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The GIFT framework: Give visitors the tools to tell their own stories

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Introduction

Using new technologies to facilitate meaningful and engaging visitor experiences is a complicated proposition. The pitfalls are many: Technologies may fail, they may require too much resources or upkeep, the completed designs may not do quite what was initially promised, designs may fail to meet the complex and sometimes conflicting demands of curators, marketers, educators and IT departments - or they may simply fail to engage visitors. In other words, developing technologically mediated visitor experiences is a wicked problem of the kind that designers specialise in solving, by gathering contributions from multiple stakeholders and prioritising human experience over technological paradigms. However, far too often this problem is approached by putting technology first, and engineering systems and apps that often do not end up meeting the actual needs of museums or visitors.

The GIFT project addresses this problem by offering an experience design framework stemming from an ongoing, cross-disciplinary research project involving artists, designers, curators, museum educators, computer scientists and 14 museums in Europe and the US. The framework aims to facilitate in-house, practitioner-led design of hybrid and interpersonal experiences, in which mixed reality technologies are used to augment or expand the experience of a visitor in the museum, and in which visitors use these technologies to share their experience with their "strong tie" connections (family and loved ones). As such, the framework facilitates sharing in a much narrower and more intimate sense than the larger-scale sharing which is typically facilitated through regular social media such as Facebook or Instagram. The GIFT research project has explored the largely untapped potential for visitor activities based on strong tie connections through concepts such as gifting and play. Further, we suggest that hybridity provides a way of distributing agency between the museum institution and its users, thereby establishing a more balanced relationship with regard to aspects of power and control over experiences within museums and related to museum collections.

The resulting framework is offered freely under an open source license, and is intended to be usable by a single museum professional with few resources. In 2019 the framework is still under development, and is offered at the website gifting.digital as an "open beta", in order to gather input and feedback from external users.

In this paper we will first explain what we mean by hybrid experiences, including the two particular approaches we have explored in the project: gifting and playful appropriation. Then we will account for our practical approach, how the trajectory of the research and development work was informed by our museum partners and thus grounded in the needs of real museum professionals. Thereafter we will provide an overview of the framework. Finally, we end the paper with a reflective discussion of

some of the challenges with developing hybrid museum experiences that we have encountered in the project.

Theoretical perspective - the hybrid museum

We are interested in the idea of museum visits as being hybrid experiences, by which we mean how physical and digital assets can be combined to deliver new kinds of composite visitor experiences (Bannon, Benford, Bowers, & Heath, 2005; Jaén, Bosch, Esteve, & Mocholí, 2005; Pujol et al., 2012). Physical-digital hybridity is a familiar concept from the 'technical literature', underpinning the technologically oriented paradigms of Mixed Reality in which physical and virtual worlds are combined to create different forms of immersive experience (including both virtual and augmented reality) (Milgram & Kishino, 1994), locative experiences that appear to attach digital assets to physical places (Farman, 2013), and the Internet of Things that embeds digital interactivity in physical artefacts (Atzori, Iera, & Morabito, 2010). Museums might turn to this technical notion of hybridity to meet several pressing goals including providing more personalised interpretations, enabling visitors to contribute their own stories, or more generally as a way of reaching out to technically savvy audiences who respond to or perhaps even expect interactive hybrid experiences.

One popular approach to hybridity is that of *layering* in which digital assets appear to be overlaid onto a physical setting, in our case onto a museum and its exhibits, as employed by both locative media and augmented reality. Our particular perspective in this project is to explore how the creation and ownership of layers can be distributed between the museum and its visitors. We envisage hybrid museum experiences in which multiple digital layers become overlaid onto the physical museum and in which these not only reflect the voice of the museum but also represent interpretations made by visitors - for their own purposes and also intended for other visitors. The GIFT project is exploring two specific approaches to this:

- *Gifting* - in which visitors create personalised tours for other visitors as gifts. Gifting is a powerful social practice across many cultures that underpins social bonds, demands effort and personalisation on behalf of another, requires the meaningingful selection of artefacts, and may encourage a level of reciprocity as part of a social transaction (Gouldner, 1960). Gifting has the power to realign, develop, or even undo social relationships (Ruth, Otnes, & Brunel, 1999). Museums are already sites for gifting - both in terms of donated collections and funding as well as selling souvenir gift items - but our question is to what extent visitors can meaningfully virtually gift the actual exhibits to one another. Gifting entails a focus on sharing on an intimate, small scale, which sets our approach apart from other projects which have attempted to facilitate participatory, community-based curation (see e.g. Basso, 2016).

