

Imprints of Place: Creative Expressions of the Museum Experience

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ABSTRACT

Personalization and social awareness, important aspects in the definition of a place, are traditionally overlooked in the design of technology for museums. We describe Imprints, a system to enhance the role of visitor participation beyond information receiver to active creator of sense of place. Overall response to the Imprints system is explored through interviews and log analysis of use. Despite some usability issues, response to the system was positive, and it was appropriated for both personalization and awareness of others. The results suggest an opportunity to introduce technology that plays with the dynamic between private expression and public presence in the traditional environment of the art museum.

Author Keywords

Place, museums, context-aware computing, personalization, social awareness

ACM Classification Keywords

H.5.2 User Interfaces

INTRODUCTION

The infiltration of technology into physical locations has sparked the design of technology for the creation of place -- the attachment of personal and social meaning to a space. People appropriate technology to imbue places with new information, meaning, and activities. Urban streetscapes enhanced with digital overlays, for example, become playful venues for new games and encounters [4,5,8]. College campuses become landscapes not only of landmark buildings but associated memories, commentaries, and imaginations [3].

Personalization and social awareness are two common activities supported by technology in the construction of these places. Personalization, the ability for one to make a mark, allows users to transform the environmental setting by reflecting aspects of oneself [6]. Social awareness is in some ways the response to personalization -- it is the recognition of the effect and presence of others. In the urban streetscape, for example, people choose to congregate

at street corners simply because the presence of others attracts them [7].

In the present study, we used the context of the museum to introduce computing technology for personalization and awareness of presence. Unlike urban streetscapes or college campuses, the museum is defined by a more formal and scripted set of licensed activities. Generally, technology in museums serves as a resource for information transfer, unless it enters the museum as art or artifact itself [2]. The design of technology for this functionality maintains and further reifies traditional roles of the museum: providing information about objects.

How can the museum visitor experience be broadened to include personalization and social awareness? In one attempt to address this question, the MUSE project allowed visitors to leave comments and questions behind on a handheld guided tour [1]. Despite the invitation to participate, however, users felt they lacked the expert license to comment on the exhibited art, and the channel was left largely unused.

In contrast to the explicit communication channel of MUSE, we propose the use of more implicit channels for personalization and social awareness. For example, people implicitly narrate the museum experience by virtue of their own and others temporal and spatial patterns. By drawing on this implicit behavior, we seek to reduce the perceived inequality between the commentary license of the curator, the creative license of the artist, and the relative lack of license of the visitor to manipulate and modify the social space of the museum.

RESEARCH AND DESIGN RATIONALE

Our concern with personalization and social awareness in public places led to the following research questions:

- How do people define the place of the museum? Is it defined primarily in terms of information transfer? Is there room in this definition for personalization or social awareness?
- Could we layer on top of an information transfer device support for the additional dimensions of the museum experience, such as personalization or social awareness?

To explore these questions, we created Imprints, a system designed to leave traces of visitor presence in the museum. Using an exhibit of the works of the Byrdcliffe Arts and Crafts Colony as a backdrop, museum visitors could personalize a digital imprint and associate this personal mark with their handheld tour of the gallery. By basing the design of Imprints on a handheld computer, we co-opted a device previously used for traditional information transfer and added a layer of support for awareness of presence and personalization.

Handhelds (Dell Axim) were made available to visitors at the entrance of the exhibit space. Prior to starting the tour, visitors could make an imprint on a tablet PC near the handheld checkout point. The Imprints program had two steps: 1) selecting a background that represented the Byrdcliffe Arts and Crafts aesthetic, and 2) using the calligraphy style pen to enhance the pattern with their personal addition (Figure 1). If a user chose not to create an imprint, a default image was randomly assigned.

In designing the Imprints system, we strove for a simple palette that would produce an aesthetically pleasing mark with minimal effort, but would also allow visitors a high degree of personalization. At the same time, we needed to alleviate potential hesitation due to feelings of inadequacy in creative or personal expression.

