

CULTURE IDENTITY, MUSEUM AND NEW TECHNOLOGIES: ENHANCING MUSEOLOGICAL LEARNING

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Abstract

In this paper, we are concerned with the way the Museum of Education (Xeniseum) of the University of Crete can revise visitors' pretensions regarding educational cultural heritage, by constituting a diversified environment of cultural experience and learning. It is well known that, apart from schools, museums are also considered to be privileged areas for the formation of cultural identities because of the socialization process performed within them, in the form of "a contradiction" to the dominant school memory and its integrated historicity. The use of digital media can serve as a tool for interpreting both materials and intangible historical evidence in an interactive, emotional and emancipatory way. For this reason, selected museum objects (being "social objects" and "memory spaces") are redefined through the use of augmented reality technology within a differentiated visual environment. The aim is the communication between the "visual" and the "real", in order to activate school memories and experiences, in such a way that the visitor can have an active "bottom-up" intervention to the museological achievement itself. Thus, the museum is expected to create new social meanings through the "sharing" of technology, in terms of the digital projection and interaction of culture, placing special emphasis on the symbolic way in which it perceives its social educational past and its contributions to daily reality. Redefining present in relation to the past through a new historical "materialism" of the exhibits aims to create a new collective/ cultural identity.

Keywords: Museum of education, augmented reality, innovative digital software, cultural identity.

1 INTRODUCTION: CURRENT TRENDS ON MUSEOLOGY/ MUSEOPEDAGOGY AND THE DIGITAL MUSEUM

In the 21st century museums are called to reconsider their role in our modern society. New museology emphasized the social role of museums and their interdisciplinary character since the early 1980s, as well as the new ways of expression and communication with their audience (Desvallées & Mairesse, 2014: 100). This shift from an "entrenched, restricted and autonomous entity" (Kokkinos & Alexaki, 2012: 11) with an exhibit-centered character to that of an institution that constantly changes and focuses on the individual and society changes the meaning and mission of the museums. Museums shifted from places of exclusion to places of participation, from places of education to places of learning, contributing to "lifelong learning" and promoting a pluralistic perspective, acting as a mechanism for shaping culture and cultural critical thinking skills" (Kokkinos & Alexakis, op.cit.: 11).

Clifford (1997: 188-219) proposes the alternative term "contact zone", aiming to emphasize the interactive nature of the relationship among different communities, visitors and museums. According to this view, the museum mostly works as a space pervious to intercultural encounters, where different cultures and communities exist and interact.

As museums focus on their audience by adopting a visitor-centered approach, recognizing and understanding the different profile, the needs and cultural characteristics of each visitor is highlighted, constituting a hierarchical point of the relationship they develop with their people and their communities. Being public places they play an important social role, becoming the ones of "multiple and heterogeneous borders", where different people can interact with their collections, relate them to their lives and experiences, interpret or redefine them by establishing a dialogue with the exhibits. Thus, as Carey maintains (1989: 23), the interpretation of the cultural heritage becomes a communication process, through which reality is produced, preserved or transformed,.

Comprehending the museum exhibits and the inherent connotations they contain as witnesses to a culture depends on the circle of interpretations of their guests, which is always open. Sometimes it is even opposed to the dominant discourse, as it is a cultural construction depending on the culture by which it is framed. Lyotard (1984) points the shift of emphasis from the isolated object to the cultural and social contexts within which the concepts of objects are produced.

The Museum of Education / Xeniseum (referred to as MTE-X) of the University of Crete, following the above mentioned principles of modern museology/ museopedagogy, attempts to create a diversified environment of cultural experience and learning through the use of innovative digital applications. It aims at motivating active participation on the part of the visitor, enhancing his learning and experience in a pleasant, interactive and playful manner, also promoting the critical/ reflective thinking on his heritage, by making use of the museum's school exhibits.

