

# Which interactions to foster the social dimension of museum visit?

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## ABSTRACT

Collaboration and social dimension are more and more recognised as a fundamental dimension of museum visits. In this article we review existing works to support social interactions between visitors and we present our proposals to foster group discussion during visits. This kind of support can provide a basis for the development of visitor communities around these social interactions.

## Categories and Subject Descriptors

H.5.2 [Information interfaces and presentation (e.g., HCI)]: User Interfaces: Haptic I/O, Prototyping

## Keywords

Museum visit, interaction, social interaction

## 1. INTRODUCTION

Museum curators seek to provide a rich and engaging experience to their visitors. However, a study by B. Serrell showed that most of the time visitors spend less than 20 minutes at an exhibition and two-third of the visitors actually stop at less than 50% of the exhibits [21]. Interactive technologies are seen by the museums as a mean to provide enhanced information and to improve the experience of the visitors. It should bring a better engagement of the visitors with the exhibits leading to enhanced learning and enjoyment and to longer visit duration.

The technologies that have been deployed in museums range from interactive guides [11][15], to touch displays and tables [14] and augmented reality [2][5]. They have the opportunity to fulfil visitors expectations about easiness and fun [22] and provide the necessary engagement with the exhibits which is characterised by “challenge, aesthetic and sensory appeal, feedback, novelty, interactivity, perceived control and time, awareness, motivation, interest, and affect.” [19]. Even though these technologies can motivate users to interact in new ways with exhibits [15], they suffer from a “heads-down”

effect where the interaction with the device takes most of the attention of the visitor hindering the experience as well as the interaction with other visitors [15][18][17][5].

Another dimension of the engagement of museum visitors is collaboration and social experience. As stated by vom Lehn *et al.*, “social interaction and collaboration are becoming increasingly important to the design and development of exhibits and exhibitions” [24]. Indeed, discussion between visitors fosters exchanging point of views and elaborating the reasons for their opinion on the exhibits which leads to learning and a more thorough experience [13].

In this article we will consider the different works that seek to provide a social/collaborative dimension to the museum visit. In the next section, we will present different approaches to provide social interactions. Section 3 presents two prototypes we have designed with the aim to foster discussions within visitor groups. We will finally draw some conclusions from this experience.

## 2. SUPPORTING THE SOCIAL DIMENSION OF MUSEUM VISITS

Falk and Dierking define the museum experience by three interacting contexts : *personal context* related to prior experience and expectations, *social context* related to other people present in the museum including unknown visitors and museum staff, and *physical context* defined by the museum space and artworks [9]. Fisher & Moses advocates that the museum as a place provides a distinctive experience compared to purely digital media like social networks or virtual museums [10]. Therefore, the authors consider that mobile applications should leverage the social dimension of museum visits. This includes digital activities anchored in the museum space (what they call *virtual social*, for example social network contributions related to a specific artwork). Above all, they value social interactions in the museum space (*real social*: discussing the exhibit, playing a game in the place...).

Indeed, museums provide a unique combination of the personal, social and physical contexts that should be considered for the design of interactive technologies (figure 1). These interactions should provide a context to support the social dimension of the visit. In the next sections we will present existing works that provide this type of social interactions. We have classified them as *context as conversation* and *context as emotion* to denote the level of social interaction.

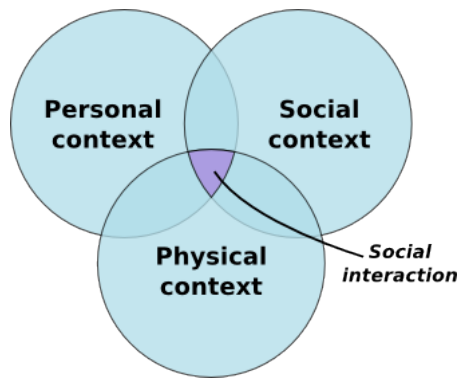


Figure 1: Interactive technologies for social interactions (from [9] p. 5)

## 2.1 Context as conversation

Context as conversation covers the means by which visitors can produce and share content. By enabling the next visitors to elaborate on that content interactive technologies provide a support for ongoing conversation between visitors.

At a simple level, an application like MobiTags allows to associate tags with artworks. The evaluation of the application showed that these tags provided a feeling of social connection with prior visitors and provided a context for the visitor's interpretation [7]. Stevens and Toro-Martell proposed a system to create content by associating textual reflections with still images or videos about the exhibits [23]. These *traces* support conversations between successive visitors since one can augment them with further comments or responses. This process is also a good support for meaning-making since people can express their ideas or engage with others' content.

Manipulating and sharing physical artefacts has been identified as a good vector of social interaction in [6]. In the scope of the meSch project, Belluci *et al.* designed a workshop that offers the opportunity to produce narratives based on physical artefacts (representation of artworks) [3]. The narratives are then displayed on the artefact's case window. Touch based interactions on the case enables commenting and creating an ongoing conversation. These collaborative narratives associated to the artefacts enrich the experience by providing the "opportunity to maintain social contact during a museum visit".

