



Museums in the Era of Digital Revolution. Persuasive Communication and Multimodal Approaches for Overcoming the Digital Divide

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Abstract. The museum, intended as a mere container aimed only at the conservation of objects, has long since given space to activities of cultural production and promotion that have finally allowed the entry of new forms of communication. Based on dynamic storytelling and multimodal information, they propose to implement an effective dialogue with the anthropological, economic, social and cultural context, activating a set of various activities aimed at conveying complex and constantly evolving messages. From the simple linear and didactic communication mode, we move toward informative, persuasive and educational communication. But the most interesting aspect of this evolution is that it has strongly modified the exhibition logics and the ways in which cultural contents are used by the public. Based on these premises, we present in this article the results of some methodological approaches experimented in different museum installations. They consider different criteria, from passive to active visit, from serious games to immersive enjoyment.

Keywords: Museum communication · Virtual · 3D · Multimodal · Persuasive

1 Introduction

The museum communication makes use of methods and processes implemented in relation to different purposes, contents and targets, through the use of an extremely articulated system of languages and communication techniques. The museum, intended as a mere container aimed only at the conservation of objects, has long since given space to activities of cultural production and promotion that have finally allowed the entry of new forms of communication (Mantovani 2001). Based on dynamic storytelling and multimodal information, they propose to implement an effective dialogue with the anthropological, economic, social and cultural context, activating a set of various activities aimed at conveying complex and constantly evolving messages. The forms and the ways that museum communication takes depend on the actors involved, on the reference context and on the set of languages and tools employed from time to time. From the simple linear and didactic communication mode, we move on to

informative, persuasive and educational communication. But the most interesting aspect of this evolution is that it has strongly modified the expository logics and the ways in which cultural contents are used by the public (Fox and Henderson 2001) (Figs. 1 and 2).



Fig. 1. Calvello museum, 3D rendering of project layout



Fig. 2. Medieval and greek ceramics. User experience and final stage of the game

2 Persuasive Communication

For example, the impulse of new technologies has imposed new forms of representation, strongly characterizing the cultural activities with the use of digital technologies and languages that require the active participation of the public. All this has made more attractive museums based on non-traditional expository logics, which have seen the number of visitors increase and, most likely, have gained a greater understanding of the cultural information communicated. Multimedia, the prevalence of the iconic information on the written word and the freedom of use allowed by new technologies, radically change the perceptual and cognitive processes: from analytical, structured, sequential and referential, they become generic, global, simultaneous and holistic.

Based on these premises, we present in this article the results of some methodological approaches experimented in different museum installations. They consider different criteria, from passive fruition to active fruition, from serious games to immersive enjoyment. In some cases the integration of criteria that is the multimodal approach, has shown that “pervasiveness”, understood as communicative efficacy, is in direct relation with a greater understanding of the communicated object. Increasing interest in some issues, through any form of communication, means gaining greater

public awareness. A significant example in this sense assume immersive technologies and “persuasive” storytelling, two apparently distant approaches, the first active and the second, in general, totally passive. Immersiveness of active type, realized with VR viewers, produces a strong sense of presence in the virtualized environment: the realism of the representation and the almost physical interaction with the three-dimensional elements produces a natural and direct understanding of the architectural elements, of the figurative apparatus and of the spatial articulation of the ancient contexts. In “persuasive” movies, on the other hand, the passivity of the vision is compensated by an emotional approach that involves the visitor in an informative path in which, despite the inactivity of the fruition, he is a participant in some way, because he is emotionally involved (Titthasiri 2013) (Fig. 3).



