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Teaching case: Influences of six sigma embracement and abondenment

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THE APPLICATION OF A PHENOMENOLOGICAL FRAMEWORK TO ASSESS USER EXPERIENCE WITH MUSEUM TECHNOLOGIES

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Abstract

Providing visitors with a valuable experience of the past has become a crucial mission for cultural heritage institutions. The experience of the past is one where visitors understand the museum's communications about the meaning of artefacts and where visitors undertake an active role in interpretation and reflection on the past. Several studies promote technologies as a good way for museums to reenergize their relationships with their visitors. But even as some research has concentrated more and more on visitor experiences, this work has neither particularly stressed on visitors' experience of the past nor on their evaluation of museum technologies with respect to their potential for engendering a better experience of the past.

Monod and Klein (2005) elaborated a phenomenological framework with six criteria to evaluate IT used in the cultural heritage. Since it has not been empirically "validated" yet, the objective of this paper is to employ these criteria with samples of users of museum technologies and in the process determine whether these criteria can be met by IT.

Our field study indicates that technologies available in museums positively contribute to an experience of the past.

Keywords: Museum technologies, evaluation, experience, phenomenology, Heidegger, historicity.

1 INTRODUCTION

Museum studies in a wide range of journals have noticed individuals having an increased interest in the past in general (Liew 2005), and more specifically in heritage sites (Poria et al. 2006). The principal motivations for heritage site visits are the desire to connect with one's heritage and the desire to learn more about history (Poria et al. 2006). According to Kimmelman (2001), "we go to museums to remind ourselves [about] who we are". There are many benefits that visitors gain from heritage sites, from connections with the past and identity finding (Chronis 2005) to a "nostalgic bonding" linked to the recollection of things belonging to the past (Holbrook and Schindler 1994). The past is a valuable experience because of its civilizing effects and the extent to which it becomes a highly personal experience for the participant. It is one where visitors understand the museum's communication about the meaning of artifacts and where they undertake an active role in interpretation and reflection on the past.

Consequently, providing visitors with a valuable experience of the past has become a crucial mission for cultural heritage institutions. Technologies have been presented as the panacea to enhancing visitor experience. Indeed, numerous studies promote technologies as a reasonable way for museums to reenergize their relationships with their visitors (Fopp 1997; Messham-Muir 2005; Vom Lehn and Heath 2005). For instance, virtual reality technologies can represent "items which have not survived, creatures which are extinct, the visions of great men which were never realized or even the imagination of artists and thinkers" (Fopp 1997, p. 146). By displaying events from the past, virtual reality helps people relive historical events in their mind. Furthermore, the "first-person perspective" (Lok 2004, p.50) enables visitors to feel more concerned by what they see and so to project themselves in history. Hybrid environments or mixed reality simulators, devices that enable visitors to look at real and virtual objects in the same time (Lok 2004; Sparacino 2004), reduce the distance between past and present objects by allowing visitors to directly compare objects belonging to two different eras. More common museum technologies like audioguides, interactive and multimedia kiosks generally provide historical background and tutorial aids to visitors.

However, even while some prior research has focused on visitor experience, there has been neither a particular stress on visitor experience of the past nor on an evaluation of the technologies that are proposed to enhance better experience of the past. In effect, museum professionals have few guidelines on how to assess visitor experience, particularly in the context of IT use (Institute of Museum and Library Services 2006; Pujol Tost and Economou 2007).

Monod and Klein (2005) have proposed a phenomenological framework to evaluate IT used in the cultural heritage. Nonetheless, this framework has not been empirically tested and the criteria have not been operationalized with subjects. Therefore, this research aims at examining these phenomenological concepts. The subsequent research questions that guide this study are the following:

1. To what extent do museum technologies contribute to an experience of the past? More precisely, to what extent does IT meet the criteria proposed by Monod and Klein (2005) and convey a phenomenological experience to visitors?