In this context, the visitor's interface with the digital technology provided by MTE-X can serve as a tool for interpreting the material and intangible evidence of the history of modern Greek education in an interactive, affective and emancipatory way. Selected historical museum exhibits from different historical periods, which constitute "social objects" and "memory places", are digitized utilizing augmented reality technologies. The goal is to enable the visitor to interpret and redefine them by providing opportunities to activate memories and experiences in a critical and creative way. A constant dialogue is established between the museum exhibits and the visitor. According to Foucault (1970), the museum serves as a "heterotopic place". Therefore, in our case it can manage real and imaginary elements and compose features of different places and times by revising or producing new ideas.

Through multimedia applications and virtual web environments which have the ability to host images of different seasons, cultures and geographic coordinates in a single space, as well as in direct relation and serried succession (Chourmouziadis, 2017: 107), the "virtual" museum communicates with the "real" one. Visitors become themselves the producers of a "bottom-up" critical interpretive intervention, which may take the form of a contradiction to the dominant school memory and the historicity of education, as depicted in MTE-X. In this way, digital media are transformed into tools of social transformation through sharing, as they open up new channels of communication and participation, and redefine the audience's relationship to the historical/ educational and socio-cultural context.

In this sense, digital MTE-X is transformed into an interactive, pedagogical, emancipating and transformational learning community where the visitor holds an active role by observing, discovering and interacting with the exhibits, defining his or her experience. These processes lead to the formation of a new, collective cultural identity.

The abovementioned view regarding the educational potential offered by museums can be greatly enhanced by the use of new technologies. This issue that has been strongly raised in the research field during the recent years. In the past museum curators have also been concerned about it, in addition to other professionals cooperating with them. More particularly, the concept of digitization in museums emerged in the 1960s, with the main goal being the automation of the of museum material management process, mostly concerning the storage of information for each exhibit (Jones-Garmil, 1997). However, this use of technology is moving toward a different direction from the one described earlier. The goal of MTE-X is not to simply digitize a museum's information, but to creatively utilize the exhibits through authentic applications, which represent them digitally.

In the museum's tangible exhibition, the issue of space management is of key importance, limiting the curators to a great extent. Taking into account the contemporary scientific dialogue regarding the concept of space, it is accepted that an alternative approach emerges. According to this approach in the postmodern time appears the concept of "non-place". On this basis, space can be detached from its real dimension and eliminate its real-time limiting spatial frameworks (Sturken, 2004: 79). This logic serves the digital representation of space, which significantly extends the boundaries of the museum, offering more interactive features to the visitor/ user at the same time.

For this reason, the Museum Informatics sector has been developed, which is concerned with the production of relevant, digital-information material. More specifically, it examines the interactions between visitors/ users and the exhibits in a socio technological context, indicating possible ways to meet both the potential offered by new technologies and the needs of the visitor/ user. The museum as an information center now enhances the sharing of information through the creation of digital applications that establish conditions of interaction with the exhibits and a personalization of the museum experience (Marty, 2003: 1906-1911).

An essential parameter that needs to be emphasized is that the design of digital augmentation of the exhibits attempted in MTE-X was based on a methodology that combines interpretive historical research with art-based research. It has been indicated (McNiff, 2008: 28-29) that the use of this method can substantially contribute to a fuller understanding and investigation of a scientific field as the researcher manages to utilize more creative research techniques that assume the production of a visual result. This fact is expected to act as a booster mechanism that will highlight with greater

accuracy and authenticity the characteristics of the investigated field, compared to a conventional research methodology (quantitative or qualitative).

According to these observations, the digital-visual augmentation of the tangible museum exhibits can be interpreted as an attempt to redefine the museum narrative by means of a research methodology. Even in the case of a tangible exhibition, the museum narrative is designed following the above mentioned principles. However, the difference emerging with the use of new technologies is that the visitor/ user can now participate in this attempt. Therefore, in the already well-known concept of the interactive artworks in museums, which not only provides the message to the visitor but also leads him to a dialogue (Simanowski, 2011: 121), new technologies convey this question to another 'world'.

