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# From the Deposit to the Exhibit Floor: An Exploration on Giving Museum Objects Personality and Social Life

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**Abstract**

Museum objects have fascinating stories but are often presented in a detached, objective way that tends to keep visitors at a distance. In a collaborative research we have explored a different way of presenting museum objects: fifteen exhibits from the museum deposit compete for one of the four display cases on the exhibit floor. Objects are given a personal voice and a character and speak directly to the visitor: those that capture visitors' interest (based on physical presence or Twitter conversations) stay on display; the lowest scoring object is replaced. We report the co-design and preliminary evaluation carried out in the museum with both museum professionals and casual visitors.

**Author Keywords**

Museum; interactive cases; embodied interaction; humour; social media; co-design.

**ACM Classification Keywords**

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

**Introduction**

Much research in HCI has investigated the use of digital technology in museums. The more interesting examples



**Figure 1.** Images of MUSEON deposits show examples of the extended and eclectic collection.

engage the visitors in other ways than simply as receivers of information and appeal to the sensorial aspects of visiting a museum [3]; [5] set up an interactive home-like study where visitors can explore possible stories of unknown museum objects and leave their interpretations; [2] invites visitors to take physical objects from one place to another within an open air museum and use this as a mechanism to reveal content and invite group discussion; 0 reveals the under-layers of a painting only if multiple visitors stand in front of it, fostering a form of collaboration among strangers; [6] provokes visitors to look at and act around sculptures in a sculpture garden.

The meSch project [7] aims at bridging the gap between the material collection and the digital content through bespoke tangible and embodied interactions that offer visitors new ways of experiencing heritage. As part of this project we co-designed an exploratory prototype composed of four interactive cases that ‘measure’ the interest each exhibit generates in visitors, enabling the curator to change the ‘least interesting’ exhibit for a new one. Museum objects compete for the visitors’ attention to win the right to stay in one of the cases. We used personification and humour in the design and we collected feedback from both museum professionals and visitors while they were installed in MUSEON. The brief, the co-design and co-creation are discussed in the next sections. The description of the trial and the feedback gained follows. A reflection on the experience and future research conclude this paper.

### **What interest visitors the most?**

The museum partner, MUSEON, has an extended eclectic collection and a larger deposit where exhibits

are stored (fig. 1). The permanent collection is on the first floor and presents the formation of the Earth and the evolution of humans, while the ground floor is used for temporary exhibitions (fig.2). The permanent collection is mostly used by school classes visiting as part of their curricula; a specific set of activities is followed to expose pupils to relevant topics. The temporary exhibitions are mostly visited by families or small groups.

A temporary exhibition is generally initiated by one of the curators based on their specialisms. While curators are not short of ideas, there is always the question: What interests visitors the most? Can we gain some insight to help select successful topics or exhibits?

With this brief, to understand what could be of interest to visitors and a curated catalogue of objects in the deposit (fig.3), we started the co-design process. A number of ideas were generated, the selected concept was “a competition among exhibits”: fifteen exhibits from the deposit (fig.4) compete for one of four interactive cases on the exhibit floor (fig.5); the cases dynamically calculate the “interest” each exhibit generates and rank the objects accordingly; periodically the curators swap the “least-interesting” object for a new one creating, in the end, a display of the 4 exhibits that scored as most interesting overall.

While posters describing the experiment and flyers with information and the 15 objects with their corresponding hashtags were positioned close to the cases, we also considered making the competition more visible to visitors by projecting an info-graphic of the scores above the cases. The architectural setting made this option impossible. We were therefore aware that casual



**Figure 2.** MUSEON exhibition floors. The picture is taken from the landing on the first floor (permanent collection). The cases are across the hall against the pillar.



**Figure 3.** The extended catalogue of objects stored in MUSEON's deposits. The Chinese shoes and the Nazi radio were both used.

visitors would not know of the competition unless they have read the poster or a flyer; we considered the natural behaviour of visitors to be enough at this stage.

### Designing the interactive cases

The exhibits competition concept was refined by the co-design team to detail technical and interactive aspects. MUSEON was interested in experimenting with social media and visitors' contribution so the exhibit-visitors interaction is both physical (being there in front of the cases) and via a purely digital medium (e.g. social media). A Twitter account was created for the cases and a hashtag was assigned to each object (fig. 4) to enable visitors to send tweets to an exhibit; tweets received are immediately displayed on the case so the visitor can see it live. A tweet is considered an indicator of interest. This is then combined with the monitoring of the physical environment around each case: building upon museum study work on the attraction and holding power exhibits have over interested visitors [1], the cases record when people stop in front of each and for how long (the space around a case is segmented, closer positions have a higher score). The final score of the interest each exhibit holds is a combination of the number of tweets received and the amount of time that visitors stopped and observed. So exhibits that attracted many visitors or had a Twitter conversation were more likely to stay on display. When the least interesting exhibit is swapped for a new one, the counting restarts from zero for all exhibits. The overall interest of an object is then calculated across all the sessions in which that object has been on display.