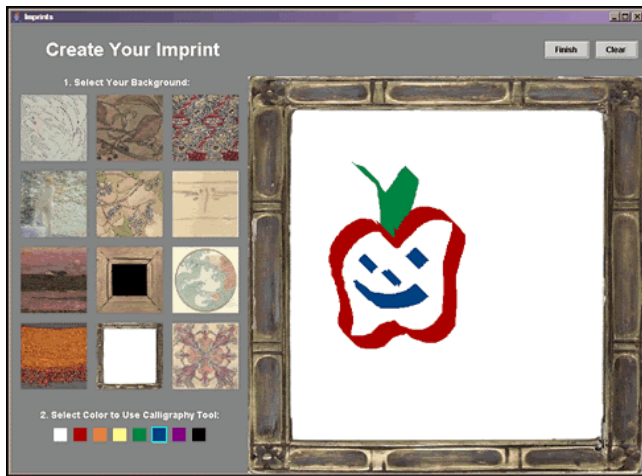


Figure 1. Imprints interface with created imprint

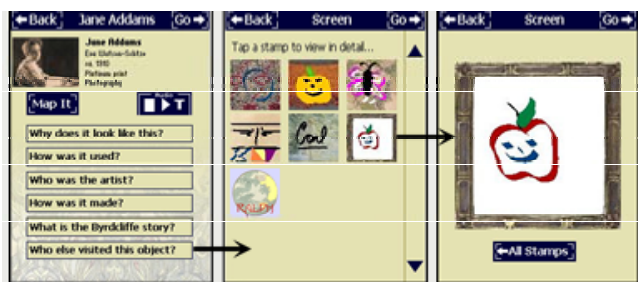


Figure 2. Screen shots of an object's exhibit page and response to the question "Who else visited this object?"

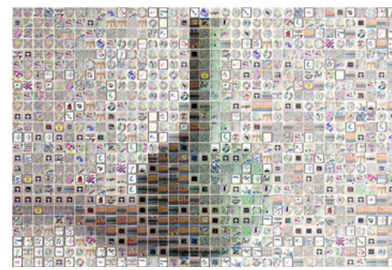


Figure 3. Projected photomosaic

Once the imprint was saved, two displays were created: a handheld display and a wall mosaic. The handheld display was intended as a tool-like form of social navigation. As the visitor selected content modules about objects on the handheld tour, their imprint would be left behind with these objects. Visitors could then ask the question "Who else visited this object?" and see the imprints of previous visitors (Figure 2). The second display (Figure 3) was projected onto the museum wall as a more art-like reflection of collective presence in the museum space. The display was a photo-mosaic of a piece of Byrdcliffe pottery constructed from the individual imprints of all visitors.

EVALUATION METHODS

Handhelds were distributed to interested individuals on thirteen days spread over approximately four weeks. For this study we focus on two types of data collection methods. Logging the usage of the handhelds created a database of recorded navigation events from 152 visitors. Of these 152 records, 62 visitors filled out an online survey providing further demographic information associated with their path and their imprint creation.

In addition, semi-structured interviews elicited the visitors' reactions to the museum, the handheld, and the collective display. Visitors were asked if they would participate in a 15-20 minute interview after their visit. Forty-six visitors agreed, including twenty-two females between the ages of 19 and 60, as well as twenty-four males between the ages of 8 and 60. Over half of the visitors of each gender were between the ages of 19 and 29.

RESULTS AND DISCUSSION

In order to understand how the Imprints system addressed overlooked aspects of the museum experience, we first needed to understand visitors' definitions of museums. Do visitors seek personalization and social awareness in this context?

The Museum as Place

Rather than simply asking visitors how they would define the museum as a place, we asked this question more obliquely in order to surface the salient features, feelings, or activities that people associate with museums. The first question was, "If there were no museums, what would be missing?" The second question was, "If you compared the museum to another public space, what would that be?"

