GIFT: Hybrid Museum Experiences
through Gifting and Play

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Abstract. The GIFT project develops new approaches to creating hybrid physical-digital visitor experiences in museums. Through design exploration of two concepts focusing on gifting and playful appropriation, the project charts how museums can create a deeper and more meaningful experience by *giving visitors the tools to tell their own stories*. The project is highly cross-disciplinary combining HCI research, artist-led exploration, technology explorations, and experience design in collaboration with museums. Furthermore, the project gathers 10 prominent museums from Europe and the US in an action research project that both serves to ground the prototypes and framework in the needs of museums, while also facilitating the museum sector's need to become 'digital-ready', understanding and capitalising on digital technology. As the project has progressed through half of its duration, we report on initial findings and how these have shaped our direction of progress.

Keywords: Experience design, gifting, play, hybrid experiences

1   Short description

Museums serve as our collective memory, preserving and interpreting our shared culture and identity. The central challenge of the GIFT project is to create designs that facilitate *meaningful interpersonal experiences*: we chart how museums can *give visitors the tools to tell their own stories*.

GIFT focusses on hybrid experiences, realised through mixed reality designs that complement, challenge or overlay physical visits with digital content. Digital media now merge with the physical museum experience in ways that expand the experience beyond the time and the space of the visit. However, it remains an important challenge to establish meaningful narratives and user experience designs that support complex and nuanced interpretations and forms for sharing.

The first half of the project (January 2017-July 2018) has been devoted to uncovering stakeholder needs and the iterative development and testing of prototypes, theory development, and methodological explorations.

2   Overview

The GIFT project aims to develop three main contributions. Two *design probes* function as demonstrators of innovative visitor experiences. The third contribution is the *design framework and toolkit* directed towards museums, that help museums adopt or adapt the specific designs and develop their own solutions.

2.1   Gifting prototype

The first design probe aims to facilitate gifting in hybrid museum experiences. Led by the UK artist group Blast Theory, we build on recent research on gifting digital experiences [4,5] to develop a virtual platform for the creation of a bespoke tour through a museum. Visitors are invited to select some artifacts in the museum and digitally "wrap" them as gifts to be sent to a loved one or a friend, who in turn may "unwrap" the gift and receive a highly personalised experience. Challenges include designing a system to enable the creation of 'gifts' easily, storing them and distributing them, exploring how the experience of gifting integrates with, changes and challenges the museum experience, and understanding how the format scales to large numbers of visitors and multiple museums.

2.2   Play prototype

This part of the project explores the design of playful experiences for museum visitors that allow them to creatively engage with museum content. There are several a priori reasons to think that such experiences might be beneficial: it has been argued that play can provoke reflection, enable learning and engage users with controversial matters [3,9]. The site of this exploration, the Museum of Yugoslavia, has been deliberately chosen as a challenging environment, being home to a collection of artefacts largely acquired by the former communist leader Josep Broz Tito, a highly controversial figure in the history of Yugoslavia. So far, we have developed two designs that both make use of play, but in very different ways. The 'Twitto' app offers an apparently lightweight and playful engagement with Tito's propaganda myth. 'Monuments', on the other hand, takes the form of a solemn reflection on stories of political monuments and their relation to themes such as war, ideology and everyday life [8]. A third design experiment, called *Word by word*, has been reported in [6].

2.3   Framework and toolkit

The GIFT Framework and Toolkit are currently under development and are made accessible to museums through a joint web resource. The goal is to present easy access to a range of resources, including theoretical concepts, ideation methods, design guidelines, design process outlines, and software tools. They have in common that they provide support for using or adapting the hybrid solutions developed within the project to

the needs of a specific museum, and also for developing similar hybrid museum experiences. The development of software tools within the Toolkit is ongoing throughout the project. In the early stages this has involved bringing some candidate tools to the table, practically supporting the use of these by partners to prototype museum experiences, iteratively refining the tools, and now organising them into an open public release of the GIFT Toolkit (see Section 6).

3   Partnership

The GIFT consortium includes three university partners with expertise in HCI and playful design, one artist company with a long track record in performance-based digital experiences, one startup design agency with competence bridging art and marketing, as well as Europeana, a prominent European organisation with a mandate to encourage digital innovation in the cultural heritage sector.

