New technologies in Museum of Education of the University of Crete (theoretical and methodological approaches)

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Introduction

In this text we will discuss the use and contribution of new technologies (non-formal) in education and culture, and in particular the Xeniseum ("ME-X") of the University of Crete, with the aim of achieving the active participation of the visitor in the shaping of cultural/museum experience in a dialectical, interactive, critical and redefining relationship between the museum and the visitor. On this basis, both the theoretical and methodological documentation of the development of the museum in a digital environment, along with the actual one, will be discussed (Parry & Sawyer, 2005). Therefore, in order to understand the elements that make up the functions of a digital thematic museum today, the content of the interaction between the physical and virtual dimensions of the museum should be determined in order to explore/ communicate the educational heritage of a community (Panciroli, et al., 2017: 1).

Definingthe "digitalworld" at the MoE

New technologies and the learning processes that accompany their useactuallyattempt to achieve an "interpretative encounter" of the visitors with the educational content of the museum, provoking theirinterest and motivating them to pose questions and seek answers. As a prerequisite for this performance, we consider visitors as individuals whoquestion, explore and interact with the objects, thus giving meaning (individual and social) to their experience. In this sense, the interpretativeencounter can "entrain" the museum exhibition itself, which should be redefined/resignified (Black, 2009). Therefore, based on the principles of contemporary museology, the digital exhibit-subject of the MoE-X, aims to create a dynamic experience for the visitor, motivating him/her to enter the museum collection whilecomparing historical educational information, performing pedagogical activities, combining entertainment and learning (Witcomb, 2012: 495).

The use of space-sensitive / multimedia applications to enrich the user experience of the museum is now an international trend exploited by MoE-X, with the aim of personalizing the interaction of visitors through ICT, as an important aspect in communication, understanding of theeducational background and cultural heritage (Hadžić, 2004: 77).

In our own interpretative example, technology is not a tool that will simply attract the 'look' or 'intake' of museum objectsbut instead, through the digital 'extension' of the museum experience with further cultural content, the museum can be made more attractive as an actual space. In this way also technology facilitatesa shift from learning as an 'intake', through the experience of interaction and empathy. Thus, digitization works subversively, within a conventional exhibition, as well as a bridge between the public and the museum itself (Setlhabi, 2008: 2).

In this case, digital media fertilizes our thinking by enabling us to viewreality in an emancipatory way. These theoretical and practical issues will be later discussed in the text, referring to the experimental application of new technologies in MoE-X.

Reflectionsonthevirtualmuseum

According to the museopedagogical approach that we adopt, digital tools are perceived as alternative possibilities ofuse and, hence, aid the multiple learning opportunities and experiences that the visitors have through the cultivation of multiple senses (Cranny-Francis, 2011) . Nonetheless, the use of new technologies is possible if the following have been met: a) the need for a meaningful dialogue between humanitarian / social scientists and IT specialists for a new interdisciplinary exchange culture; b) research and new technologies with the needs of society and intercultural communication for a better understanding of the common past and the preservation of memory by the new generations; c) the management of a large volume of cultural data interoperability with international navigation tools - open data (Open Access Culture) and their re-use.

Another equally important question is how the virtual museum space will become a field of social interaction and not just of individual interaction, in order to achieve the transition from the individual utilization of the museum experience to its social/ collective distribution (Wahlstedt, et al., 2008) and, therefore, the sociocentric nature of digital media.

In other words, through new technologies, a virtual museum becomes a lifelong learning community. The important role played by digitization in the preservation and dissemination of cultural heritage, as well as the encouragement and development of thematic/ educational tourism, "can enable access to content around the world and, thus, release an untapped wealth of knowledge "(Borowiecki and Navarrete, 2017: 227).

Experimentalapplication at theMoE

The realization of the project, "Research - Create - Innovate"[1] which, among others, aims at the development and promotion of educational tourism, is achieved: a) in the actual space of the Museum and in the Museum Collection of ByzantinologistHelene

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Glykatzi-Ahrweiler - (from the middle of the 18th century) and the exploitation of their management systems in an innovative and playful way, based on augmented reality applications; and (b) outside these two spaces, through the digital imaging of virtual paths to schools associated with them.

More specifically, the following are implemented:
a. Creationof a virtual museum with the use of original, innovative applications designed to display multimedia representations with museum objects in virtual exhibitions, both within and outside the MoE-X.
b. Linking the museum with educational cultural paths (virtual and actual) based on educational material that will refer to important periods in the history of Modern Greek education.
c. Presentation of the school environment in the physical space through augmented reality for the representation of selected school objects.
d. Gamification of objects in museum collections to develop the creative thinking of users and enhance their museum experience through personal experience and playful learning.
e. Creation of a virtual, visitor immersion environment.
f. Creation of interactive e-books from old school textbooks of the museum and improving / upgrading digitized pedagogical material from documents of the old school.
g. Creation of digital narratives as a recreational medium that stimulates interest and engages the visitor, focusing on experience and memory.

Mobile devices (tablets or smart mobiles),mainlywith so-called space-sensitive applications, are placed within the museum for the digital tour in it to enable user browsing of the site, decoding embedded information into objects or space in the form ofQR (Quick Response) codes.

Through the above applications of mobile devices, users gather the information material they are interested in and can make comparisons, links, correlations of digital objects with physical objects and sharing. When they are in the right spot of the exhibition they can interact with the digital object and, later on, contribute to the redesign of the exhibition itself (Hubard, 2007).

Conclusion

Through the interconnection of the MoE-X as a cultural organization with new technologies, visitor interaction with the educational cultural heritage ismeant to be emancipatory, attractive, interactive and experiential. Visitors are facilitated to recall memories and experiences from their school biography and encouraged to developtheir critical historical thought and cultural communicationin an alternative way. Such a virtual museum is considered to offer further advantages, since it is even possible to present objects that would normally be inaccessible, thus widening and enriching the online experience of those who travel to the virtual museum environment (Patel, et al., 2003).

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