The co-design team also considered what should be displayed on each case. The use of separate screens was intentionally avoided and a pico-projector was used

to display from the inside of the cases on to the front glass (fig. 6); in this way we aimed at preventing the shift of visitor's attention from the exhibit to the technology, a phenomena that has been observed with screens [8]. When deciding what to display, we built upon evidence from the museum study literature that different visitors are interested in different things [4] or have different needs (e.g. they speak different languages), and created displays that simultaneously offer something for everyone (fig.7). The display space is divided into three parts: the museum label on top; facts from the object's life in the middle; and the three most recent tweets on the bottom. The content for the museum label and the exhibit's talk was split into bite size snippets displayed in a slideshow fashion on cards; each card has the content in two languages, Dutch and English (except for the tweets which are presented in the language they were written in); small dots show which card is currently displayed to hint to visitors to stay if they want to read more. We also use a variety of media: while the museum label is text only, the exhibit's talk is visual (image or video clip) with a short explanatory caption. The content was prepared in advance by MUSEON; the tweets are periodically fetched from the Twitter account filtering the messages by the exhibit's specific hashtag.

A final practical design element was to make it easy for the curator to see which exhibit is 'losing' and to quickly swap it for a new one. Fifteen NFC cards were created, one for each exhibit and an NFC reader was concealed in the tower hosting the projector; when put in place, the NFC card would automatically select the prepared content for the exhibit corresponding to that card and start the display with no other intervention needed.



**Figure 4.** The fifteen objects used and their hashtag.

### Exhibits' character and social life

The concept of a competition among exhibits is humorous. We wanted to make this more explicit so we gave each exhibit a personality and exploited funny situation, e.g. the exhibit in last place asking for help from the visitor. We do this in two ways: in the second card the exhibit talks about itself (fig.7) with fun facts; the exhibit itself tweets humorous or provocative tweets displayed on the third card to foster a reaction from visitors and start a conversation. A set of tweets (in English and Dutch) were prepared for this purpose and periodically sent by the curator in charge of the installation; examples are: "Help me! I'm last! Stop and look at me! Tweet me @ #<exhibit>! I don't want to go back to the basement" or a phrase related to the meaning of the object itself such as "#EcsiteKorwar Which of your ancestors would you most like to be able to take advice from?" for the Korwar that in Papuan culture hosts the spirit of an ancestor and is consulted at critical times for advice; or more conversational starters such as "#EcsiteCap Hey there! Beautiful person! Would I go with your outfit?" for the chieftain's hat made with porcupine quills. In this way we aimed to give to the different exhibits some character and use it to trigger interaction.

We also considered having a conversation between exhibits in adjacent cases. This could include rivalry for the score in the competition or on exhibits' facts, such as which one came from the furthest country or which one is the oldest. Although interesting for our exploration of character and social life of museum objects, it was decided to postpone the implementation of this feature to a later stage, after the initial idea was validated.

### Explorative prototype set up and test

The four cases were co-created: the technology needed for the cases (proximity sensors, NFC cards and reader, pico-projector tower, Arduino and Raspberry Pi boards, server and network) were assembled and tested in the UK where we also designed the graphics of the display. In the Netherlands, at MUSEON, we selected the exhibits and produced the content as well as preparing the display cases in which the technology would be embedded. The final assemblage of the cases took two days, as we had to overcome a number of unexpected hurdles, from different power plug formats, to network interference, to automatic bootup and shut down.

The cases were installed on the first floor of the permanent collection, close to the first humans (fig.2). They were in place for the opening of an international museum conference hosted by MUSEON in 2014. In the context of the conference the concept and implementation of the cases were discussed with a group of 15 museum experts participating in a workshop. In addition we observed how visitors reacted/interacted with the cases. After the conference the cases were left in place for an extended period of time; traffic log (how long visitors spent in front of each exhibit) was recorded and an online questionnaire was available for visitors to feedback their opinion.

### The museum experts' view

Opinion among the museum experts was split. Some seemed unable to abstract from the specific example and see what this type of interaction that combines physical and digital could offer to their own museum. Some were concerned by the humour and consider this a trivialization of the museum's mission. Others, however, fully embraced the idea and put forward



**Figure 5.** The four cases as installed in MUSEON.



**Figure 6.** A close up of a case. The tower hosts the projector and the NFC reader/card-pocket; the slit shows the proximity sensors.

possible uses within their own museums. They appreciated the fresh and novel approach that attempts to take the exhibits closer to the visitors by talking directly to them (via the object's life) as opposed to the standard museum label. The idea of exhibits with personality was particularly well received by curators of challenging collections, such as human remains from the same place but from different ages and different social settings. In this case the first person speech and the characterisation would work very well to bring the story of those people from different times and different social classes alive for the visitors to enjoy.