- *Playful appropriation* - in which the museum makes its (digital) assets available for visitors to appropriate them for their own purposes, for example playing games or using them as props in creative exchanges. Appropriation can be a challenging concept for museums, often being associated with colonialism and the appropriation of other's cultures (Sherman, 1987) or with the appropriation of the gallery itself by the 'ruling elite' (Bennett, 2013). However, the technical literature often discusses appropriation as being a positive design goal in which people are able to adapt technologies for their own purposes (Dix, 2007). Our interest here lies in the latter, considering how visitors might themselves appropriate the museum and its exhibits as resources for their own playful purposes and meaning-making.

In both cases we are, of course, interested in how opening up the agency of layering to visitors can also benefit the museum - how it can learn about its visitors and their stories, or help visitors reflect and make their own meaningful interpretations.

Our perspective also extends the notion of the hybrid museum from being a technical idea to a broader notion in which the purpose of the visit is also hybrid, reflecting previous discussions of hybrid museums as being places that combine recreation and learning (Kotler, 2001) and that support a "hybrid economy of meaning" that employs participatory practices to combine both institutional and visitor-generated interpretations (Vestergaard, 2013).

Practical approach

The GIFT Framework is based on extensive collaboration in a number of smaller sub-projects between university researchers, artists, designers and museum professionals. The project has engaged with museums in three different ways:

1. A handful of museums have been hosts for **pilot cases**, providing real-life laboratories for design work led by artists and designers in the project.

2. A group of ten museums in Europe and the US have engaged in a structured **action research process** aimed at building their capacity for facilitating hybrid experiences - as well as informing the design and development of the GIFT framework.

3. Finally, a number of **external museum partners** have taken the tools developed by GIFT and applied them in their local context, offering test cases and insights about how the tools work when applied outside the project.

In the following we will give examples of these three approaches.

Pilot case: Gifting experiences

One of our main design experiments focuses on the concept of digital gifting (which also gave the name to the main research project), as described in the theory section above. This is an artist-led collaboration between the UK artist group Blast Theory, the Mixed Reality Lab at the University of Nottingham and the Royal Pavilion and Museums in the UK. Based on previous research about gifting of digital museum experiences (Fosh, Benford, Reeves, & Koleva, 2014; Fosh, Lorenz, Benford, & Koleva, 2015), we aim to create a smartphone app through which visitors can make bespoke tours through the museum for a particular friend or loved one. The experience is described by the artists using the metaphor of a 'mixtape': "Ever made a mixtape for someone? How about with objects from a museum?" In terms of designing for a hybrid museum experience, Blast Theory thought of the app as a three-way point of connection among the museum, the visitor, and the visitor's network of online and real-world relationships.

The technology of a smartphone app suits hybrid gifting within a museum space. Gifting requires thoughtfulness and effort, though not necessarily financial outlay, in order to have a chance of being well received (Robben & Verhallen, 1994). Gifts also create a greater sense of closeness when they reflect the giver's own personality rather than simply suiting what the receiver would like to own (Aknin & Human, Lauren J., 2015). Even text messages (Taylor & Harper, 2002) and file sharing (Giesler & Pohlmann, 2003; McGee & Skågeby, 2004) can be understood as types of gifts. Blast Theory therefore decided to explore an app that makes gifts from photos of museum objects, annotated with the giver's reasons for selecting those objects, plus a clue to find their objects, all 'wrapped' in various ways. Receivers could then experience something of the giver's visit, compounded with a sense of personal connection to the giver through their choices and rationales.

The gifting app has undergone multiple iterations, the most recent of which was deployed at Brighton Museum & Art Gallery over three days in July 2018. Over two hundred members of the public used the app, and 114 provided feedback. Givers first decided on a friend or family member to make a gift for. They photographed up to three museum objects and audio-recorded an accompanying explanation, plus a clue, for each object. The gift was completed with a song of the giver's choice. Receivers got an email notification to download the app in order to experience their gift, either in the museum or elsewhere.

