

Research, museums, audiences.

The experience of the MemO Project to increase the accessibility of archaeological collections

Luca ZAMPARO, Department of Cultural Heritage, University of Padova, Italy
Emanuela FARESIN, Department of Cultural Heritage, University of Padova, Italy
Daniel ZILIO, Department of Cultural Heritage, University of Padova, Italy

Keywords: *Archaeological Museums — 3D Models — Memory of Objects — Serious Games — Database.*

CHNT Reference: L. Zamparo, E. Faresin, D. Zilio. 2020. Research, museums, audiences: the experience of the MemO Project to increase the accessibility of archaeological collections. Editorial team. Artificial Intelligence. New Pathways towards Cultural Heritage (Proceedings of the Conference on Cultural Heritage and New Technologies). DOI:xxxxxxx.

The problem of objects without context and archaeological collecting: a comparison between research, museums and audiences¹.

Each object carries a memory. It is the trace of those who manufactured it, of those who marketed it and of those who used it. An archaeological heritage also holds traces of its deposition, of the space in which it was left to rest and the passage of time. This object, however, can also con-naturate with a second or third life, with the creation of new memories. Today as centuries ago, these moments can be determined by the discovery of the artifacts, by their study and exhibition, perhaps in a museum, or by their trade and grouping within private collections.

From the mid-eighteenth century, in Italy, the work of scholars has allowed the establishment of the current archaeological discipline and the most innovative conservation techniques, the drafting of the most scrupulous regulations for the protection of Cultural Heritage and the dissemination of a taste for the ancient that still remains today. However, the incredible discoveries that took place above all between Rome, Pompeii and Herculaneum led to the start of a deep and rooted, in the European culture of the time as in the current, desire to possess these objects, incredible documents of a centuries-old history. Alongside legitimate collections, some phenomena take shape, such as clandestine excavations (and the consequent illicit trafficking of cultural goods) or falsification. Over time, this implies the intertwining of true and distorted stories, stories that an inexperienced reader can confuse and that often deceive the professionals themselves.

Although they are phenomena to be contrasted as illegal and undermining the very idea of Culture, they must be studied for their multiple cultural (historical, artistic, archaeological), social and economic nature (Baggio et al., 2019). The fake object, in fact, can narrate both the technical methods for its production and it can point out the very idea of "ancient" that is transmitted in the various societies. Furthermore, in the eyes of many, the object isolated of its context of origin risks losing its importance, as if it were losing its archaeological nature: instead it still contains a whole memory that nobody can ever steal from it and that only professionals can, once again, bring out to promote and spread a legal and authentic culture.

Based on these considerations, the MemO Project, "The memory of objects. A multidisciplinary approach to the study, digitalization and value enhancement of Greek and South Italian pottery in

¹ Written by Luca Zamparo.

Veneto", coordinated by the Department of Cultural Heritage of the University of Padova and supported by the Fondazione Cassa di Risparmio di Padova e Rovigo. The MemO Project, in addition to investigating the spread of Greek and South Italian pottery in ancient and contemporary times in Veneto, has launched an intense campaign of recognition and digitalization of the material present in the regional territory, thanks to the collaboration of 14 different museums, merged into an open access database created specifically for research (universities), management (museums) and pleasure (wider audience) purposes. Furthermore, thanks to this impressive material, the MemO Project team is creating the serious game FakeMuse, a tool to make known the authentic archaeological material present in Veneto and to spread a Culture of Legality in the historical-artistic and archaeological field.

Making the invisible accessible: 3D modeling for archaeology²

In Digital Humanities, the term "project" takes an operational approach: it involves planning, managing of resources, and the collaboration among scholars of quite different disciplines, leading, in turn, to new interactive and experimental research. Moreover, a project is an activity that "projects" something that, at the very moment, does "not exist". On this ground, the research project here presented applies methods and hardware belonging to the field of engineering known as Reverse Engineering, by means of a structured light system scanning instrument, on Greek and South Italian pottery. The advent of information technologies has substantially eroded the gap between humanities and scientific applications, and brought on a growing concern for the preservation and enhancement of what is currently defined the Digital Heritage. Digital models, in particular, are complex projective information capable of drawing out aspects of an artifact not visible with naked eye, from potentially endless viewpoints.

The acquisition of the objects was performed by taking a set of partially overlapping range scans in order to acquire many shots and to produce the so called range maps with geometry, topology and RGB information (Fig. 1). This range maps were processed to convert the data encoded into a single, complete, non-redundant and optimal 3D representation (a triangulated surface). The processing phases (usually supported by standard scanning software tools) are:

- Range map alignment, in order to put all the single range map into a common coordinate system where all the scans lie aligned on their mutual overlapping region.
- Range map merger (or fusion), to build a single, non-redundant triangulated mesh.
- Mesh editing, to improve the quality of the reconstructed mesh (Faresin and Salemi, in press).



Fig 1: a structured-light 3D scanning was used to issue a geometric model of micrometric resolution in all its parts. The object was measured with 10 μm accuracy using an automatic turntable.

² Written by Emanuela Faresin.

Legality Education and Museums: the Serious Games³.

In order to spread the issues of legality education in archaeological field, and the subject matter itself, the design of a serious game (Michael and Chen, 2006) inside the MemO Project has been included.

For these reasons we designed FakeMuse, a single player mobile game developed for Android smartphone, where players will play the role of an intern curator of a fictional archaeological museum, with the aim to collect as more artifacts as possible and, as a consequence, expand the museum collection. The aim will be reached understanding if the object is authentic or not. If players will be able to do this, the artifacts will be added to the collection and exposed; in this way the museum will also increase its economic incomes, named MusEuros. In order to facility the decision process the players have the chance, expending the cultural coin of the game named Lauros, to obtain some clues associated to the artifact. Lauros are obtained playing with some minigames and buying special short magazine article (Fig. 2).

The design of FakeMuse followed specific requirements. The target selected for the game are people from young adults (19-24 age) to twenties and thirties (25-35 age) who do not have a specific background in humanities. We established the characteristics of our target users creating a set of personas as a reference during the design process. For what it concerns the contents of the game we decided to use real artifacts to present to the players, and all articles and minigames contents are made by the archaeological members of the MemO Projects, using a web portal related to the remote application database. The players will obtain information on the artifacts collected, knowing the membership collections, the description and the real museum where they are exposed.



Fig. 2. Three examples of screens: the Home and the Newsstand with magazines (D. Zilio)

References

Baggio, M., Bernard, E., Salvadori, M. and Zamparo, L. (2019). Anthropology of forgery. A multidisciplinary approach to the study of archaeological fakes, Padova, IT: Padova University Press.

Faresin, E., Salemi G. (in press). Structuring light to destructuring fake ceramic artifact, in Anthropology of forgery. Collecting, Authentication and Protection of Cultural Heritage, Padova, IT: Padova University Press.

Michael, D. R. and Chen, S. (2006). Serious Games: Games that Educate, Train and Inform, Boston, MA: Thomson Course Technology.

³ Written by Daniel Zilio.