A content analysis of the first question identified three categories of responses. Out of 31 responses¹, 27.3% said that without museums we would miss the art itself, for example the visual interaction with an object to scale. 24.2% would miss the information about art, such as the historical context and the curatorial point of view. In the final category, 48.5% cited the shared space, the experience of being involved, and expressions of community and inter-connectivity as critical aspects of museums.

When asked to create a metaphor for the museum, visitors offered a range of responses from commercial art galleries to civic agoras. The top two responses, accounting for nearly half the metaphors offered, were a library or bookstore (30% of responses) and a public park or garden (15% of responses). Although the library metaphor reveals a perception of the museum as an information source, comments regarding both the library and the public park identified a special type of sociality that did not require explicit social interaction. Visitors can have a private, individualized experience yet still be a part of a social, shared place.

Taken together, these responses confirm that information transfer is a critical component of the museum experience, but they also reveal the importance of social awareness. Personalization is less directly accounted for, although visitors talked about having individualized experience within the context of a public place. This suggests an interesting tension between being public and private at the same time. These responses are especially interesting in light of the typical museum application of technology, which tends to be for information about the art, and promotes the private at the expense of the public. Critical dimensions of the museum experience have been overlooked.

Imprints in the Museum

In the following sections we examine how the imprint system was appropriated for the personalization and social awareness activities.

Imprints and personalization

Our first metric of success was whether or not visitors used the Imprints program. From the tour log of 152 visitors, 73% chose to make their own imprint rather than use a default, suggesting that indeed visitors engaged in the creation of a personalized imprint. A content analysis of these imprints offers some further insights into the imprint making process as an exercise of personalization.

Imprints were coded in terms of pattern selected, type of marking added by the visitor, and the coverage of the

visitors' mark.² The most common, out of 12 possible patterns, were the two open frames (31.2%) indicating the desire for a high degree of freedom in creating one's mark. In terms of the mark added, signatures and initials, a readily apparent form of personalization, constituted the bulk of the markings at 32.1%. The least popular mark was simply tracing the existing pattern (5.5%), indicating that people were not simply mimicking the pattern but attempting to add something unique or personal on top. Finally, the majority of marks used the entire background canvas (42%) whereas a much smaller percentage of marks (5.5%) were minimized and pushed to one of the corners. In sum, these data suggest that visitors appropriated the patterns provided for personal expression.

The interview data corroborate, and further describe, the content analysis findings regarding the importance of personalization in the imprint creation process. When interviewees discussed why they chose certain patterns, there were two predominant reasons. Popular patterns, such as the Japanese fish set in a circular border, provided a good canvas, felt stamp-like, or left space for their personal mark. Unpopular patterns, like the Morris tapestry (Fig. 1, top right), were too complicated and felt fragmented. The second predominant reason for pattern choice was that it appealed to their personal aesthetic preferences. Only three out of 44 interviewees indicated that their choice of pattern was actually a non-choice (e.g. "it was the first thing I saw" or "I didn't like any of the others").

Regarding the type of marks made, several interviewees used marks reflective of a personal preference (e.g. "I like butterflies") or a personal symbol (e.g. "I'm a teacher, so I drew an apple", "I'm a caver, so I drew a bat"). The use of signatures or initials was primarily explained as being either a simple or a safe form of personalization. Two of our respondents used their name because they did not feel artistic and the signature was a non-threatening expression. However, the signature was also used as a call-out. One respondent noted that his friends would be able to read his signature, whereas strangers would not.

Imprints and social awareness

The above results demonstrate that personalization was an important part of the imprint making process, but our next set of questions explore whether the imprints were consequently used for social awareness.

Networking difficulties prevented the imprints from appearing consistently on the handheld. Initial evidence, however, suggests that visitors recognized the potential of the imprints as a stimulus for reflection on social presence. Log data from survey respondents (a subset of 62 tour logs) showed that 95% of these visitors asked the question "*Who else visited this object?*" at least once, indicating that the

¹ Our coding was performed by two independent coders with resulting Cohen's kappa of .95 ($p < .01$).