This world moves between real and virtual. The concept of dual reality has been seriously discussed by scientists, defining the field of action of new technologies. At the one end there is the physical representation of the exhibit, while at the other the virtual. Between the two extremes, we find the concept of augmented reality, which tends to the real world, and the concept of mixed reality, which is closest to the virtual world. The aim of this project is not the separation of the two different worlds, but the establishment of a complementary relationship between them (Lifton & Paradiso, 2009: 12-26). In addition, a parameter to be taken into account during managing the opportunities offered by new technologies in museums is the critical approach to the whole project. Therefore, "technological determinism" should be avoided (Livingstone, 2010: 11), as it will degrade the historical and cultural value of the exhibits, mainly focusing on the concept of technological innovation.

In order to avoid such risks, the introduction of new technologies into museums should aim to extend the 'digital literacy' of the visitors/ users. This means that emphasis is not only placed on the visitor /user's access to digital material, but also on the learning of the skills required for its use, which will successively enable the development of creative skills (Watkins, 2001: 9). In other words, the utilization of a digital application, which highlights the multimodal exhibits of a museum, is not successful if restricted at the level of information. On the contrary, it is necessary to create those conditions that will allow the visitor/ user to reflect on the information given, become a co-creator and finally return to the tangible museum exhibition and interpret it in a new light. Therefore, the role of new technologies within museums focuses on enhancing the museum experience, contributing to the circular path of visitor/ user navigation, from physical exposure to digital application and vice versa (Barry, 2006).

Some of the most popular technological proposals that have been utilized are the three-dimensional (3D) representations of tangible exhibits, which are extended by the augmented reality technology. In the first case, an attempt was made to an exactly represent the museum exhibits by using three-dimensional scanners, which eventually offered a virtual representation of the exhibit¹. In this case there are numerous advantages on the part of the user. Among others, it has been identified (Hemminger et al, 2005: 6) that the museum exhibit can be examined more accurately which would be made impracticable in a museum, due to spatial or other maintenance related constraints. In addition, due to digitization, each exhibit is continuously available. Furthermore, its digitization facilitates research processes.

In the second case, augmented reality technology extends the technique of 3D representation of an object on the one hand and, on the other hand, contributes to reinforcing reality with virtual elements. The tangible interaction of the visitor/ user with the exhibits of a museum is usually very limited. This provides the opportunity to view the museum exhibition, which is enhanced by virtual objects (graphically designed or 3D scans) in order to create a setting that will enable a better comprehension of the museum narrative. A tour of this kind involves many of the elements of a real route in the museum's space. However, it allows for the sharing of information that does not exist in the tangible exhibition, therefore enabling the visitor/ user to interact with it (Wojciechowski et al, 2004: 135).

2 METHODOLOGY: DIGITAL MUSEUM OF EDUCATION (XENISEUM)

The experimental study "Augmented Experience with New Digital Systems for Educational Tourism in Museums - XENISEUM", in the framework of the "Research - Create - Innovate" project, aims at the interaction of visitors with the exhibits of the thematic museum and the transformation of museum learning and experience through the visitor's interactive contact with the exhibits. The use of

¹ Lifton & Paradiso, op.cit: 13

augmented reality applications is utilized, intending to the development and promotion of educational tourism.

A part of the experimental application mentioned above consists of the Augmented Reality (A.R.) and the 3D digital representation of selected MrE-X exhibits, which activate memories, affect and arouse the experiences of the visitor. The latter interacts with them through the interface: touches them, rotates them, changes their position and places them on the desired location.

The objects/ exhibits used to implement A.R. methods, in the context of the presentation of the historical evolution of the school environment, were selected on the basis of two criteria: a) Key words which derived from teachers' interviews/ narratives, related to educational memories of the past, b) selected subjects, related to fields of the curriculum.

Through this particular augmented reality methodology, the "virtual" can communicate with the "real", allowing for the visitors' tour in the past and their interaction with objects/ exhibits that depict this past, as well as their reflection on a cross-sectional level.