Figure 1: The gifting app at Brighton Museum & Art Gallery.

Response to the app was an exciting mix of the hoped-for and the unexpected. Givers as well as receivers often felt that they saw the museum 'with new eyes' when imagining what their receiver would like, or what their giver had thought they would like. Although no one was asked anything about perspectives or ways of seeing, many spontaneously described their experience in terms such as having 'fresh eyes' or having the chance to 'think a bit differently' because of the requirement to look for objects that another person would like. Several also mentioned that they felt more attached to the objects they chose, or those chosen for them, simply through the act of gifting using this app. We also found that voice can be much more than a sensible mechanism for keeping visitors from staring at their screens. This app used a voice whose tone and word choice were very informal and personal, an 'intimate stranger' that shaped many participants' engagement with the gifting process and with the museum in ways that Blast Theory had aimed for (although admittedly, a few found it unpleasant). Due to the short duration of the deployment and the fact that many givers chose to send to distant receivers, only 28 out of our 114 respondents received their gifts within the museum, but their responses reflect these themes. For a more detailed analysis of the design rationale and visitors' responses, see (Spence et al., in press).

The GIFT project includes a handful other pilot cases, conducted in collaboration between the Serbian creative agency NextGame, the Mixed Reality Lab, the IT University of Copenhagen, the Museum of Yugoslavia and the Munch Museum. Some of these cases are described in (Back et al., 2018; Ingimundardottir, Stanciauskaite, Kjul-Sachse, Wray, & Løvlie, 2018; Ryding & Løvlie, 2018).

Building and sharing knowledge through action research

In order to ensure that the GIFT framework is relevant and usable for museum organisations we are running an action research project with participants from ten museums in Europe and the US, in collaboration with Culture24 and based on their research programme Let's Get Real (Malde, 2018). The participants are:

- San Francisco Museum of Modern Art (SFMOMA), USA
- The Munch Museum, Norway
- ARKEN Museum of Modern Art, Denmark
- Royal Albert Memorial Museum & Art Gallery, UK
- Royal Pavilion, 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, UK
- Tyne & Wear Archives & Museums, UK

Action research is a structured form of reflective practice, where a group of practitioners engage in a progressive process of problem solving with iterative cycles of planning, taking action, analysis/evaluation and reflection (McIntyre, 2008; McTaggart, 1991; Reason & Bradbury, 2008). The participants constitute a community of practice (Wenger 1998), where they can reflect on commonalities and differences within their work and museum organisation. We used Theory of Change as a guiding principle in order to make participants focus on an objective they wish to achieve rather than developing a specific object or product (Connell & Kubisch, 1998; Taplin & Clark, 2012).

The process was structured around a series of five two-day workshops where participants worked together as a group, as well as four action-taking phases between the workshops, where the participants worked with a group of colleagues at their home institution. Each institution conducted an experiment with the intention to explore GIFT-relevant concepts such as personalisation, playfulness and visitor engagement, and develop the digital capacity of their institution. The experiments underwent two iterations, with structured reflection and redesign of the experiment in between. In the final phase of the project, which is still ongoing at the time of writing this paper, the participants are challenged to embed learning from the project in their home institutions and distil key insights for their own future work and the museum sector at large.

Research-in-the-wild: Adoption of GIFT-tools by museums

While GIFT is still an ongoing project, we have already engaged in a number of partnerships with museums outside the project to deploy tools and designs from the project "in the wild", in order to gather experiences from use in real museum settings and help museums use our designs. Examples of such partnerships include (the tools mentioned are presented in more detail further on) :