Fig. 3. Pompei’s docudrama. A context scene (forum) in which virtual actors will play

This type of vision does not require computer skills and is integrated with the different media, even traditional, in a “light” but effective learning logic. In this sense, the multimodal approach produces benefits also for those who are not familiar with the use of IT tools and the Internet, so the diversification of the media and the use of simplified languages allow everyone to understand the message communicated, but also to achieve a better response to the different tastes of visitors. This reflection should not lead us to consider active technologies as too complex or difficult to use, on the contrary. It goes in the direction of a museum identity, intended as complex communicative machine, as a center of cultural production and promotion, whose task is not limited to the sole activity of preservation of objects, but in its ability to establish an effective dialogue with the social and cultural context, as a primary tourist-cultural attractor. The evolution of the methods of communication in the museum environment is a consequence of the general changes in the languages used in social communication. Since the forms of persuasive communication seem more adherent to the logics of an

attractive, convincing and emotional presentation than those purely informative and explanatory, they are closer to the tastes of visitors. Persuasion is achieved through the adoption of techniques that aim to achieve emotional reactions, rather than purely rational arguments. In the specific field of archaeological museums, this type of strategy is recognized in the contents that mainly seek to promote the value of archaeological research itself, the protection and conservation of museum artifacts, the uniqueness or the high value of historical-cultural testimony of objects covered by the communication. More specifically, this is achieved through an argumentative speech that, for example, emphasizes the preciousness of the discovery context, the rarity of the find, the exceptional nature of the data. Objectives mediated by the exhibition, realized through the use of hyper-realistic 3D representation, of the animated effects that allow the immediate compression of the transformations over time, of the contextualization of objects, of dynamic presentation, of movie-like storytelling (Gabelone et al. 2017) (Fig. 4).



Fig. 4. Pompeii's docudrama. A context scene in the Casa del Fauno

3 Case Studies: Serious Game and Emotional Storytelling

The integration of communication criteria based on the image and on the use of interactive, immersive and participatory technologies in the projects shown here, is based on some assumptions. Before the written word, seeing was not a structured decoding of graphic signs, but only a perception of images, experienced in a more sensorial way. In the “image society”, with the pervasiveness of television and multimedia tools, the cognitive process returns to be the one based on the image. This process has however led to the consolidation of the so-called cultural divide, the cultural gap that separates those who are familiar with books, newspapers, magazines and other information and dissemination tools, and those who have television as the

only reference from the communicative point of view. But if it was once the cultural tools compatible with the means of the social class to define this nuanced line of demarcation, today they are the work done or simply the personal predisposition: for a few years the further dividing line of the digital divide has emerged, between those who have the possibility and skills to use the new information technologies and those who are cut off from it. The determining factors in this sense are above all the age and the work carried out, which often favors the use of IT tools and the Internet. On the other hand, familiarity with IT equipment is a necessary but not sufficient condition to guarantee the acquisition of culture and information. As previously mentioned, the use of passive media and interactive technologies with minimum usability requirements, not only promote use by everyone, but promote cross paths and unexpected connections in a spirit of cultural serendipity (Huizinga 1973) (Fig. 5).



Fig. 5. Pompei's docudrama. Villa dei Misteri, outside

The first of the examples illustrated here, concerns a small town in the province of Potenza, Calvello, where a project of restoration and refunctionalization of the Castle, among other actions, involved the construction of a ceramics museum. Until a few years ago, the small town was the custodian of an ancient tradition of ceramics production. In the fitting out project, an articulated section is dedicated to the knowledge of ceramics, processing techniques, technologies and colors used by Calvello faenzari. A multimodal approach, which includes several applications, two immersive stereoscopic videos and an interactive serious game intended as an “enabling platform”, allow the learning of the executive techniques and the peculiarities of ceramics in a precise historical period. The set of these devices, on which complementary contents have been developed, address the peculiar themes of the museum with different approaches and levels of study. Serious games, in particular, represent a real revolution in education strategies. Thanks to their ability to simulate different aspects of the

