digital context translates to the ability to have multiple narratives to describe each artefact or memory personal to the witness.

To end this analysis of emergent new-media technique, it is proposed that the following diagram frames the key elements in developing a meaningful memory experience. These factors will be used to discuss the three case studies below.

Context	*There needs to be a believable space for the memories to inhabit.*
Hierarchy	*Memories need to be presented in varying levels of of depth to engage all visitors.*
Feedback	*The interaction needs to have a timely response to the user.*
Navigation	*The user needs to be able to find their way intuitively through the system- Non-linear Navigation (Storytelling Navigation)*
Tangible	*The ability to touch and respond to the artefact.*
Iridescence	*Empowering the relationship between visitors and the experience, beyond the experience.*

Figure 1. An analysis and summary of the key points towards the implementation of good experience design within museum memory display.

Case study analysis

'Lifeline' at the Churchill Museum

Exhibition designers, Casson Mann, developed *Lifeline*, a 15-metre long reactive table documenting the life of Winston Churchill for the Churchill Museum in London. The surrounding exhibition space shows his life through artefacts that frame the table. The *Lifeline* table places Churchill's milestones alongside world events, each contained within a folder in a large filing cabinet projected onto the table surface.

Figure 2. The author at the Lifeline installation at the Churchill Museum, Cabinet War Rooms, U.K.

Mann argues the need to create a believable space for the memories to inhabit. A visual language was developed which he describes as "a virtual analogue recalling a pre-digital age dominated by paperwork, filing cabinets, folders, maps, telephones, and busy working desks—the stuff of Churchill's life". The interactive elements of the interface were readily interpretable by visitors and gave a real sense of physically engaging with someone's personal files.

The tactile form of interaction with the interface enables a close relationship for the visitors with the real world it synthesises, and also allows digital copies of sensitive documents and memoirs to be displayed without fear of degrading the originals through handling. As Mann notes, there are: "Folders and letters that you open almost by sliding the paper around, so you're doing a virtual version of what is instinctively a real thing to do."[12]

The memories needed to be presented in varying depths to accommodate the cursory view of some visitors and a more immersive enquiry of others. Mann describes: "The first challenge was to display a selection of archival material from an archive of over one million documents." The table provided a non-linear narrative of interaction with no pre-described route of discovery. Visitors could start at any stage of the 15-metre long table. The memories were broken into many small segments, easily navigated, which are juxtaposed with factoids regarding historical chronology.

The iridescent nature of the exhibition exists through the system of weaving Churchill's personal memoirs with historical facts. *Lifeline* responds to the visitor in unexpected and immersive ways; if you open a file at the date when the *Titanic* sunk, the entire table interface sinks beneath a tide of water which disrupts the files of all visitors (giving a sense of overarching circumstances which affect all people). However, some of the content of the files lacks a depth of content beyond short text snippets and images, and this is an area of immersion into moving imagery and interactive content that the table would have benefitted from.

Visitors can experience something of Churchill's world, even if they focus on the historical facts rather than his personal memoirs. The exhibition still leaves the visitor with an impression that he lived through a dynamic and eventful time period.

Ourspace at Te Papa Tongarewa

The *Ourspace* installation at Te Papa is designed to collect, preserve, and discuss the collective memory of New Zealand as a nation. The installation consists of an 18-metre long screen mapping this country's geography within the floor. The surrounding walls play associated still and moving imagery. A digital wall accompanies the interactive map where visitors are invited to "collage" their own memories and stories from a continuous database of heavily mediated images and videos. *Ourspace* is an ambitious project, which does not necessarily achieve good experience design.

Context is an element that has been largely left up to the visitor to form around their experience with the content, but it could be argued that the visitor requires a certain level of context in order to understand the elements which they are witnessing. The image wall offers no explanation as to what the images are and why they have meaning. However, as the images are applied simply as memory triggers, they have potential to enable the visitors to recreate constructed memory and simulate experience.

There is little hierarchy within the composition of the context, as all elements are treated with equal merit. Visitors have the opportunity to format images and video on the '"wall'" within their own hierarchy. Standing on reactive grids located on the "map" floor activates geographically located images and videos located in the walls.

Although the interactive map is reactive to pressure, the response to visitor activation lacks timely reaction, with feedback making the visitor often question what is supposed to happen when they stand on the map. Equally, when the visitor selects images to display on the wall, they are often displayed with other visitors' images making formatting and compositing each one's selected memories difficult. There is also a sense of control and extension given to the visitor (or iridescence), as they become the creator and curator of their own personal memories developed from the gathered media, albeit heavily mediated by the choice of available material and interface function.

Figure 3. Visitors interacting with 'The Map' at the Ourspace installation, Te Papa Tongarewa, Wellington, New Zealand.