- **Tate Modern, London (UK):** A collaboration with artist Claire Twomey to use both the Artcodes app and photogrammetry toolchain (see below) to deliver a major public exhibition called FACTORY. Throughout the eight days of the exhibition, the app was downloaded and used by 579 visitors in total.
- **The Nenescape project (UK)**: An ongoing collaboration with funding from the UK's Heritage Lottery Fund to use the Artcodes app to deliver a historic visitor experience of the river Nene.
- **The National Videogame Arcade (UK):** A collaboration to use photogrammetry, AR and VR technologies to create a public Mixed Reality Storytelling exhibition of scanned wargaming miniatures and other meaningful objects contributed by visitors.
- **National Holocaust Museum (UK)**: Using ideation cards to envisage a redesign of the museum and considering use of specific implementation tools.
- **City Arts (UK):** Use of the Lightweight Photogrammetry tool to realise their Armchair Gallery app.
- **Nottingham Contemporary, The National Justice Museum (Nottingham) and Chatsworth House (UK):** Using the Artcodes tool to create the 'Grand Tour' experience that connected visiting experiences between museums.
- **Wollaton Hall Museum of Natural History (UK):** Using the Artcodes tool to create a Dinosaurs trail.

At the time of writing we have an ongoing collaboration with the **National Museum of Serbia**, which recently reopened after having been closed for 15 years. Partners in the GIFT project were commissioned by the museum to create "Your Stories", an exhibition that used the photogrammetry toolchain and the Artcodes app to present artefacts contributed by visitors (Figure 2).

The project invites ordinary citizens to bring objects of significance for their personal stories, to have them 3D scanned and exhibited virtually in the National Museum. The opportunity to place and exhibit personal objects side by side with ancient historic artifacts or artworks by famous artists like Picasso or Van Gogh caused much public interest. Our initial social media campaign in which we invited citizens to donate objects reached 360 000 people over the course of two months.

The objects that were virtually "donated" were curated in collaboration with the museum team, resulting in an exhibition of 45 virtual objects. These were paired with relevant objects from the museum collection and connected with hashtags that provided explanations of the connecting principle that was used in each particular case. These hashtags will be printed as a scannable Artcode and posted next to the museum object. When scanned, these hashtags open a page on the National Museum's website providing information about the virtual object. Those hashtags can of course also be used for sharing the experience on social media. The exhibition is due to open in January 2019.

Figure 2: Ad for the "Your Stories" exhibition at the National Museum of Serbia.

Figure 3: "The purse I wore on my wedding day" - scanned object from the "Your Stories" campaign.

The GIFT Framework

The GIFT Framework offers a collection of tools, design guidelines and best practice recommendations extracted from our practical and theoretical research. The website is aimed at museum professionals, and is intended to be useful and usable for a single professional working in an environment with minimal resources. In order to make this possible, the website has been developed through an iterative user-centered design

process in close consultation with the participants in the action research module. Through this process, we have identified the following requirements for the framework:

- demonstrate that the tools are easily adoptable and hence fit into existing museum practices.
- showcase case studies that demonstrate the benefits of the tools in practice.
- demonstrate how the tools can be used to support engagement with the objects and the collection.
- demonstrate how the tools can foster museum-visitor and visitor-visitor interactions. Ideally, the framework should be relationship-oriented rather than tool-oriented.

An open beta version of the framework was published at our website gifting.digital in November 2018 (see Figure 4). In order to realise the above communication goals, each tool is presented in a way that describes why the museum should use the tool, links to case studies and scenarios, and explains how the tool could readily and easily be adopted within the museum. Considerable design work has been done to create a coherent form and tone of voice across a range of diverse sub-projects within the rather large collaborative project.