2 THE EVALUATION OF VISITOR EXPERIENCE

Researchers from different disciplines have developed a wide variety of frameworks to study visitor needs and to provide directions to museums (Anderson 2004; Kotler and Kotler 2000). It is noteworthy that these frameworks have remained conceptual since they have not been empirically tested within museums or with visitors. Furthermore, they do not explicitly address the role of technologies in museums. For instance, the marketing researchers Kotler and Kotler (2000), propose

three dimensions on which museum professionals should focus in order to improve visitor experience. They are: (1) the variety of visitor experiences, (2) the level and depth of visitor experiences and (3) the design and orchestration of visitor experiences. While Kotler and Kotler (2000) principally identify operational levers to enhance visitor experience, Anderson's framework (2004) points out the organizational functions of museums serving as a foundation to develop a visitor perspective. More precisely, Anderson (2004) suggests four domains on which museums should rely in order to be visitor oriented: 1) governance, 2) institutional priorities, 3) management strategies and 4) communication style.

Certainly, a number of empirical frameworks do address visitor experience and some examine visitor experience with technologies (Falk and Dierking 1992; Peacock and Brownbill 2007). But even while these studies do focus on visitor experience, there has been neither a particular stress on visitor experience *of the past* nor on an evaluation of the technologies that are thought to lead to a better experience of the past for visitors. Additionally, museum professionals have few guidelines on how to assess visitor experience, particularly in the context of IT use (Institute of Museum and Library Services 2006; Pujol Tost and Economou 2007). According to a recent report,

"[Museums] would like information, training, and guidance on how to better assess user needs, including methods of collecting information about the characteristics of users, how they use an institution's technology and digitization services and products, and for what purpose." (IMLS, 2006, p.124)

Information systems evaluation is an important research stream for the IS discipline and it has given rise to several frameworks, such as the IS Success Model (Delone and McLean 1992; Delone and McLean 2003) and the Task-Technology Fit (Goodhue and Thompson 1995). This issue has also been addressed in several IS journals and in special issues (e.g., Irani and Fitzgerald 2002). For instance, Delone and McLean (1992) elaborated the IS Success Model in order to determine the factors that play a role in IS success. This model was refined in 2003 to include other variables and new linkages that appear to be important in the assessment of IS. Recently, Petter et al. (2008) in their meta-analytical review of the IS Success Model highlighted the fact that this research model has mainly been applied to utilitarian contexts.

"What still remains to be discovered is if the D&M model is appropriate for hedonic IS. Some of the dimensions may no longer be relevant or may need to be measured differently for gaming, social networking, or other types of IS used for enjoyment." (Petter et al. 2008, p. 258)

Consequently, prior research dealing with evaluation has mainly focused on a utilitarian perspective of IS evaluation, that is trying to determinate how IS can increase organizational or individual performance. Appropriate for this utilitarian context, users are often represented by managers or employees.

What is different about the cultural heritage context, however, is that IT users are best compared to visitors but visitor performance does not appear to be as important as in company settings. Rather, enhancing user experience by providing entertainment, education, and a good experience of the past are the crucial targets for museums. According to the well-known museologist Sola (1997), "a museum should assist people to understand the experience of the past. In its mutual relationship with its users, it should find in past experience the wisdom necessary for the present and the future" (Boylan 2002). Moreover, museum technologies tend to serve hedonic purposes. Therefore, the evaluation of IS deployed in cultural heritage institutions should be done in accordance with these cultural objectives.

Some researchers who have paid attention to hedonic information systems (Van der Heijden 2004; Wakefield and Whitten 2006) show that they require specific criteria for their evaluation. For instance, Van der Heijden (2004) highlight the fact that enjoyment and ease of use are more relevant in the

assessment of hedonic technologies. The Human-Computer Interaction subfield has also devoted part of its research attention to hedonic systems. User reactions, such as cognitive and affective reactions, have been conjointly analyzed to better evaluate the efficiency of information systems (Sun and Zhang 2006).