Finally, Elliston & Fitzgerald describe a museum audio tour presented as a spontaneous interactive dialogue between two curators and how they foster engagement of pairs of visitors by providing a shared context for their interactions and reactions [8]. This last example is a bit different since the visitors cannot leave any trace. However, rather than an academic discourse about the artworks, the informal dialogue between curators shape a different experience for the visitors.

## 2.2 Context as emotions

Emotions provided by the artworks and the general experience of the visit can also provide a strong context for other visitors. A study by Alelis *et al.* shows that visitors are motivated to expose emotional response to artefacts and to

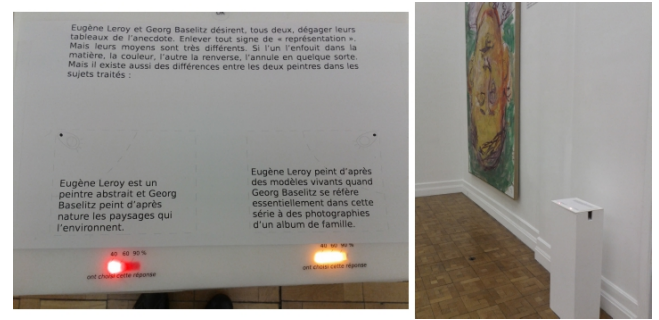


Figure 2: Prototype for questions deployed in the museum

find and share meaningful and personal connections [1].

However, the proposed interactions should not constrain the expression of these emotions. K. Boehner advocates that the meaning or interpretation of artworks should not be imposed to the visitor through the interaction but rather be left open so that the visitor can elaborate her own understanding based on the information given by the system [4].

Laaksolahti *et al.* provide a good example of this type of interaction through a tangible device for the sharing of experience during museum visits [16]. The device comprises tactile and location sensors that enables to record an experience. It also comprises actuators (vibration and shape change) that enable another visitor to *feel* this experience when at the same location.

Fosh *et al.* designed and tested a prototype that enable to create a specific interpretation for another known visitor. This interpretation is associated to a sequence of artworks. It combines music, instructions about what to do (e.g., take a particular position) as well as text provided to the other visitor during the visit [12]. Their evaluation showed that gifting personalised visit experience can lead to rich and intense shared visits.

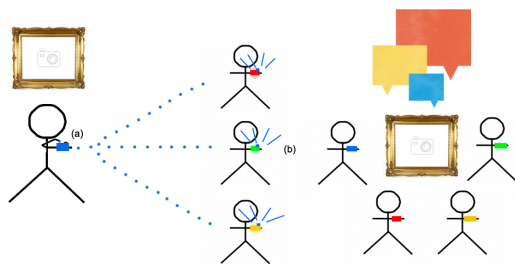
## 3. INTERACTIONS TO SUPPORT DISCUSSIONS

Here we present two prototypes we have designed to foster social interactions. These prototypes address visitor groups and aims at offering opportunities for discussions without taking too much attention from the visitors. The first prototype relies on a tangible token (RFID tag) that allows visitors to choose an answer to a question related to the nearby artworks (cf. figure 2). Since the token is shared among the group, they have to negotiate their response. The visitors then just have to put the token on the chosen answer. Additionally, led bars show the proportion of selection by prior visitors thus building a context in the same fashion as the works presented in the preceding section.

The second prototype provides a means to notify the other members when one sees an interesting artwork. Upon pressing the button, the other members of the group are notified by a vibration and a coloured led helps identifying the sender according to the wristband colour (see figure 3). Here, the



**Figure 3: Wristband prototype to notify other visitors**



**Figure 4: Wristband to notify visitors (a) and begin a discussion about artwork (b)**

rationale is that when people gather to see why one sent a notification, she will have to explain her interest (figure 4).

Both prototypes aims at supporting opportunities for discussion among visitor groups while being simple enough not to catch the visitor's attention. They have been deployed in a local fine art museum. The aim of our empirical study was to know if these types of interactions could effectively support the social dimension of the visit. Only the questions prototype has been thoroughly experimented showing an effect on user engagement regarding the artworks as well as observations of discussion about the artworks within user groups [20]. The wristband has been tested only with a handful of groups. Although we do not have enough data to take any conclusion we have at least observed once the expected effect of the device.

## 4. CONCLUSIONS

We are interested in the social dimension of the museum visits. Towards this, we must consider how to provide meaningful interactions that take benefit from the intersection of the personal, social and physical contexts within the museum.

Our study of the state of art shows that enabling visitors to leave traces of their visit and activities within the museum provides a social context for the following visitors. Allowing them to build upon these traces to generate new ones (for instance as comments) is even more beneficial since it participates in the visitor social connection as well as in the meaning-making process. This kind of support can

provide a basis for the development of visitor communities around these social interactions allowing visitors from different backgrounds to contribute easily.

In our own work, our main hypothesis, is that simple interaction devices can solicit the visitor so as to enhance engagement with artworks as well as to provide ground for discussion between visitors. We want to avoid the head-down effect induced by more complex prototypes even though they provide richer information. The device we have designed with this hypothesis in mind has been deployed and experimented in a fine art museum. Our preliminary results based on questionnaires and observations are encouraging.

In the next step we will build on this experience to engage in a participatory design with museum curators and visitors to design meaningful interactions to support social interactions. We will then make further experimentations with new devices.

## 5. ACKNOWLEDGEMENTS

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