Augmented "communication" was achieved in two ways: a) through a 3D objects presentation environment and b) through an A.R. The use of image, audio, text and graphics enhance the visitor's interaction in an A.R. context by using appropriate tools/ devices. The utilization of such a technology is accompanied by a critical representation, in order to enable the user to critically interact with the objects/ exhibits.

In more detail, 3D objects were placed in a virtual environment, which was enhanced by the use of appropriate background images and explanatory texts. The images are "chatting" with the cultural, social and historical context of each exhibit. They are also combined with a selected musical background, resulting in the creation of an evocative artistic background. The objects for which the A.R. technology was used were placed in a specially designed and set environment, framed by other objects of the museum collection that refer to the same historical period and "transfer" the visitor into the historical-cultural context of the period represented. At the same time, the visitor/ user has the opportunity to interact by placing the object/ exhibit at the desired location, within the given environment. In this way he "chats" with the exhibits, recalling memories and experiences of his school life.

More specifically, the objects/ exhibits selected as 3D objects and A.R. are the following:

A Trimmer: a manual machine used in earlier times to trim pupils for hygiene purposes. Later it was used as a punishment or to impose compliance to the rules or even as a warning, according to that time's social standards. It resulted in the fear, shame and insult of the pupils and caused an injury to their dignity.

A Student cap: a cap that pupils had to wear on their head, in accordance with the spirit of the traditional pedagogical concepts that legitimized the school power, through the control of students and their punishment, in case they did not comply with the established dress codes.

A Desk: a trademark both of the school furnishing and the school itself, in the context of a "teacher-centered" teaching, based on the principles of traditional pedagogy, which aimed at disciplining and restraining the body on the desk and deprived the student of even the slightest freedom.

A Bell: an instrument that alerted students as far as the beginning and end of periods and the break time were concerned. It was and still is associated with school memories, pleasant or unpleasant. It constitutes a symbol of compliance and obedience to a strictly standardized schedule that fully defines the time the students spend at school and imposes discipline, regarding predetermined rules.

Meal allowance tins for schoolchildren: object/ exhibit associated with post-World War II schoolchildren's meal allowance in the framework of the Marshall Plan. In the countries where it was systematically applied, it aimed at treating child malnutrition, also preventing social reactions on the part of malnourished children. Moreover, it meant caring about the physical and mental progress of the pupils.

Student Sack: It was created for transferring school objects and students' books, so that students were able to follow the school program. It was associated with either pleasant or unpleasant school memories.

A View Master: an audiovisual medium that catered for students' need for visual representations, enabling them to consolidate the knowledge of concepts by following multimodal teaching principles. It

is a kind of a stereoscope that provides the opportunity to watch 3D images using a special ring, so that the user can focus his vision and receive a more enriched stimulus.

A Medal: The medal of the Ordrenational de la Légion d'honneur is an honorary distinction for citizens and important personalities who have an international reputation by virtue of their services in France. Such an example is Eleni Glykatzi Arveler because of her scientific and administrative work at various French universities and the Georges Pompidou Cultural Center in Paris. She is a world-renowned woman of spirit, who promoted the timeless values of the Greek spirit and culture both in Europe and all around the world. She offered to the public with her life, work and her lectures in the field of international education and research.

Cap/ gown: The gown that Eleni Glykatzi Arveler wore when she was a rector of the University of Sorbonne is exhibited in the personal collection of hers in the University of Crete. The cap is one of its parts. Arveler was the first female rector of the University of Sorbonne in 1976, during its more than seven centuries history. This was a part of her long course from Asia Minor to the refugee settlement of Byronas and then to Paris, where she excelled. The gown and the rector's cap that she wore testify the recognition of a personal struggle and give a special symbolism to Greek civilization at the same time. They symbolize the struggle of man for progress and the woman's position in society, without being herself the heir of those who established the gowns.

The technical part for the realization of the tour includes:

- 1 an A.R. application developed using the Unity 3D engine. Unity 3D provides users with the potential to create interactive experiences, both in 2D and 3D.
- 2 the opportunity to use an additional library, namely OpenCV, which facilitated the Q.R. codes identification, as well as the identification and positioning of persons. OpenCV is a library of programming functions, aiming primarily at real-time computer vision.