Even if cultural heritage research focuses more on visitor experience, there is neither a particular stress on visitors' experience of the past nor on evaluations of the technologies with respect to their potential for engendering this better experience of the past. Furthermore, Monod and Klein (2005) explain that the frameworks that exist to evaluate IT in cultural heritage are mainly driven by technological determinism. Indeed, these models generally postulate that the implementation of IS in museums will positively impact visitor satisfaction and experience even while there is little verification of whether these technologies really achieve their goal (Monod and Klein 2005). In the next section we present a framework that addresses many of these gaps by evaluating user experience with IT from a phenomenological point of view.

3 THE VALUE OF PHENOMENOLOGY IN STUDYING VISITOR EXPERIENCE: INTRODUCTION OF THE CONCEPTUAL FRAMEWORK

3.1 Phenomenology: How this Philosophy Particularly Fits Museums

Phenomenology is the "science of phenomena" (Heidegger 1962, p.50). This is also a philosophical movement that appeared in the first half of the 20th century (Spiegelberg 1975). It focuses on the experiences of individuals. Indeed, it aims at studying "phenomena as consciously experienced" (Spiegelberg 1975, p. 3). This philosophical underpinning was initiated by Husserl (1936) and his student Heidegger (1962). They encouraged researchers and philosophers to turn "to the things themselves". People should turn themselves "to the world as it is already experienced" (Ilharco 2002, p. 304). Other philosophers like Merleau-Ponty and Sartre also nurtured phenomenology through the concepts of self and embodiment (Smith 2003). While these other philosophers are important in the development of the philosophy of phenomenology, our research follows Heidegger's view as it was developed in his book *Being and Time* (1962).

Phenomenology aims at studying individual experiences. Heidegger (1962) contended that human beings need action and praxis with objects (i.e., to engage with them) in order to feel closer to these things (Smith 2003). Therefore, individuals cannot see an object or imagine it in order to understand it because it is only a "representational form of intentionality" (Smith 2003). This argument leads to conclusion that being able to touch things or to manipulate them contributes to a better experience and to better interpretation.

As indicated in the title of his book, Heidegger (1962) addresses the question of time and its relation to being. Heidegger asserted that time has an ontological function since it constitutes being (Dastur 1993). Indeed, "we are temporal beings not because we exist in time but because time is really what composes our beings" (Dastur 1993, p. 301). Temporal beings are open because individuals are always turned towards the future and the past, and their self-meaning is not fixed (Lyotard 1992).

Additionally, it seems that history plays a role in people's existence as it can shape their present and future (Monod and Klein 2005). In effect, historical objects represent remains of the past and consequently, they give to people their historical dimension. It is thanks to these remains that individuals know that something before them existed (Heidegger 1962). However, these historical objects have a secondary historicity; they are historical because they belonged to a past humanity and were created by historical beings (Lyotard 1992).

In that Heidegger's phenomenology puts a special emphasis on time (history), human existence and experience seem to be perfectly appropriate to the study of cultural heritage institutions, whose goals are to display past heritage and focus on visitor experiences.

3.2 Phenomenological Framework: Presentation of the Criteria

Based on Heidegger's concept of historicity, Monod and Klein (2005) elaborated a framework to evaluate technologies of cultural heritage institutions. The framework aims to determine whether technologies, by meeting user requirements, have interpretive characteristics, and whether IT contributes to a good experience of past. In their original framework, the authors included eight criteria: re-enactment, embodiment, context, self-projection, possibilities of being, historical self, inquiring being, and universality in uniqueness. These criteria were reduced to six in a more recent version, and the framework now focuses on context, embodiment, self-projection, re-enactment, possibilities of being, and historicity. These criteria are defined in greater detail hereafter.