3.1   Project partners

- IT University of Copenhagen (Denmark), research group MAD Art and Design
- Uppsala University (Sweden), the Human Computer Interaction group
- The University of Nottingham (UK), the Mixed Reality Laboratory
- Blast Theory (UK)
- NextGame (Serbia)
- The Europeana Foundation (Netherlands)
- Culture24 (UK)

3.2   Action Research partners

Furthermore, the project includes 10 museum partners engaged in an action research process as well as a range of other museum partners engaged in various efforts relating to development, testing and exploitation of results.

- ARKEN Museum of Modern Art, Denmark
- Royal Pavilion & Museums, United Kingdom
- CAOS Centro Arti Opificio Siri, Italy
- Center for Studies of Holocaust and Religious Minorities, Norway
- Danish Museum of Science & Technology, Denmark
- Derby Silk Mill, United Kingdom
- The Munch Museum, Norway
- Royal Albert Memorial Museum & Art Gallery, United Kingdom
- San Francisco Museum of Modern Art, United States of America
- Tyne & Wear Archives & Museums, United Kingdom

4   Lessons learned

4.1   Theoretical contributions

As the main theoretical perspective of the project, we propose the concept *meaningful interpersonal experiences*. This framing originates in the new museology perspective, on museum experiences as providing a foundation for a multitude of experiences, depending on the visitors and their social and cultural framing for the visit. This reframing is interpersonal in the sense that it is closely related to the visiting group and their engagement both with the museum as an institution and with each other. More specifically, we engage with three key mechanisms. These are support of *strong personal ties* via sociability, *gifting*, and *play*. The choice of gifting and play as guiding theories relates to the chosen approaches of the two prototypes.

We are currently exploring how these theories can be meaningfully incorporated into design processes as framing concepts for analysis and/or design. The ongoing design work is analysed to elicit guiding concepts. In parallel, work is ongoing on the development of design methods that are able to connect the underlying theories with practical design, helping practice be informed by theory and vice versa. Currently, the methods that are being explored are primarily useful in early stages of design.

4.2   Gifting meaningful visits in the Royal Pavilion & Museums

In order to develop a gifting prototype that is meaningful to the museum context, Blast Theory is working closely with the Royal Pavilion & Museums in Brighton and Hove, UK. Blast Theory's aim is to craft a purely digital means of shaping a visitor's interaction with the museum, by placing their friend (the recipient of their gift) at the heart of their own museum experience. Each detail of the app has been honed to encourage thoughtful and highly personal interactions with objects in the museum collections. The app provides the structure for creating and receiving a gift, but avoids imposing any expectations in terms of the objects that visitors might choose or the ways in which they might interpret those objects.

Early prototypes of the app were developed and tested in iterations throughout 2017. Currently, the app is being redeveloped using software that better meets the app's technical requirements. This iteration will be trialled 'in the wild' in July 2018. Thus far in the process, we have come to the following conclusions regarding app-based hybrid gifting in a museum context.

Engagement with museum or with gifting: The app must balance the desires of museum visitors to engage with the collection and to invest a suitable amount of time and effort in creating the gift. We received a significant amount of feedback that participants spent less time browsing the museum overall than they ordinarily would, but more time engaging with the specific objects they considered for inclusion in their gifts. They tended to choose objects that they thought their friend would enjoy, often opting for quirky or amusing objects that would appeal to their sense of humour.

Guidance: The app needs to demonstrate how participants are expected to interact with it and what a suitable 'gift' would be in this context. Too much free rein, especially

given the various situations in which participants were expected to add text, could make the participants become unsure of themselves. This problem was partially solved in the second iteration, which offered participants a sample gift given to them by the museum and explicitly asked for a gift made of three separate objects. Further ways to clarify the use of the app are being designed into the third iteration.

4.3 Playful appropriation in the Museum of Yugoslavia

In order to chart alternative approaches to play and playful engagement, we are investigating two designs in parallel.

