The {LEAP} Project

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1. What is the problem?
Virtual Archaeology (VA) is nowadays a well-established knowledge area. Several publications and an international charter, The Sevilla Principles, define its goals and guidelines. Yet, most 3D models do not comply with several principles, and in spite of VR's capacities, they typically display hyper-realistic reconstructions of architectural environments, the usefulness of which is seldom assessed. It depends on the approach adopted, which in VA has recently diversified: visualization of empty or populated worlds, spatial or chronological navigation, information retrieval, storytelling, role-playing... Any attempt to correlate learning and Cultural Presence needs first to assess the specific usefulness, the degree of Cultural Presence, and the factors associated to each approach.

2. Convergence story
The HCI concept of Cultural Presence defines a culturally meaningful context in/with which users can communicate and cooperate [RGC*02]. Both from the Presence and the CH fields, examples have been used that show the usefulness of Cultural Presence for understanding other cultures [Jon05] [Dev07].

This has opened the door for a potential convergence between Presence and VA, in which the former brings its well-established methodologies, and the latter specific goals and meaningfulness.

3. The {LEAP} Project
In this context arises {LEAP}. “LEarning of Archaeology through Presence” is a recently started EU funded project aimed at researching, implementing and evaluating an interdisciplinary theoretical and methodological framework for VA. {LEAP} will be developed at the Pompeu Fabra University of Barcelona. The MIDARQ Group (Dept. of Humanities) studies domestic technologies and material culture. The SPECS Group (Dept. of ICT), studies and synthesizes human perception, emotion, and cognition, with the help of computational systems.

The overall strategy of the {LEAP} project comprises three phases:

1. To import into the archaeological field the concept of Cultural Presence and adapt it to its new context of development (definition, goals, factors, methodology).
2. To build at the immersive mixed-reality space (XIM) of the SPECS Group different 3D models of the Bronze Age site of Peñalosa (Spain), using 3DS Max, Unity 3D and iqr.
3. To design a specific evaluation methodology for Cultural Presence, and compare (video-recording, physical response tracking, questionnaires, learning pre/post-tests) the impact of the different virtual reconstructions on a selected group of users.

4. Adjusting the intersection
{LEAP} defines Cultural Presence as a means for and a measure of the suitability of a virtual environment for learning. The highest the feeling of “being then and there”, the highest the emotional and learning impact.

Two issues need to be considered:

1. Ethnological issue. Any description of another culture is necessarily biased by the observer’s own cultural context [Eva65]. Even more so with interpretations of partially preserved archaeological sources. The inclusion of non-photorealistic rendering, paradata, or alternative reconstructions may comply with the Sevilla Charter, but it is not clear if this may undermine the feeling of (Cultural) Presence [PE08].

Thus, we need to verify which the determining factors for Cultural Presence are. Since the model cannot be compared against the real world, it should be equated with verisimilitude (who defines it?), and include satisfaction and engagement [PC12].

2. Learning is a complex concept. It comprises different kinds of knowledge, attitudes, and skills, which involve different (cognitive) processes. Therefore, measuring learning in virtual reconstructions is more than just measuring factual knowledge [PE08].

References

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