- Context

The first criterion proposed by Monod and Klein (2005) to provide IT users with a phenomenological experience is context. According to Monod and Klein (2005), context is represented by the shared values, overarching values and beliefs that contribute to meaning-making experiences. Indeed, without cultural and historical context it is difficult for individuals to have a comprehensive understanding of their personal history and of history in general. It is very frequently true that in cultural heritage sites, visitors do not understand the purpose of an object or even realize its historical importance. Indeed, Schärer (1996) contends that information provided within museums is generally more structural (some general indications) than cultural (information on the earlier context of use).

- Re-enactment

Re-enactment is the second criterion identified by Monod and Klein (2005). "Re-enact" in a literal sense means to "perform again" or "to go through a second time" (The American Heritage Dictionary of the English Language 2000). Collingwood (1946), who studied philosophy of history and devoted a lot of his research to re-enactment issues, argues that the work of historians should be seen as an imaginative reconstruction. Indeed, re-enactment was first set forth as an important capability for historians since these scholars need to relive historical events in their mind in order to interpret history and to better convey it to people (Collingwood 1946). Consequently, re-enactment can be viewed as a methodology to produce historical knowledge (Nielsen 1981). It is noteworthy that this possibility of reenactment should also be at visitors' disposal in order to enhance their experience of the past (Monod and Klein 2005). Indeed, if visitors can relive historical events in their mind, they will be projected into the past and are more likely to understand historical personalities, for instance, or way of life in the past.

- Embodiment

The third dimension deemed to be important for IT user experience is embodiment. Embodiment is a notion that was developed principally by Merleau-Ponty (1962). The Cambridge Dictionary of Philosophy (1999) gives this definition of embodiment. It is "the bodily aspects of human subjectivity. Embodiment is not a concept that pertains to the body grasped as a physiological entity. Rather it pertains to the phenomenal body and to the role it plays in our object-directed experiences."

Mingers (2001) also examined the concept of embodiment and its implications for IS research. According to Mingers (2001), embodiment resides in the fact that "our basic attitude is always (except in pure contemplation) one of doing, acting, having some aim in mind, having some concern" (p. 108). His explanation sheds more light on the definition of The Cambridge Dictionary of Philosophy. From this observation we can conclude that embodiment designates the sensory experiences that an individual may have with objects encountered in the world.

- Self-projection

Monod and Klein (2005) proposed self-projection as a fourth criterion. Self-projection works by allowing one to put oneself mentally in the shoes of historical characters and by imagining what one could and would have done in another's situation. This type of self-projection has both cognitive and emotional aspects. The cognitive aspects are linked to the deliberations that lead to decisions and actions actually taken whereas the affective aspects are related to emotions such as love, anger, surprise, joy, etc.

- Possibilities of being

Possibility of being is the fifth phenomenological criterion. According to Monod and Klein (2005), a phenomenological experience helps people realizing the constraints that have been created by the past and the impacts on their present life. This leads to the realization that the present could have been different, too, had the past been different. Reflecting on alternative pasts, individuals come to realize how the present could have been different, too. Monod and Klein (2005) argue that cultural heritage sites, and more precisely historical characters, represent an important vehicle for inspiring this process.

- Historicity

The last criterion, historicity, is the most conceptual and existential dimension. Historicity refers to the understanding that we are fundamentally historical beings and that the meaning of our action and of our existence, is linked to history. In *Being and Time*, Heidegger (1962) devotes the entire section "The Vulgar Understanding of History and the Occurrence of Da-Sein" to define history properly. Heidegger insists that the term "history" should be distinguished from the term "past" in that history represents the influence and consequences of past on the present and the future: "Thus history does not so much mean the 'past' in the sense of what is past, but the derivation from it" (Heidegger 1962, p. 347). Heidegger also uses words such as "move, rise, fall, connection, change and transformation" to designate history (p. 347). These words capture the dynamic nature of history. It is noted that history is a specific component of human beings, or "Dasein," since it constitutes our lives. Therefore, to capture history in a meaningful way, we argue that individuals need to be confronted with a dynamic representation of history by understanding the influence of past events on their personal existence.