² Cohen's kappa of 1.0 ($p < .01$), .88 ($p < .01$), and .89 ($p < .01$) respectively

opportunity to see traces of others provoked curiosity. Furthermore, in the interview process, several visitors commented on using the imprints for social awareness:

"I went to a particular piece of artwork that I really liked and thought, 'I wonder who else has been here to look at this'? Maybe I could see a pattern...or recognize a kindred spirit." (female, 48 yrs old)

"A museum is usually a very solitary experience, so the notion that someone was here before you, I really like that." (female, 30 yrs old)

"I went to one object with four other imprints, and I thought 'mine is better than theirs.'" (male, 60 yrs old)

As the last quote above demonstrates, visitors displayed a range of social awareness. Whereas some visitors looked for commonality and connection in the traces left behind, others looked for differences. Regardless, the data suggest that visitors were able to construct social narratives regarding the use of the imprints on the handheld.

The display of the imprints in the mosaic (see Figure 3), however, was more difficult for people to understand in the context of social awareness. Several interviewees commented that although the mosaic was interesting, they weren't sure what to read into it: was there some greater meaning to the collection and placement of imprints? In this vein, several people tried to figure out how they might design their imprint differently in order to make their imprint bolder or position it in the center of the mosaic. They wondered if there were rules they could have played with or if the mosaic was simply random.

As such, viewing the imprints on the handheld was more successful in terms of social presence awareness than viewing the mosaic of imprints displayed on the museum wall. Visitors could easily read an imprint's significance when associated with an object, but the wall display was too ambiguous without inviting interpretation. This suggests that perhaps using social information in the museum for utility or tool-like functions (as in a recommender system) made more sense to visitors than portraying the social information as art itself. The mosaic display in its current form served as neither art nor tool. To be art, it needed to be more evocative to allow for playful or poetic interpretations; to be a tool, it needed more context cues for people to be able to read it.

CONCLUSION

The purpose of this initial investigation was to explore aspects of the museum experience that have been

overlooked by technology. Previous attempts to use technology for more active visitor participation have met with limited success partly due to the institutionalized definitions of the museum and the visitor's traditional role. This study therefore supported new forms of expression through reflection of existing behaviors. In this way, the simplicity of the Imprints process acts as a scaffold for the realization of alternative visitor roles and the impact of presence in the construction of the museum as a place. The evidence collected through interviews and log files suggests a degree of reception to technology designed for personalization and social awareness. Future work with technology in the museum should incorporate these opportunities, adjusting the balance between individual expression and the larger temporal social context.

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REFERENCES

1. Boehner, K., Gay, G., Sengers, P. Brooke, T., and Chen, X. Technologies for Reflection. CHI 2004 workshop. Reflective HCI: Towards a Critical Technical Practice.
2. Bell, G. Making Sense of Museums: The Museum as 'Cultural Ecology.' Intel White Paper (2002). <ftp://download.intel.com/labs/about/download/museum.pdf>.
3. Burrell, J., Gay, G., Kubo, K., and Farina, N. Context-Aware Computing: A Test Case. In *Proc. UBICOMP2002*, Springer Verlag (2002), 1-15.
4. Chang, M. and Goodman, E. FIASCO: game interface for location-based play. In *Proc. DIS 2004*, ACM Press (2004), 329-332.
5. Crabtree, A., Tandavanitj, N., Steed, A., Benford, S., Rodden, T., Greenhalgh, C., Flintham, M., Row-Farr, J. Orchestrating a mixed reality game 'on the ground.' In *Proc. CHI 2004*, ACM Press (2004), 391-398.
6. Marcus, C.C. *Environmental Memories Place Attachment*. Low, S. and Altman, I. (eds.) Plenum Press, New York, USA, 1992.
7. Whyte, W. H. *City: Rediscovering the Center*. Doubleday, New York, USA, 1988.
8. Yellow Arrow. <http://www.yellowarrow.org>