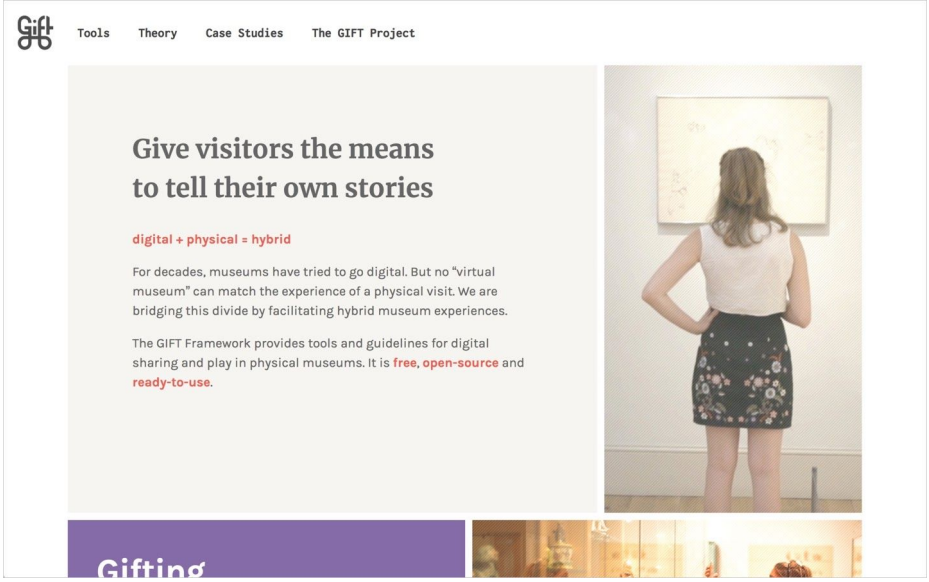

Figure 4: The GIFT Framework website.

Figure 5: Content guide for the GIFT Framework, used to ensure that the presentation of tools meets the museum users' requirements.

Experience prototyping tools

An important aim of the GIFT project is to release tools that enable other practitioners and researchers to experiment with our approach and ideas. We envisage these as being 'experience prototyping tools' that support the end-to-end prototyping of user experiences - ideally without recourse to deep technical knowledge - to the point where museums and visitors can try out new ideas. All of the tools are fully functional when used independently, but they share a common technical back end (metadata schema, application programming interface and server implementation) that allows them to exchange and reuse assets when used together. These tools include:

Gift exchange app: The gift exchange experience described above has been generalised into a tool that allows museums and visitors to experiment with making their own gift experiences for potentially any museum. It supports both the giving and receiving of

museum visits as gifts. The current version employs audio instructions to guide the gifting experience and facilitate user-generated audio messages and images, and is available through Apple's App store for limited versions of iOS. Future versions will also be available for Android devices.

Artcodes: Artcodes is a system for creating visual scannable markers (similar in functionality to QR codes) that can be directly designed and even hand drawn by users by following a set of drawing rules, so that they can take on bespoke and aesthetic forms, e.g. in order to fit the aesthetic of a museum exhibition. The markers can be connected to digital assets, wrapped up as an experience and shared with others. The assets take the form of weblinks to external resources. Users can open up others' experiences and appropriate them by mapping them to their own weblinks, before resharing. Artcodes runs on both iOS and Android. A description of the drawing rules, experience editing and sharing app and a reflection on examples of use can be found in (Benford et al., 2017).

Museum ideation cards: This tool is different in nature. Rather than focusing on the prototyping stage of research, it supports ideation - the early stages of generating and developing designs. Ideation cards are by now a familiar design mechanism in many fields (see Golembewski & Selby, 2010). Our deck has been formulated to encapsulate the design and technical knowledge from the project along with further cards that encourage museum designers to consider intended audiences, institutional goals and constraints. The cards also come with guidance for how to use them as part of a structured, collaborative ideation process. Furthermore, we are designing a generalised **ideation capture** tool that will capture the results of ideation and design sessions using the ideation cards, and so allow participants to reflect on the variety of theories, concepts and technologies that they have engaged with and compare their designs with those of others.

DIY Photogrammetry: Photogrammetry is already a tried and trusted technique for digitising physical assets. Our contribution here has been to produce a do-it-yourself (DIY) toolkit that makes it easy for museums to set up public scanning booths where visitors can bring along and digitise their own artefacts alongside capturing stories about their personal meaning. Visitors can then donate their scanned objects and stories to the museum, allowing the 3D models to be published and shared online and reused in virtual and augmented reality experiences. The implementation at the UK's National Videogame Arcade discussed above also captured visitors' stories of the exploits of the gaming miniatures they scanned and displayed the scans in VR at 'life size' so that visitors could encounter their creations face to face.