Even though not grounded in a phenomenological framework, other studies validate the importance of these six phenomenological criteria for IT users' experience. For instance, Pujol Tost and Economou (2007) surveyed visitors of the Ename Museum (Belgium) about their favorite rooms and devices at the end of their museum visit. The applications that were designated by visitors correspond to the ones that were able to convey context, empathy, interactivity, and sensations. More precisely, Pujol Tost and Economou (2007) found that context is one of visitors' most important expectations. Moreover, empathy contributes to visitor engagement and satisfaction. The dimensions of interactivity and sensations (described by the participants as the possibility to touch) also led to better learning.

Hence, the phenomenological criteria developed and identified by Monod and Klein (2005) appear to be of great importance to visitor experience. As Monod and Klein (2005) have not verified their framework in the field, the present research will extend their work empirically through a field study with museum visitors.

4 METHODOLOGY

We distributed questionnaires to visitors of a French museum, hence employing a field study methodology. This field study aimed at empirically examining the extent to which museum visitors believe the phenomenological concepts are being facilitated by the museum technologies. Even while we are utilizing a quantitative methodology, this study does not ground itself in positivism. We do not test a research model with a set of hypothesis, but rather view the questionnaires as an opportunity to obtain more qualitative data. Moreover, Mingers (2003) asserts that "the tendency to link quantitative

methods with a natural science (positivist) approach, and qualitative methods with a social science (interpretive) approach” corresponds to a “crude dichotomy” (p. 236). The questionnaire methodology was also more convenient to implement at our field study because visitors did not have much time to spend in interviewing.

4.1 Presentation of the Site

The research site was the National City of History of Immigration (NCHI), a public museum located in Paris, France. This museum, inaugurated in October 2007, deals with the history of immigration, tracing back its evolution in France from the nineteenth century to the present. NCHI exhibitions also show how immigration has contributed in shaping French society. In research conducted before the opening of NCHI, potential visitors expressed strong expectations about historicity and an experience of the past. As an illustration, Poli et al. (2007) showed that potential visitors expected that NCHI would: 1) deepen their knowledge about history of immigration, 2) offer new perspectives on their personal history, 3) contribute to identity building and 4) explain the consequences of immigration on the world of today.

In addition to dealing with history, this museum uses modern media to communicate with its public. NCHI is equipped with common museum tools such as televisions, RFID audioguides, but also more recent technologies such as computers, Webcam, and interactive kiosks with both audio and video content. Overall, NCHI appeared to be an adequate setting for examining the historical and phenomenological concepts, as well as to evaluate the contribution of IT to an experience of the past.

Furthermore, the choice of a history museum can be justified by the following reasons. First, we did not want to study types of museums that were highly specialized to the point of idiosyncrasy, as, for example, science museums which generally include a lot of technological equipment and hands-on activities. In such a case, we believed that perceptions of authenticity and historicity would be more difficult to measure; they could also be biased in such an environment. Furthermore, this type of museum appears less appropriate to apply the phenomenological criteria, which are related to the history of Being. We also deliberately eliminated art museums since they generally offer less technology to their markets. Actually, after visiting several art museums in the Paris locale, our region of residence, we realized that this type of museum was less equipped with technologies. Finally, the choice of the historical setting was instrumental for conducting good research since we were able to obtain a broad license to conduct our field study at the National Center of History of Immigration.

4.2 Set of Scales to Measure the Phenomenological Criteria

Based on the literature review and the phenomenological framework, we developed scales for each phenomenological concept. We followed advice for scale development (Lewis et al. 2005; Moore and Benbasat 1991; Straub et al. 2004). Generally, three steps are suggested for construct development: 1) review the literature to determine the content domain of the constructs, 2) formulate the items for each construct and 3) test the psychometric properties of the scales.

