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Designing with the experiential in digitally augmented exhibitions

Abstract
The ways in which audiences interact and make meaning in digitally augmented exhibitions is an important design determinant. In such an interdisciplinary project, the design, the museum and new media encounter the problem of the experiential. A creative experimental analysis of audience experience employing aesthetic visualisation semiotics draws from the principles of information design, computational aesthetics and human centred design as argued is a relevant adjunct to an exhibition providing fresh perspectives and new knowledge about interactive, experiential, artefactual expressions, known as field and body, provides a conceptual map of the exhibition experience relying on the creativity of audience participants in making visible, legible and tangible their perception of a work. The data yielded reflects abstract notions of audience experience engagement a discussion about the phenomenological, curatorial and cognitive effects of the digitally augmented exhibition experience.

Keywords: Co-creation, user experience, information design, digital container

1. Introduction
Human centred design and the museum have undergone parallel changes regarding the position of the audience. Human centred design refers to the philosophical and theoretical discussion focused on prioritising the human being in the overall design process (Frowe, Rogers & Sharp 2002, Hanington, 2006, Buchanan, 2006, Sanders, 2006). Human centred design is a broad term that acknowledges the concept of the user surpasses ‘use’ to incorporate a sentient person situated in their world. In re framing their nature and practices, museums have also come to understand their audience as plural in its composition (Macdonald, 2006, p. 31). Barbara Sudick (2006) argues that each person shapes their dialogue with an artefact and constructs their own unique understanding of a museum experience simultaneously by intercultural, cultural, social and personal contexts” (p. 186). Understanding the museum visit as a participatory social activity privileges the experience of the audience as a reflective exhibition context, technology and audience research activities (Kelly, p. 49). Paralleling the challenge designer-driven from human centred and participatory design, the museum-as-expert and the audience-as-novice communication model is now common-ly seen as an anachronism stemming from an overly didactic past. Instead, Douglas Schuler and Aki Namioka (1993) could be writing of human centred design or contemporary museum practice when they argue, ‘participation stands in contrast to the cult of the specialist. In the specialist model … [the question is pre-sented to the Expert who will eventually produce the Answer. With this approach, those most affected by the conclusion must sit idly by, waiting patiently for en lightenment’ (p. xiii).

For Helena Friman, (2006) museums’ future hinges on “their relationship with the public” (p. 5). Following André Malraux, she takes the idea of the museum with out walls to challenge museums to merge with potential communities. This she argues requires the museum to shift its focus from what the museum is to what it does. Friman (2006) argues that for most museums it’s not enough to have sophisticated well designed exhibitions; talented curators and marketing staff “must adapt a new strategy and use their resources with the public in a more creative way” (p. 56). Such philosophical developments have seen the call for museums and other cultural heritage institutions to adopt technology to expand the dimensions of peoples’ interaction with their programs and collections, while still promoting learning. L. Smith, (2001) argues that technology is transforming all aspects of museum activity, bringing about fundamental shifts in the operation of cultural and knowledge institutions. Angelina Russo (2005) reports on the role social networking has played in connecting organizations and audiences (p. 9). The development of digital exhibitions has enabled diversification and disseminating exhibition content facilitating more democratic outcomes for museum visitors. For instance, as curators recognize the potential for multiplic-a-tion of meaning, they are compelled to become less didac-tic and more open in their choices of exhibition form and content, taking on the role of facilitators of experience and learning, embracing a multiplicity of representation-also philosophical and techniques and processes based on intercommunication and technology (Kelly, p. 5). Yet discussions of digital presentation systems in the museum are often mired in the fetishization of technological advancements, which fail to grapple with museums’ major challenge in medi-atizing exhibition content. Where museum activity encompasses not only the representation of cultural objects and information but also experiences, correlating audience experience with the digital immersive augmented exhibition (digital container) is argued as equally important as the technology. Therefore the museum and its contributors cannot af-ford to deploy digital technology without understand-ing processes of mediation or adopting human centred approaches.