Twitto. Tito was a propaganda master of his time, managing to hold a fractured country together and stay in power for 35 years. But what if he had been using the propaganda tools of today - what would Tito tweet? This is the premise of the app Twitto. The design uses the Artcodes technology [1] to connect the physical exhibition to a digital experience. Thematically, the design explores the strong personality myth of Tito, which dominates the Museum of Yugoslavia. A central goal is to facilitate playful engagement with a highly controversial and sensitive historic collection, with the aim to foster critical reflection and dialogue.
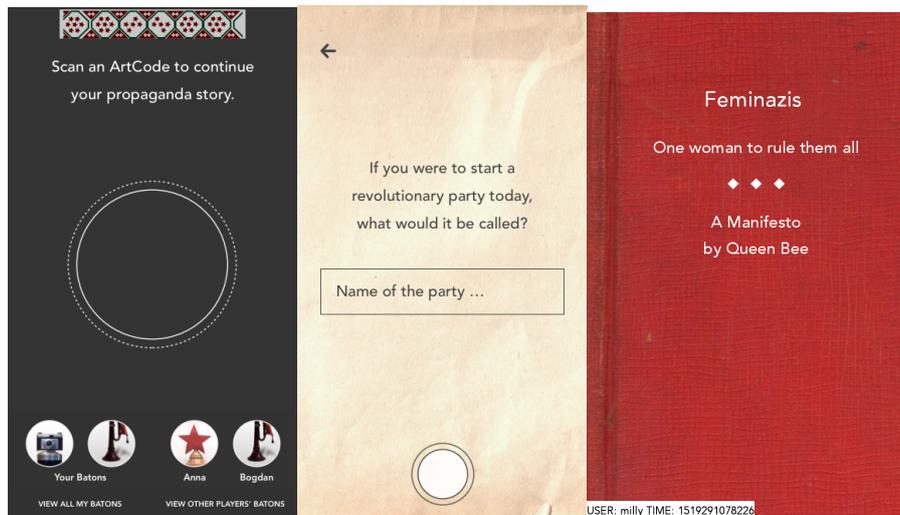
Fig. 1. Screenshots from the *Twitto* app.

The app consists of a series of "chapters", each presenting one period of time in Tito's life, connected with an object in the collection of particular significance. The app prompts the user to put themselves in Tito's shoes, and playfully reinterpret key elements of his propaganda myth. If you were a political resistance leader, what would your party be called? What would your propaganda poster look like? Answering these

challenges results in the user assembling a propaganda item - a poster, a party manifesto, etc - which is placed in a collection where it can be seen by other players (see Figure 1). Playtests have shown that the app succeeds in threading a careful balance between playfulness, respect for the serious topic, and critical distance. Meanwhile, challenges remain in connecting the digital experience more strongly with the physical museum exhibition.

Monuments for a departed future. A second experiment at the Museum of Yugoslavia explores a more solemn, reflective approach to play with controversial subjects. This design focusses on the 'Spomeniks', socialist monuments from communist-era Yugoslavia that have become sites of ideological battles and offer rich possibilities for interpretations. In order to give the monuments a physical presence in the museum, we used Artcode markers that simultaneously worked as visual representations of the monuments and as digital markers that could be scanned with a smartphone, triggering a digital interaction (Figure 2). Thus, the Artcode markers served as an added virtual layer in tension with the exhibited collection. The intention was that this tension would trigger curiosity and critical reflection. A first trial has demonstrated that the app can facilitate reflections and emotional responses, setting a foundation for critical engagement and meaningful user contributions with a highly contested museum exhibition [8].
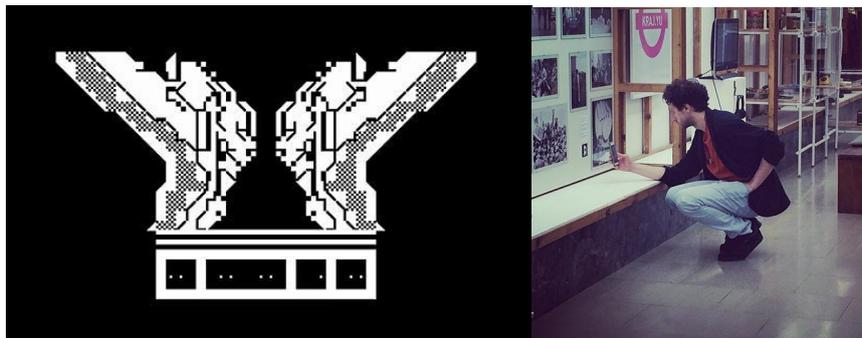

Fig. 2. Visual marker illustrating one of the monuments, and a test user scanning a marker in the Museum of Yugoslavia.

