



17 | ARCHEOGAME – A SERIOUS GAME IN THE FIELD OF ARCHEOLOGY

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Passing on knowledge on archeology is a challenge for new generations, especially in a time where technology is so predominant. This paper and related talk present an answer to this challenge with a Serious Game (SG) based on Virtual Reality (VR) born from the collaboration of the HE-Arc ingénierie (University of applied sciences and arts of Western Switzerland) and the Nouveau Musée de Bienne (NMB). The NMB focuses on archeology, history and art and also presents temporary exhibitions like the one entitled “Imagine the past” starting in June 2018. Through visual assets, this event offers a critical look on social construction in the past. During this event, we would like to introduce the work of a painter, Benoît Clarys, who proposes an artistic illustration of men and women evolving with tools and artifacts - exhibited in the museum - almost 5,000 years ago in the region of Neuchâtel, Switzerland.

56

The exhibition features the original work of an invited painter representing an archaeological life scene; the visitors will be able to interact with a virtual representation of objects from this era, which would be too fragile to be manipulated in real life, and replace them in a painting. The objects all come from the Neolithic site of Sutz-Lattrigen, Rütte (Biel's lake), which is listed in the UNESCO world heritage list [6].

Our intention is to instruct visitors thanks to an entertaining experience where end users are immersed in a virtual replica of NMB museum where five ancient objects presented on a table. A large painting, picturing the objects use in a real life scenario, hangs in front of it.

*VR and SG can bring
a lot to the museums*



In this SG, the visitors must match each object with the correct area by replacing them correctly in the picture. By doing so, the objects will “fade” into the picture, revealing the original work of art, and by the end of the game, the visitors will see themselves assigned a score according to their success in assigning the objects and the time taken to complete the game.

As images have never got more preponderant than in today's society, especially with the rise of new technologies, we believe that VR and SG can bring a lot to the museums since they can offer new representations of the past [1, 2, 3, 4, 5]. Can knowledge transmission be more effective through immersion in an alternative reality superposed to our felt and lived reality? Can an immersive experience have more impact than words? These are difficult questions to answer. Nevertheless, the NMB with the HE-Arc ingénierie (University of applied sciences and arts of Western Switzerland) proposed a partnership to create an educational prototype mixing VR, SG, archeology knowledge and art (with Benoît Clarys' work). This VR prototype proposes the visitors to discover and interact with archaeological objects according to four types of paradigms:

- › the real world;
- › the painting as a real object;
- › the virtual environment (VE) representing the real world and augmented with representation of real archeological objects;
- › the representation of the same painting as a virtual object that can be “increased” by user interactions.



Through VR, we want to offer a new pedagogical and sensorial experience and the museum a reflection based on the nearly natural opposition between a two-dimensional painting and VR. We believe this project can raise the following questions: are those new communication media able to transmit more efficiently images from the past? Does the experience develop a deeper understanding of the environment? Or even, will humanity be able of distinguishing the border between material and numerical realities without falling into schizophrenia?

57

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