The One Minute Experience: Object recognition technology has enabled a new way to experience museum exhibitions. Smartphone apps such as Smartify, Vizgu or Magnus offer visitors experiences described as "Shazam for art": The phone's camera recognizes the objects in the museum and offers information traditionally provided by a guide, often referred to as interpretive text (Serrell, 2015). However, an easily overlooked

challenge is the design of the information that is offered. Once the app has identified the work of art, what should it say about it? Research shows that many museum visitors spend very little time studying interpretive text (Armitage, 2018). The One Minute Experience offers an authoring tool for curators to write short, engaging texts suited for smartphone screens. The tool can be used with any mobile experience intended to offer visitors interpretive text about artworks. In tests, the tool has been demonstrated to help users write simpler and more readable texts, which have a greater chance of being actually read and understood by museum visitors. While this authoring tool is currently available as concept and design documentation ready to be implemented in any museum app, we are currently developing an app that implements the concept and which will be freely available as part of the framework.

Reflections

In our work with the GIFT framework, we have sometimes encountered a clash between new museology ideals of dialogical meaning-making and concerns about trivialising the visitor experience or distracting visitors' attention away from the artefacts on display.

While some museum professionals speak of a desire to facilitate interactive visitor experiences, moving from "museum monologue" to engaging visitors in "dialogue", we have encountered different notions about what such a dialogue may entail. We have found that different notions often coexist internally at a museum, across different departments, staff groups or managerial levels, making it difficult to move the organisation towards more dialogue with visitors. Facilitating dialogue by digital means often complicates matters further. As stated by one of our museum participants: 'Many of the challenges we face to growing our [digital] capacity are administrative – an institution that sometimes still sees tech as a layer and not an integral part of the visitor/user experiential fabric'.

Museums may benefit from reimagining their own role in facilitating dialogical formats, accepting that this does not only mean that the museum enters into conversation with visitors, but also that the museum provides a background and inspiration for conversations that visitors would like to have with each other. Designers will note that visitors are already busily engaged in all sorts of dialogue - with other visitors, with their social media circles through their smartphones, and more. These activities may sometimes seem more trivial than the dialogue that museums are eager to facilitate - e.g. people may use Instagram not only to share photos and stories about objects on display, but also to share selfies of themselves in the museum. In our many practical engagements with museums, we have seen that it is challenging for some museum professionals to accept this somewhat more background role for the museum artefacts and the curatorial voice. However, we find that there is significant potential for creating

experiences where visitors engage in creative ways with museum content, facilitating increased engagement and, indirectly, some kind of learning.

Preliminary analyses of gifts given by test users of Blast Theory's gifting app demonstrate that the messages users send to each other are, on the one hand, often quite personal and directed at the recipient of the gift; on the other hand, they tend in large degree to 1) address the specific artefact and some aspect of its aesthetic or its historical or cultural identity; and 2) attach a personal meaning to the artefact that relates it to the giver and receiver and their specific relationship. Consider, for example, the gift that the teenager "Kristin"[1] made for her mother, a picture of the painting "Alice in Wonderland" by George Dunlop Leslie (Figure 6), along with the following audio message:

> "So, this picture is called 'Alice in Wonderland', from 1879, and the sofa reminded me a lot of grandma's sofa with the dolls. And the poem says that this is a big sister reading to her little sister, and I think you can imagine me and Leni sitting like this and her reading to me my favourite story."

[1] The names of the test users have been altered.

Figure 6: Alice in Wonderland by George Dunlop Leslie at Royal Pavilion & Museums, Brighton & Hove. CC-BY-SA.

Kristin's message focuses on the meaning this painting has for the two of them and their family. The gift is a very personal exchange in which the museum artefact is made to serve as a mediator for a fond memory. As such, this encounter with the museum object evokes an ideal which art educators often strive for - that the viewer bring their own interpretations and meanings into the encounter, and get inspired to explore the associations that the artwork gives them. This combination of a highly personal connection with artefacts, along with some reflection or questioning about the artefact, is evident in many of the gifts created with the app. An interesting challenge for our ongoing work is to carve out a role for the curatorial voice in these exchanges, for instance to offer more depth of information to those users who become curious about the artefacts.

Future work

While the GIFT project is funded by the EU until the end of 2019, the university partners have committed to maintain and develop the framework for at least two more years after that, in order to ensure that the framework remains viable as a resource for museums in their ongoing work. We are optimistic that further cases of successful deployment of our tools and designs in museums will provide a basis for securing funding to develop the framework further.

In the shorter term, our priority in 2019 is to keep testing and developing the framework, as well as to develop further the practical and theoretical insights from the project into an edited book due to be published by the end of the project.

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