The ‘appearance’ of the audience in the philosoph-ical domains of museology and design is an important concurrence. Over the last ten years, a move towards an inclusive and interpretive paradigm of practice con-cerned with better understanding people has affected a number of disciplines within the museum, including audience research, museum pedagogy and exhibition evaluation (Hooper-Greenhill, 2006). Audience research in the museum is an umbrella term that comprises visi-tor studies, visitor research, evaluation and market research (Kelly, p. 49). Measures of success based on the museum’s ability to transmit knowledge on a func-tional level, albeit important, particularly in reference to science and natural history exhibitions, have lost cur-rency along with behaviourist models of audience re-search where the museum visitor is examined in terms of the effectiveness of their response to the museum’s stim-ulii (Macdonald, 2006, p. 320). Within such a model, de-sign served the role of “packaging messages” to help pass over the expert visitor divide (Macdonald, 2007, p. 150). The role of designers, like that of the museum visitor, has shifted from a passive position of waiting to receive an experience to an active one of exercising influence over the content and form of exhibitions. For example, summative museum exhibition evaluation seeks the ex-hibition not as a fixed destination, but rather some-thing under continual evaluation and change. Michelle Henning (2006) argues that this shift can be traced to the 1970s, when “museums began to employ profession-al communicators and designers to mediate their mes-sages to the public” (p. 31-4). Designers, once tasked with delivering an attractive medium for the presentation of content, began to act as translators and facilitators of information, a role which today has become integral to the design of many museum programs (Macdonald, 2007, p. 150). Design is increasingly acknowledged as central to the visitors’ experience, with potentially pro-found connotations for determining the inherent char-acter of that experience (Macdonald, 2007, p. 150). The effort to create a progressive museum model more responsive to the needs of visitors requires commu-nication between audience research, design and museum practice. Understanding people and their role as intermediaries of an exhibition or an entire museum program demands innovative research methods. This is evidenced in both in audiovisual, exhibition design and design practice. Co creative, participatory human centred design methods assist in exhibition concept development as well as the evaluation of exhibitions where visitors are no longer considered ‘an exhibit’ (Hanington, 2006, p. 356, Sanders, 2002, p. 5). The intention is that audience and designer gain new know-edge as they are “active interpreters and performers of meaning-making practices within complex cultural sites” (Hooper-Greenhill, 2006, p. 356).

The resurgence of Benjamin Gilmans’ (Gilmans in Kelly 2004) observations of people in the 1880s identify-ing visitor fatigue undermine an interest in the representa-tion of the audiences experiences. Gilman concluded that prioritising the aesthetic and curatorial in exhibitions without considering visitor focus was in danger of being poorly designed. He specifically argued that “psychologi-cal wellbeing of the visitor affected and impeded on the reception of the exhibition” (p. 55). This paper extends on Gilman’s notion of well-being to include the emotional, the social and thus felt responses of audiences in a dig-ital immersive exhibition.

1.1 Communication spaces
Falk, Dierking, and Adams (2006) argue that, “in a world that allows for multiple perspectives, the conditions for meaning have become as important as the meanings themselves” (p. 353). For design, these conditions of meaning are relative; the actual of communication framed by several key conditions, which Frascara describes provide a context, a code, and a possibility … and also allow and constrain the communicational outcome” (p. xiii). Frascara (2006) uses the terminology of frames to ex-plore the nature of a communicational event, which he sees as always situated. For Frascara, communication is a constructive as well as a transmitting act. Not only is it “something that always happens in a setting”, commu-nication designers forge “a space”, where the public meets the message” (p. xiii). This ‘communication space’ proposed by Frascara is not based on designers’ intui-tions or authority Sudik (2006) argues that the commu-nication designer forge “a space”, where the public meets the message” (p. xiii). This ‘communication space’ proposed by Frascara is not based on designers’ intuitions or authority Sudik (2006) argues that the communication designers forge “a space”, where the public meets the message” (p. xili). This ‘communication space’ proposed by Frascara is not based on designers’ intuitions or authority Sudik (2006) argues that the communication designers forge “a space”, where the public meets the message” (p. xiii).
Communication spaces require negotiation between designers and audiences. Communication spaces may be physical or virtual, or take the form of containers as in the case of digital immersive museum exhibits. Frascara looks to the design of a container of spaces in the objects that populate them as well as in the characteristics of the spaces themselves.