The literature was employed as a rigorous benchmark to evaluate the content of our scales. In the final analysis, we retained three sentences per concept. After defining the domain of our constructs and developing the scales, we pre-tested the scales with a group of college students, after which we refined some sentences. A few months later, a pilot study was also conducted with twenty visitors at NCHI. Visitor comments were taken into account and we modified some sentences for a second time in order to fit better the research context.

4.3 Sampling and Selection

We used the following procedure for surveying NCHI visitors. The researcher was positioned at the museum entrance where visitors borrow the audioguides in order to induce participation by the

maximum of persons. This positioning was strategic because visitors had to return to this desk at the end of their visit to return the audioguides. We took advantage of this time to gather visitor feedback regarding their interaction with the museum technologies. Finally, we collected 111 questionnaires over a period of one and a half months.

4.4 Data Analysis

The descriptive statistics of the sample were computed using SPSS 12.0. To conduct the analyses, we had to delete questionnaires that were unusable because of too many unanswered questions. Hence, we collected 111 questionnaires but our final sample was 106 questionnaires.

The descriptive statistics indicate a higher proportion of females than men, with 66% women and 34% men. This result is not surprising, however, because French statistics on museum attendance also report a higher percentage of women in museums (Cardona and Lacroix 2007). The mean age was 39, with a population aged between 18 to 74 years-old.

We analyzed visitor responses in order to establish the psychometric properties of the constructs. Five out of the six developed scales demonstrate good psychometrics properties, as indicated in Table 1. Except for self-projection with a Cronbach's alpha slightly lower than 0.70, the other scales range from the acceptable 0.735 to 0.889. However, Nunally (1967) considers that the 0.6 level is acceptable for exploratory research.

Table 1. Psychometrics Properties of the Constructs

Constructs	Items	Mean	Standard Deviation	Cronbach's Alpha
Context	CON1	5.21	1.44	0.874
	CON2	5.27	1.45	
	CON3	5.42	1.28	
Embodiment	EMB1	5.87	1.03	0.735
	EMB2	5.38	1.35	
	EMB3	5.21	1.49	
Self-projection	SP1	5.64	1.44	0.678
	SP2	5.51	1.40	
	SP3	5.57	1.21	
Re-enactment	REC1	5.32	1.18	0.782
	REC2	5.40	1.26	
	REC3	5.33	1.34	
Possibilities of being	POB1	5.10	1.54	0.860
	POB2	4.91	1.58	
	POB3	5.46	1.28	
Historicity	HIS1	4.71	1.66	0.889
	HIS2	4.05	1.63	
	HIS3	4.00	1.79	

Data analysis also helps in determining the role of IT in visitor experience of the past. We asked NCHI participants to rate their experience with the museum equipment using Likert scales. Since NCHI offers several types of technologies, we decided to survey the museum equipment globally. Hence, we cannot assert which technology contributes the most to the phenomenological criteria.

The mean of each phenomenological construct is reported in Table 2. We also provide a ranking of these constructs from the one that is the best reached through IT to the one that is the less achieved.

Table 2. Ranking of the Phenomenological Constructs

Construct	Mean	Standard Deviation	Ranking
Self-projection	5.57	1.05	1
Embodiment	5.47	1.04	2
Re-enactment	5.35	1.05	3
Context	5.30	1.24	4
Possibilities of being	5.16	1.30	5
Historicity	4.25	1.53	6

5 DISCUSSION AND CONCLUSION

Unexpectedly, it is self-projection that is the criterion that best describes the NCHI technologies. This means that the visitors who used the set of technologies found that these devices helped in projecting themselves into the shoes of the characters. More precisely, 13.2% visitors strongly agree with the fact that IT improves their self-projection, 34% visitors agree and 28.3% slightly agree with this assertion. Visitors likewise felt empathy for the different portraits of immigrants displayed at NCHI through the videos and interactive kiosks. IS research has already shown that IS can provoke emotional reactions (Messham-Muir 2005; Sun and Zhang 2006), such as flow (Koufaris 2002; Skadberg and Kimmel 2004) and enjoyment (Lin and Gregor 2006; Van der Heijden 2004). However, affective behavior like self-projection (or empathy) has been lightly studied in the context of IT use.