5 Open challenges

5.1 Gifting

Gifting in museums presents a surprising number of conceptual challenges from a number of disciplines. The literature specific to gifting began nearly a century ago, with its roots in sociology and anthropology. Mechanisms for purchasing commodities to transform into gifts are critically important for maintaining social relations (not to mention contributing substantially to the global economy). Gifting has therefore become a vital topic in fields such as consumer research and marketing. In interaction design research,

gifting is used as a lens to understand online sharing, text messaging, long-distance communication between close friends and family, and other technological interventions. Our project needs to make sense of rich seams of existing knowledge from disciplines that would seem to have little in common.

We follow the dominant understanding of gifting as a social system that helps to shape personal relationships within multifaceted contexts, many of which are culturally determined. Reciprocity and obligation have been established as fundamental elements of relational gifting. Objects that are gifted not only fulfil their intended functions but serve as symbols of relationships, in part by reminding the receiver of the giver.

Our explorations of hybrid objects can contribute to the understanding of the layers of meaning perceived in any gift, irrespective of the object itself. They can also help us to understand museums as particular contexts of exchange. We are also well positioned to investigate how gifting might extend or reframe common practices of sharing digital content, which lacks much of the personal investment seen in relational gifting.

5.2   Playful appropriation

In the museum domain, play has primarily been brought in as a tool for learning. Sometimes, games are also used as a way to foster engagement with content that is not on display in the museum. These approaches build on theories of serious gaming and gameful learning which represent ways to tap into the intrinsic motivations of players. Such approaches often remain rather uncritical of the museum's 'canonical message'.

Rather than gamification, we capitalise on an alternative way of engaging playfully with museum experiences through the lens of "playification" [7], focusing entirely on playful, rather than gameful, forms of engagement. The key to creating such engagement lies in fostering forms of creative and transgressive play, in which players feel free to not just play *within* the given rules, but also play *with* the rules, to creatively and transgressively bend the experience to their own purposes.

When introducing such forms of play in museums, we have encountered four main challenges. First, there is a tension regarding expectations towards the role of physical artefacts. Visitors and museum professionals alike put great emphasis on the physical artefacts on display, and sometimes react negatively if the digital play experience is seen to distract from the artefacts. Second, there are tensions relating to the controversial and sometimes emotionally uncomfortable content in the museum. Interestingly, while there has been much concern in the design team about facilitating playful behaviour including joking and frivolous contributions from visitors in connection with very serious topics, neither visitors nor museum professionals have had any negative reactions to this aspect of our prototypes. However, some museum professionals have worried about the learning aspect of the experiences, seeing them as too superficial or disconnected from the museum's physical exhibitions. Third, there is a tension regarding the insertion of physical "markers" - stamps and stickers - in the museum space. Thus, while the museum is very welcoming to the idea of having visitors contribute, comment and engage in dialogue, there are challenges with making this dialogue physically manifest in the museum. Fourth, the design team has spent much effort threading a careful

balance in presenting a truthful historical narrative mixed with fictional and playful aspects. All of these challenges remain important in our ongoing work.

5.3 The hybrid nature of museum experience

Museums of today focus less on the preservation of artefacts, and more on offering complex and nuanced perspectives on cultural heritage. Hybrid, mixed reality designs may support such perspectives. However, there is a lack of systematic understanding on how museums can create experiences that are able to overlay and connect multiple narratives and modes of engagement. It is critical that our technical installations do not ignore the nuances that are already in place, but rather enhance and deepen them.

Mixed reality solutions offer multiple ways in which the artefacts and the museum can be connected to digital experiences. The spatial organisation of the museum as well as its cultural identity as a (particular) museum are overlaid by alternative interpretations and trajectories offered by the digital content. This opens up for solutions where visitors can actively co-contribute with their own narratives. A central design consideration for a hybrid experience is thus to what extent, and in what ways, these layers of narratives are connected.