What are the characteristics of the communicational potential of the spaces provided by an interactive digital augmented 3D stereoscopic immersive exhibition (digital container) such as the PLAe system (Shaw, 2009)? Investigating ‘an experience’ in the digital container is fundamental to the human-centric design and museum research paradigms. What are the transactions between the audience and these digital immersive spaces? How are the messages provided by the content providers, constructed by and received by the audience? What is the influence on the combinational factors such as the dynamics of the interior, the audio, 3D stereoscopic animation and presence of others? How does the audience actively contribute and build their experience of these digital containers? How is it possible to convey or discuss these abstract phenomena? Furthermore, how can all stakeholders engage in the discussion? Here the questions outweigh the answers found in the literature. Design of ‘multi-user systems’ that expand into new areas of audience experience are in urgent need of attention (Krippendorff, 2006, p.208). Investigation of ‘an experience’, through the interactive artifact of the digital container is proposed as a collaborative activity. An analysis of ‘an experience’ in the digital container aims to generate co-creation activity between the designer, audience, content providers and technology.

1.2 An analyses of audience experience in the digital container

A study of PLAe-Hampi consisted of a questionnaire that was conducted in conjunction with the exhibition Spark to Pixel at the Martin-Gropius-Bau, Berlin, 2007 (Kendredine, Shaw & Kocsis, 2009). The questionnaire was designed to generate a mix of quantitative and qualitative information about audience experience in the PLAe-Hampi exhibit. PLAe-Hampi based on an interactive projection system, invented by Jeffrey Shaw, has today integrated stereoscopic 3D projection amongst other features documented at http://place-hamps-museum. Its main attraction is the motorised platform that lets the viewer rotate in their projected point of view in 360 degrees within its large cylindrical screen enabling a multi-sensory multi-sensory presentation of the archaological, historical, and sacred locations at the site of the World Heritage of Vijayanagar in Hampi, southern India (Kendredine, 2004, 2007, 2008).

An interactive artefact provides new information pertaining to the audience’s world within the exhibition space (Kendredine, Shaw & Kocsis, 2009). This informs the creative and experimental framework of the interactive artifact known as field and body. Furthermore, findings about the social and the co-experiential aspects of interactive exhibitions demand an abstract and visualisation of the audience experience via the interactive artifact. This artifact is proposed as an adjunct to a digital container exhibition. The interactive artifact aims to provide a post exhibition debrief whilst facilitating for stakeholders of a digital exhibition project a creative participatory avenue in the exploratory, generative and evaluative phases of research and design (Kenderdine, Shaw & Kocsis, 2009). The interactive artifact provides an abstract and experimental visualisation of an equal-abstract and difficult to qualify expression, namely ones experience of the exhibition.

1.3 A phenomenological approach to audience experience

The difficulty with experience, however, is that we can only experience our own life, what is received by our own consciousness. We can never know completely another’s experiences, even though we have many clues and make inferences at all the time (Turner & Bruner, 1986, p.5).

While a discussion of experience would not appear to require specialist knowledge, since it is a universal concept and framework, it can be useful to define experience in terms of the following concepts. Experience is defined as a synthesis of abstract reasoning and the senses. It enables the designer to identify and make useful the difference between the learnt and the felt, between intuition and formal knowledge, and between the objective and analytic and subjective perspectives. Dewey (1959) account of ‘an experience’ serves as a workable context informing the meaning attributed to the design of the interactive artifact. An experience is defined by a clear start, completion and a cohesive trajectory. Dewey thus clearly distinguishes an experience as marked by a sense of fulfillment, unity and completion. It is this working definition of experience in conjunction with a pragmatic phenomenological framework that forms the context for drawing specific insights about the audience experience in the digital container. A phenomenological account of experience is evident in the work of researchers is to “make manifest the incessant tangle or reflexivity of action, situation, and reality in the various modes of being in the world” (Orleams, 2000, p.210). Phenomenological studies undertake analyses of small groups, social situations and organizations using a number of qualitative techniques, methods are employed to uncover the subjects “life world” (Orleams, 2000, p.210).