Tangible wand controllers enable visitors to (both digitally and in real time) leave their mark on the wall and compile media with a sense of magic only achieved through the use of wireless controllers. However, the exhibition technology tends to dominate the experience, making playing with the controllers and "tagging" the wall more interesting than the building of memories. This caused one visitor to ask: "Why does the media have to be the message?"[13]

Storytelling Memories: A tangible connection to Bomber Command veterans

Storytelling Memories is a prototype the author developed for a system of memory display in a museum context focusing specifically on building a closer understanding and empathy with World War II Bomber Command veterans. The brief was to explore systems of memory location within visualisations of context, and how this form of display can enhance and substantiate memory. Although still in a prototype stage, *Storytelling Memories* seeks to implement a good level of experiential design within its development. The memories of each veteran are located within an individual tangible memory box which the visitor can handle. The box itself is the controller for the interface; when the visitor places the cube on the table, associated memories are displayed on the table-top, triggered by whichever time period has been activated.

Each of the cube's six sides relates to a particular time within the veterans' lives (such as from childhood to old age). The interface reflects the symbolism of sitting at the family table laying out photos and memorabilia on its surface. The associated memories are displayed within a visual representation of the locative context: the squadron base or their aircraft designation. These veteran-specific memories are provided further context through their representative association to existing museum archives and artefacts.

Figure 4. Visitors at Massey University interacting with the Storytelling Memories interface.

Users navigate digital artefacts, accompanied by short audio recordings displayed within a non-linear narrative to build a larger picture from the smaller stories. The interface can be accessed at any time from any entry point. Memories and data are located within a three-tiered hierarchy consisting of memories personal to the veteran having prominence to the visitor, through to locative memories about places and events, to impersonal facts regarding technical information.

The interface needs to be activated by the cube and reacts instantly to its placement, giving the visitor a sense of physical control and feedback to their actions. Further interaction is gained through navigating the touch screen, where users can magnify digital representations of photos and objects, while also associating the artefacts with a digital representation of the physical space they inhabited, similar to the project by Maya Zack described earlier. The combination of memory recollection and locative spatial representation helps to invite the visitor into the experience, providing an equal balance between memory and construction, with the opportunity for them to make an informed and meaningful exploration.

Conclusion

New-media design is fast being implemented within the modern museum to meet the expectations of a technologically advanced and socially aware public. However, although there are several emergent theories as to how this technology can facilitate good memory discourse within museum exhibitions, there are still no clear guidelines about best practice.

Objects, which formally existed with a brief descriptor denoting their status, are now redundant in favour of a more expansive and experiential narrative. Now museums are seeking to build memory around existing collections through an association to a human existence, and are adapting their collection processes to accommodate this new kind of experience. New-media technology offers opportunities to present a wider context and experience around the object. However, this context still needs to be fabricated, curated, and designed, both in appreciation of content and authenticity of how the visitor experiences these artefacts.

This article suggests several key elements to creating a lasting memory experience. Hierarchy and navigation are crucial factors in terms of enabling information that is easily accessed by the public, especially when new-media installations can and want to contain vast quantities of data. The *Lifeline* and *Storytelling Memories* installations each draw on existing analogue systems of containment (the filing cabinet and the memory box) that provide the visitor with known modes of interaction. However, both interfaces tend to play it safe through reconstruction of reality and familiarity rather than provide an innovative form of interface. *Ourspace,* in contrast, did consider new forms of artefact interaction, with the implementation of the interactive wall and giving the role of hierarchy

to the visitor. However, the user often found that the technology becomes more meaningful than the memory itself.

All case studies provided a relative context for memory. However, in a new-media exhibition, context is irrelevant if there is no audible feedback to the visitor's exploration. It is this timely feedback that encourages the visitor to keep exploring the interface. The final element of iridescence is harder to address, and comes from a personal exploration of the memories and how they draw in and relate to the visitor. *Ourspace*, with its open-ended hierarchy of object exploration, gives the most opportunity for iridescence as it provides the tools for the visitor to construct their own meaning from the palate of memories.

The overarching consideration to the implementation of new-media technology is the technology itself. It is not a "one size for all" function, and has the potential to dominate the memory portrayal and undermine the exhibition intention. In this transition, new-media technology is simply just another set of tools in the hands of the curator and designer, but the intent is still the same. It is important to understand the potential for this new set of tools, how the visitor wants to interact with memory artefacts, and what level of meaning and experience the exhibition designer can evoke within an installation, in order to create a memorable experience.

Endnotes

[1]"The Lifeline, Churchill Museum, Cabinet War Rooms," Casson Mann, accessed October 14, 2010, http://www.cassonmann.co.uk/museums/churchill-museum

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Biographical note

Tanya Marriott is a Digital Media lecturer from the Institute of Communication Design at Massey University in Wellington, New Zealand. Her recent Masters thesis focused on developing innovative ways to access museum artefact archives within an interactive and immersive context. *Storytelling Memories* formulated a platform of inquiry into an innovative way to access digital archives through tangible and contextual navigation. The project resulted in a functioning prototype, which has opened further opportunities for research and development regarding memory collection and presentation within a museum environment. Her other research interests also focus on similar topics surrounding the development of personal understanding and empathy through immersive narrative and character identity. Building on from an ecological artist residency at a closed wildlife reserve on Maud Island, this research suggests ways character development and subsequent narrative through animation can educate social awareness of environmental issues, and enable a more holistic view of native wildlife.

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