experience, they are an effective tool for the acquisition and enhancement of learning in different sectors. The simulation of serious games allows users to make experiences, that is to concretely represent what we know only on a theoretical level. The simulation aspects allow us to get in touch with the knowledge through our senses, our body and not only at the abstract level (Zyda 2005). Compared to other methods used in education and communication, they involve the user in a motivational way, since the design of the game must primarily meet this requirement. Motivating the user in the training process means, for example, earning scores, completing missions, starting competition mechanisms between different players. Furthermore, it has been widely demonstrated that positive emotions such as interest, curiosity, exploration and a sense of challenge exert a strong influence on the ability to memorize the contents transmitted, both in quantity and quality. More specifically, serious games are able to capture our resources related to attention and focus on the task we are performing (Fox et al. 2001; Anderson and Phelps 2001). Attention is one of the many cognitive processes that allows us to relate with the external environment, we can consider it a basic psychic function. Without attention, in fact, we could not store information, manipulate and finally return it, we could not organize our commitments and solve problems promptly (Schooler and Eich 2000) (Fig. 6).



Fig. 6. Scene of the docudrama: Abalo in the Temple of Jupiter

For all these reasons, serious games can be considered the best instrument in the most effective forms of transmission of knowledge and culture, because at the same time they emotionally involve the user and “impose” learning. It is from this indirect imposition that depends the level of satisfaction obtained (gained) in the game. The more I understand, the more I gain, the more I go forward, the more I win (Michael and Chen 2006). A simple addiction, which in this specific case has very positive effects on learning. Because of their ductility and adaptability to different fields of knowledge,

they can be more and more integrated into the traditional learning path for users of all ages, cultural levels and, if made with simplified user experiences, for every type of computer skills (Fig. 7).



Fig. 7. Scene of the docudrama: the torcularium for the grape pressing

Specifically, the learning mode of serious games developed for Calvello is based on simple questions that require a knowledge base. This knowledge base is acquired by playing and interacting with the application itself. The player has fun and learns, in a logic of edutainment game. In a collaborative environment, the visitor must assemble the various pieces according to some levels of completion. In association with these levels of completion, a message appears describing the various classes of pottery and the errors made. Since the game requires the involvement of only one person at a time, a large projection has been introduced to allow other visitors to follow the game, give suggestions, collaborate. In addition to medieval pottery, the player will have to recognize the food used in the same historical period, i.e. before the discovery of America. From the technological point of view, the game was developed completely in Lingo, an old language implemented many years ago by Adobe, still fully functional, but poorly supported. The programming is managed by three main behaviors, which assigned to the projections of the game allow to manage their absolute position with a trigger event. A second behavior allows the elements of the scene to be moved and placed in their hidden position. The sprite will compare its “loc” to a “targetLoc”, if this is within the acceptable target range, the sprite locks into place. A last behavior is active when the object is in position. If this event is true, the object disappears:

```
on beginSprite me
sprite (me.spriteNum).visibility = TRUE
END
```


Other behaviors control specific sounds and events, for example a message warns in case of an error (Fig. 8).



Fig. 8. Scenes of docudrama. Below the *lararium* of the Casa del Fauno

Next to the game, of course active but simplified, the visitor has the possibility to extend his knowledge with a passive approach, according to emotional and persuasive communication logics. The same methods of approach to museum communication have been used for many other museums, where the various media interact with each other, telling the same contents in different forms. The value of the immersive animation, among all, deploys the maximum emotional impact, reaching in the shortest

way the goal of “persuasiveness”. In a case study of ancient Pompei, we have tried not to emphasize the reconstruction of material culture, developing the basic theme on a life story, which is intertwined with the tragic events of the eruption. To this end, an interdisciplinary team of scholars produced stereoscopic docudrama in 3D computerized animation “Pompei. A Buried Story”, a 26 min film, in full HD, which describes a fantasy story. A series of original artifacts, discovered in some key places in Pompei, such as the Villa of the Mysteries, the Casa del Fauno and the Forum, have been placed in a virtual context dominated by the conflict between two characters, Abalo and Ottimo, digitally recreated. The philological reconstruction of those ancient places has become the virtual stage for the representation of a small drama. This narration centered on man, in which Pompei is only the background, offers an immersive experience in which the public is emotionally related to the protagonist, in a scenery dominated by the power of images, sounds, soundtrack, special effects and historical reconstruction.

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