The complex and abstract nature of an audience’s life itself challenges the process of extrapolating the meaning of experiences. Its fleeting and effusive character and its unclear temporal nature – the fact that experience seems suspended in time between presence and its memory – makes difficult any attempt at defining experience. As Wilhelm Dilthey (1976) argues, the relationship between experience and its expression is always problematic [...] and the relationship is clearly dialogic and dialectical, for experience structures expressions, in that we understand other people and their expressions on the basis of our own experience and self-understanding (p.166).

Therefore it is proposed that representing such an abstract and subjective concept requires collaborative experimentation that engages in co-creative activities in order to generate a greater discussion. A visual sensorial and interactive activity ideally can facilitate the interpretation of an experience given that the structure of experience is a hermeneutical and reciprocal process in which revealed in the intimate connection between experience and representing experience “experience structures expressions and expressions structure experience” (Turner & Bruner, 1986; p.5).

Sharon Macdonald (2007) argues that although audience research encompasses issues of media, sociology and space and recognises an active pluralistic audience, “that there has not yet developed a significant language in which to describe and analyse the phenomenology of an experience on which they focus” (p.158). Evidently, the work of sketching out this horizon and of finding a language for a technological phenomenology presents challenges. Macdonald (2007) also suggests that whereas the formal ‘aesthetic syntax’ of exhibitions or a common set of rules seems a rather complex project (p.159). Nonetheless, the interactive artefacts field and body aim to further the discussion pertaining to audience experience in the digital container where the functional criteria become complemented by phenomenological criteria. As design values have moved from “objects to experiences, from procedure to situation, and from behavior to intent” (McCullough, 2005, p.55) designers have changed the question from “How is it used?” to “How does it feel to use?”. This phenomenology of engagement as suggested by Smith (1995) represents a new approach to questioning. Designers and technology thus engage in the task of designers that build technologies and digital artifacts around the everyday. However the phenomena of experience of the digital container in design research has attracted seemingly little descriptive and analytic focus whereas schematic frameworks and experimental paradigms of the exhibition and museum research methods. The experimental artefacts in this paper aim to generate participation and discussion.

The conceptual understanding of the phenomenology of experience in the digital container was based on an analytic framework from a questionnaire in 2007 of the audience experience in a digital container (PLAe-Hampi). The analyses and the findings (not discussed in detail in this paper) facilitated moving forward the digital container. The conceptual framework of the digital container includes a set of psychological and physical, sensual and supra-sensual, individual and social, and intellectual and affective parameters. The set is structured by the concepts of emotion, embodiment, scalability composition, spatio-temoral, ‘flow’, and coexperience. These components are crucial to better understanding an experience in the digital container. Key concepts pertaining to an experience as part of the questionnaire focused around “specific propositions, questions, or activities” (Yin, 1981) of the digital container developed by the author were clustered thematically and listed as follows:

- Orientation / navigation / negotiation / time in the space / spatio-temporal
- Bodily experience of the space / embodiment
- Relationship between user and screen context
- Relationship between user and interface usability / participation / orientation
- Level of immersion (‘being there’, presence, sense of travel)
- Flow (time spent, level of involvement)
- Social experience levels: individual and co-experience

2.0 The post exhibition interactive artifact

2.1 Background

Post analyses of the questionnaire uncovered the social and largely co-experiential life of the audience in the digital container. Secondly anecdotal discussion with the participants disclosed that they had hoped for follow-ups or further discussion given the extensive and somewhat grueling length of the questionnaire. The lack of opportunity to share, discuss and learn what others had to say about the exhibition, directly after the exhibition became a predominant criticism in the post-exhibition questionnaire. The designer saw the opportunity for a co-creation activity for all stakeholders employing the language of interaction design and computational narratives. The findings from the analysis of the questionnaire proposed that the task at hand was to design a tool that could reveal new information pertaining to the audience’s world within the exhibition.
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References

Field and body are examples of a dynamic and evolving post installation art­ifact, It draws audience partic­i­pation and provides a space for experiential and cognitive de­velopment, It constitutes audience research that is con­­­iguous with the installation in medial and experiential terms. The data­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­…