3 RESULTS: RE-CONCEPTUALISING THE SOCIO-CULTURAL/MUSEOLOGICAL IDENTITY

A fundamental question stems from the analysis made above, concerning the acquisition of the cultural identity formed within the framework of the museum experience. It concerns both the visitor and the museum itself as a cultural institution, as well as society as a system of communication and relations.

It is expected that the visitor's interface with the museum's exhibits/ objects in the virtual and tangible environment of MTE-X will lead to a critical view of cultural identity, on the basis of a "constructed" identity within the social and communication field in which it is formed. The role of the museum is very important, as it is an institution of practical / transactional, virtual and symbolic representation, in which values, beliefs, ideologies are put into circulation, enabling the individual to create specific identities. Our view is opposite to the so-called "essentialism" perception, according to which identity is geneticist, established out of the society or beyond history or, in other words, it constitutes an inherent and well established quality of man (Benwell & Stokoe, 2006).

A critical view of cultural identity is associated with the recognition of relevant truths, culturally and socio-politically determined. According to it, when people perceive themselves as belonging to different social categories/ groups they are not guided by a pre-existing 'physical' resemblance but by images of similarity, made by institutions of power and discourse or imposed norms, in the context of a consensus that ensures hegemony (Gramsci, 1971).

In MTE-X we attempt to break the imposed image of the real and, by extension, the fundamentally determined cultural heritage. This is achieved through interaction/ participation and an experience that is re-modeled into a dynamic framework of a dialectic relationship between the museum and the visitor.

Thus, we move from learning to experience and empathy, considering it as a new identity of the subject, which is emancipatory (transformation of an exhibit into a social object, social constructivism, critical-historical thought, cultural communication and skill) (Falk & Dierking, 2012) and leads to a personal and social transformation.

Reaching another benchmark, cultural identity can be seen as a social/ collective space/ time, as the museum narrative constitutes a social practice of exchange of experience, making it a community of lifelong learning and experience. We therefore consider identities as social achievements in the

context of cultural (and other semiotic) interactions, which are integrated into their contexts and not outside them. The museum collection and the related discourse that is co-formed with the visitor, as well as among the visitors, is perceived as a mediation factor, which contributes to the formation of identities and social events, by performing acts of self and group establishment. In other words we can call them acts of identity.

The question is no longer who is the one and only self of each person, but in what ways and with which of the available and accessible socio-cultural sources people each time identify themselves (Blommaert, 2005), negotiating different identities, depending on the circumstances and their interlocutors. In order to identify with and decode the identities, the visitor takes into account the co-visitor's interpretive abilities, also looking forward to them. In this respect, we anticipate an unforced dialogue and an identity that will strengthen democracy, justice, equality, solidarity, intercultural communication, as well as allow the emergence of a new perception of the public space and the common good.

At this point the concept of meaning, in the context of interaction between individuals as a dynamic process, is crucial, also dependent upon the museum accomplishment. The meanings are not traced in the human mind in advance. Instead they are transferred through semiotic systems, such as exhibits/ objects, through a process of critical viewing of the dominant meanings or of adopting a critical position on them. Thus individuals can follow executive practices, based on the sociocentric nature of digital tools, as well as deconstruct and change their dispositions.

4 CONCLUSIONS

Summing up, it is the subjects themselves who construct and define the truth and thus mediate between the museum and its cultural or educational content (Hein, 2012). In this way, this interpretative circle "captures" the museum's exhibition, which should therefore be reidentified and redefined. In this sense, museum identity is given new meaning, and the museum is transformed from a traditional educational environment into a 'learning ecosystem' (open, complex, adaptive, sustainable, with a social and intercultural potential) (Lundgaard & Jensen, 2013). Consequently, we achieve free access to cultural goods, as a fundamental human right, achieving the cultural democratization of the museum and thus putting the cultural heritage before an open dialogue (Reeve & Wollard, 2006).

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