

## Chapter 9

# Heritage, Place and Interactivity: Rethinking Space Representation as Interface Design

**Rodrigo Cury Paraizo**

*Federal University of Rio de Janeiro, Pontifical Catholic University of Rio de Janeiro, and Federal Fluminense University, Brazil*

**José Ripper Kós**

*Federal University of Rio de Janeiro and Federal University of Santa Catarina, Brazil*

### ABSTRACT

*This chapter examines the requirements for heritage spatial representation to suggest design guidelines for these interpretive environments. It focuses on the concept of play and its role in the construction of place, or meaningful space, by means of rituals and regulated actions. Examples are given not only from virtual heritage applications but also from other digital works, especially video games, whose implementations to foster user engagement must be regarded as possible key strategies towards creating virtual places in their broadest sense, that is, spaces of multiple possible meanings.*

### INTRODUCTION

Virtual reconstructions, that is, 3D digital models of heritage buildings or spaces, have been an integral part of most virtual heritage applications, and are probably among the first things that come to mind when virtual heritage is mentioned – with Quicktime VR as a close second place. Its importance leads to the adoption and development of various technologies in order to obtain faster, bigger and more accurate renderings, preferably in real time. A recent trend has been the use of game engines, for instance, with their powerful graph-

ics acceleration technologies enabling real time navigation in architecture icons such as Wright's Fallingwater and Mies' Farnsworth House (<http://archlife.skynetblogs.be/archivemonth/2006-01>). However, these virtual environments, as detailed and user-responsive as they might be, lack important properties for heritage representation. Our analysis will address these aspects that should be present in virtual heritage applications, based on comparisons with the concept of history and digital history applications.

With these characteristics in mind, the spatial paradigm behind most virtual reconstructions might simply not be the best choice for heritage

DOI: 10.4018/978-1-60960-044-0.ch009

objects. The very concept of space in virtual heritage should be clarified in order to improve its representation – and we here focus on the affiliated concepts of place and territory. Both deal with cultural aspects – meaning – of space, as well as with spatial restrictions and inductions on people's behavior, so that their representation is of great importance for heritage purposes.

The role of play in the formation of places – and territories – is discussed in order to enhance the possibilities of heritage representation. Examples drawn not only from virtual heritage applications but also from other digital works, especially video games, demonstrate implementations to foster user engagement that must be regarded as possible key strategies towards creating virtual places in their broadest sense, that is, spaces of multiple possible meanings.

Two different interfaces, developed at Laboratory of Urban Analysis and Digital Representation of the Federal University of Rio de Janeiro (LAURD), are examined in deeper detail for further illustration of the theoretical framework: “Rio-H”, a digital history application which associates documents to spaces of the city, and the “Praça Tiradentes’ Guide”, in which navigation changes according to the predominant role the user chooses to assume at each moment.

## **VIRTUAL HERITAGE AND DIGITAL HISTORY**

For the most part, virtual heritage is a synonym for pre-rendered animated walkthroughs, interactive Quicktime VR panoramas or 3D visualization in real time in game engines, with interaction devices ranging from simple mouse and keyboards to head-mounted displays and CAVEs. Early examples are the pre-rendered sequences of past configurations of a building and its surroundings of the Ename Abbey reconstruction (Pleticnkx *et al.*, 2000); the reconstruction of the destroyed Synagogue Neudeggergase in Vienna (Martens *et al.*, 2000)

and the visualization of unbuilt works from Louis Kahn (Larson, 2000). Interaction, in those cases, are usually translated as real time modification of the camera position, roughly simulating the user's movements in the virtual environment.

According to Addison (2006, p. 36), “virtual heritage” is “(...) the use of digital technologies to *record*, *model* and *visualize* cultural and natural heritage” (italics in original). The term echoes “virtual reality”, and is linked to the first uses of computers to display heritage. “Virtual” also signals that the image displayed is but one actualization of a complex set of possibilities, a virtuality: as Lévy (1996) notes, virtual is opposed not to real, but to actual.

Any digital interface can be thought of a virtual world in itself, given the high degree of symbolic manipulation present. When it comes to virtual heritage, it usually refers to applications that depict a navigable geometric simulation based on historical evidence. Frischer and Stinson (2007) suggest, in this case, the use of the term “virtual reconstruction”, which corresponds both to interactive and static models. And even if it does not encompass all virtual heritage applications, it has precisely the advantage of referencing to a very specific and widespread form they can assume. Of course, a given application might consist of more than such simulations – in fact, they may not be present at all.

Another appropriate term is “interpretive environments”, used by IEEE Multimedia editors in the 2001 April-June issue dedicated to virtual heritage. In fact, we will adopt “virtual heritage” as a synonym for “digital heritage interpretive environments”, the preference for the former justified mainly by reasons of economy and dissemination.

By establishing a distinction between virtual heritage and digital history applications, as blurred as it may be, we would like in fact to highlight the differences between history and heritage. For, in spite of their resemblances, they are neither the same nor have identical objectives.

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