Among the positively-minded professionals the Twitter feed was particularly well received as it shows a very different way to use the social media from the current use (mostly the museum announcing events) and can provide a channel to capture visitors' contributions while in place that goes beyond the selfie. However when experts were asked if they had a Twitter account, most denied and indeed only one tweet was sent during the visit as part of the workshop.

An interesting conversation sparked with one museum expert on the possibility of installing the cases in the museum's entrance hall and using the museum's Twitter account to enable followers to vote for the four objects to go on display the following month; then the competition would run during the month of display and visitors could follow online the destiny of the single exhibit and possibly influence its display by tweeting or visiting. This would give a sense of what visitors may want to see on display beforehand and would enable the museum to put on display highly interesting objects that do not fit with the current organization of the permanent exhibition (the example given was that of a

recent single archaeological finding that received much attention from the media).

### **Observations of visitors' behaviour**

An initial observation of how visitors interact with the cases was carried out for a few hours across two days. The first disappointing finding was that most visitors spent their time in the temporary exhibition on the ground floor and only a few ventured on the first floor to see the permanent collection. Those few were just browsing around stopping only when something attracted their attention. The cases were not positioned close to the floor access points and could be seen only if approached from one direction (fig.2), when passing in front of the early humans. In the two days only three people were observed to stop in front of the cases. We also noted how their stop was influenced by the physical trajectory they were following and therefore only two of the cases were looked at. As this was discovered early we agreed with the curators that when the least interesting objects was swapped for a new one, the others would be shifted to give all of them the chance of the best position. The scarce traffic and the trajectory effect observed were confirmed in the logs collected (1400 hours of continuous data). The trajectory was significant: the second case from the left consistently scored higher than the others and overall twice the score of the second place (case 1). However, the Chinese shoes (used in the past by women with miniature feet mutilated for beauty purposes) were the ones who received the most attention independently from their position in the four cases.

### **Reflection and future work**

Despite much excitement among the museum professionals interested in the use of social media as a means to keep visitors' connected, our limited



**Figure 7.** An example of the content projected on the case front glass.

exploration of Twitter on the exhibit floor brings disappointing results. Very few tweets were sent to the cases. We are inclined to believe this is due to the cases being in an unsuitable position (not a high-traffic area) and at an ill time in the visit: sending a tweet would require visitors to take their phone out and so, actually, would interrupt the visit. We speculate that a positioning where there is high traffic and people are killing time, such as the museum cafe or the entrance hall, could give much better results. The experts in MUSEON are also convinced the cases could be an excellent way to attract interest to the museum if they are placed in a different location, such as a station or the city hall. This last option is currently being explored for some of the objects in the deposits for which there is more than one exemplar and are less fragile. We can speculate that in that very different context the humorous aspect of the interaction and the potential high contribution of other viewers could make the cases provocative and memorable.

Among the future work we list the redesign of the cases for an exhibition that will open in MUSEON in April 2015. One of the curators was enthusiastic about the possibility of dynamically displaying non-traditional content and approached the technical team to see how this concept could be adjusted to have object from the Second World War talk with the voices of different people who lived through the war in very different ways. Although the humour is dropped in this case, the idea of the exhibits being associated to a personality and talking in different ways is preserved.

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### References

- [1] Boisvert, D., Slez, B. *The relationship between visitor characteristics and associated behaviours in a science museum discovery space*. Science Education (1994) 137-148.
- [2] Ciolfi, L., McLoughlin, M. *Of Turf Fires, Fine Linen and Porter Cake: Design for Living History*, ACM Interactions, XIX.5 September + October, (2012)18-21
- [3] Dudley, S. *Museum materialities: Objects, sense and feeling*. In Dudley, S. (ed.) *Museum Materialities: Objects, Engagements, Interpretations*. Routledge, 2010.
- [4] Falk, J. *Identity and the Museum Visiting Experience*. Left Coast Press, 2009.
- [5] Ferris, K., Bannon, L., Ciolfi, L., et al. *Shaping Experiences in the Hunt Museum: A Design Case Study*, Proc. of DIS04, (2004).
- [6] Fosh, L., Benford, S., Reeves, S., Koleva, B., Brundell, P. 'See Me, Feel Me, Touch Me, Hear Me': Trajectories and Interpretations in a Sculpture Garden. Proc. of CHI'13 (2013).
- [7] Petrelli, D., Ciolfi, L., van Dijk, D., Hornecker, E., Not, E., Schmidt, A. *Integrating Material and Digital: A New Way for Cultural Heritage*, ACM Interactions, July+August, 2013.
- [8] vom Lehn, D. and Heath, C. *Displacing the object: mobile technology and interpretive resources*. Proc. Of *Museum and the Web*, (2003).
- [9] vom Lehn, D., Hindmarsh, J., Luff, P., Heath, C. *Engaging Constable: Revealing art with new technology*. Proc. of ACM CHI 2007, (2007), 1485-1494.