Embodiment comes second. Actually the sensory experience offered at NCHI was quite highly rated. Most of the devices convey visual materials (videos, pictures and texts), the audioguides and the TVs diffuse audio content, while the interactive kiosks give an opportunity to have a physical interaction. The visitors cannot really touch the museum artifacts, but very few objects are exhibited in this museum since the scenography relies on IT. Therefore, the possibility to touch is offered through computers and kiosk. Smell and tastes were the two missing senses but it seems that visitors appreciated the variety of sensory experiences. Visitors also agree with the fact that the technologies allow them to relive the historical events in their minds. The mean value for this construct is 5.35 and the levels of satisfaction are the following: 42.3% slightly agree, 27.9% agree and 9.6% visitors strongly agree that NCHI technologies contribute to re-enactment.

Context appears as the fourth construct achieved by the NCHI technologies. Surprisingly, we would have thought that context would be the easier criterion to be met by the NCHI technologies. Tellingly, one of the chief roles of Information Systems is to transmit information to users. But our empirical results contradict this assertion. Nonetheless, the results also indicate that visitors were not entirely satisfied with the cultural and historical background presented by the technologies. These findings support prior research that points out the lack of understanding and context presentation in museums (Hooper-Greenhill 2000; Schärer 1996).

When we scrutinize the ratings in Table 2, we clearly see that the most advanced (and conceptual) criteria, namely possibilities of being and historicity, are also the ones that are the most difficult to reconstitute with IT for museum visitors. Historicity is last in the minds of the visitors, but in the philosophical literature it also represents the ultimate step towards a phenomenological experience. Pointedly, 34.4% visitors are neutral and 30.1% disagree with the statements that NCHI technologies contribute to historicity. Therefore, roughly 65% visitors think that NCHI technologies do not convey a sense of historicity.

NCHI provides several technologies to its visitors, but the types of IT implemented do not provide an entire satisfactory experience of the past. More advanced technologies such as 3D or virtual reality systems are an option to address this lack. It may also be that technologies cannot replace the physical objects displayed in the museums and this explains why visitors have difficulties feeling historicity. The IT role should be to support the visit, enhance the appreciation of the artifacts, but not to enclose

visitors in a virtual world (Ciolfi and Bannon, 2002). What is clear in the potential use of IT in museums is that technologies that support all the criteria, like those suggested in Monod and Klein's (2005) framework, are rare. Furthermore, since few technologies have all the characteristics described in the phenomenological framework, museums need to combine multiple devices in order to meet the overall objective of full coverage of the criteria (Monod et al., 2006).

Several researchers have already pointed out the potential of phenomenology for user-driven research and information systems in general (Boland 1985; Introna and Ilharco 2004; Mingers 2001; Monod and Klein 2005). This study confirms this assertion of prior research by showing how phenomenology presents a viable perspective for assessing visitor experience with museum technologies.

Museums represent distinctive institutions and the technologies they provide to visitors generally aim at presenting history, creating reflection, enhancing knowledge and entertaining. Consequently, we decided to rely on Monod and Klein's (2005) phenomenological conceptualization, a framework which proposes a set of criteria relevant for assessing e-heritage systems. But, even though we rely on this new framework for IS evaluation, links can be created to existing scales. For instance, the criterion "context" can be related to the IS variable "information quality". Information quality includes notions such as "relevance, understandability, completeness and accuracy" (Petter et al. 2008, p. 239) and it represents a strong predictor of user satisfaction. Our results indicate that context provided by IT is an important factor in hedonic context as well. Therefore, this research can contribute to the evaluation of other hedonic systems (Van der Heijden 2004) and in future research our phenomenological items could be merged or inserted into existing scales that serve for the evaluation of hedonic information systems.

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