- The museum *artefacts* very often form a central point of connection. In this connection the object's identity can be preserved, but it can also be reframed in different ways, or given a fictional description. Furthermore, it can be highlighted or hidden based on how the digital narrative guides the visitor's focus.
- The *spatial arrangement* of the museum can form a central connection, shaping the navigational structure of the hybrid experience. Again, virtual content can preserve it, reshape it (e.g. as in a treasure hunt), or entirely abandon it (so that there is no need to visit the actual museum)
- Finally, the identity of the *museum*, as a physical place and cultural institution, can form a focal point of connection. Museums may be located in a place of particular significance, their exhibition may represent a geographical point of interest, or they may get their cultural significance from 'belonging' to a particular city or region.

6   Tools

Based on the design explorations and practical and theoretical research in GIFT, we are developing a framework with technical tools and design guidelines for creating hybrid museum experiences. An early version of the GIFT Toolkit has been made available at toolkit.gifting.digital. The Toolkit comprises a collection of tools that are loosely connected through a common content management system and corresponding schema and API (rather than being a fully integrated monolithic tool). The aim is that we – and potentially others too – can relatively easily add new tools to the Toolkit with minimum work required to make them usable as part of integrated tool chains (describing assets in a common way and accessing them through a common CMS).
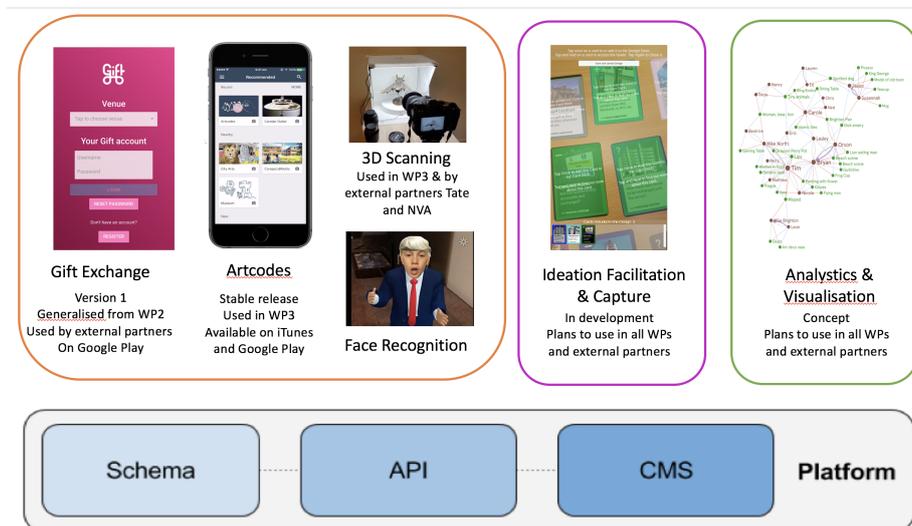
Fig. 3. The GIFT Toolkit

Figure 3 provides an overview of the current Toolkit. The tools themselves are grouped into prototyping tools (left), design tools (middle) and analysis tools (right). Current prototyping tools include a generalised version of the gift exchange app that can be downloaded from Google Play and used by a variety of museums; the Artcodes tool which can be used to prototype aesthetic optical codes and attach layers of digital experience to these; and a lightweight and low-cost photogrammetry tool suitable for capturing visitors' own artefacts at scale and publishing the resulting models to the web. The idea facilitation and capture tool consists of a deck of physical ideation cards for use by museum designers with an associated app for capturing their designs, and tagging the cards that were used so that they can be searched for later and compared with other designs that used similar combinations of cards. The planned analytics and visualisation tool is intended to enable museums to reflect on the design and deployment, for example on the popularity of artefacts chosen for gifting or playful appropriation.

Several of these tools have already been used by our external partners to create visitor experiences in their museums. The photogrammetry tool was used by Tate Modern as part of an exhibition to capture ceramic objects made by visitors and by the UK's National Videogame Arcade to capture visitors' own wargaming miniatures. Artcodes has been used by a variety of museums including Tate Modern, Nottingham Lakeside and Nottingham Contemporary as part of interactive mobile experiences [1,2].

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