

## Chapter 2

# Expansion of Uses and Applications of Virtual Reality

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### ABSTRACT

*The chapter shows the evolution of virtual reality interfaces and technologies to the current moment and verifies what led them to an alleged decline in early 1990. Due to the development of the industry of digital games, new forms of interaction have being researched and presented to the public. It will also be shown the application of virtual reality in different contexts of digital games, in addition to reporting a brief experience of the research group in art, science and technology, Lab\Front (Laboratório de Poéticas Fronteiriças - CNPq/UEMG).*

### 1. INTRODUCTION

This chapter presents a brief history of development and technological advances in virtual reality (VR) up to this moment which seems to be expanding. Due to advances in research and development of the game industry, virtual reality and its immersion technologies appear to be growing. In the 1990s, this technology promised to be a trend, but high production costs have limited their use and interest to only specific scientific communities.

Between 1990 and the middle of the first decade of this century, other forms of interaction and languages have been explored due to increasing Internet access and dissipation of data in virtual networks. The interests in VR have decreased more and more, as well as the attention of researchers and scientific centers to handle the subject. However, it is important to emphasize that innovation efforts as well as the varied interests, not ceased altogether. This is something that this chapter aims to demonstrate to the exposure of continuous events in a “story of the VR”.

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Current research in virtual reality area is realigning its focus to the development and growth of the area, mainly for the prospects of creating videogames with higher levels of realism, new technologies and immersion artifacts.

In this chapter, we present in the third section some of the experiences of the Laboratory of Front Poetics (LablFront) with virtual reality. The two experiments are a different use of virtual reality as expected primarily by industry: whether in the world of digital games (see Playstation VR or VR Samsung, for example); or in exploration of social experiences applications.

One is the development of an interactive art installation that aims to “imprison the look” of the interactor as an investigative attempt to immersion in virtual reality and the other is a curatorial experiment in virtual reality, where we simulate the art gallery of the Guignard School from the University of the State of Minas Gerias in order to propose an exercise of art work curatorship.

After the report of the two experiments it will be possible to envisage other uses of virtual reality that signal virtual reality uses in a continuous and expanding way at least since the 1990s.

## **2. THE DEVELOPMENT OF INTERFACES**

### **2.1 Virtual Reality in Expansion**

Since its beginning, virtual reality has been intended to something big: the possibility of experiencing other realities, of being transported to any other space without leaving their own place simulating their own world with its own rules and with lots of different ways of life. It is part of a system in which man interacts with the machine, but it is truly in the mind where everything happens. Even before the development of current virtual reality technologies and immersion, attempts in history have already shown the man's interest in mastering such artifacts.

In the seventeenth century, the church used the projections of Athanasius Kircher made with the optical principle called *camera obscura*, an early example in history. Athanasius created the “live” view of hell that caused great astonishment and served for many Christians as a powerful argument against sin. He made the mental picture of hell and demons possible through the smoke employment, inclusion of strange insects, which seemed magnified monsters. He used the simulation to make a fictional world real. The image hitherto unseen by the faithful could have caused a sense of immersion in another reality. The space of the church was intended to provide the observer with knowledge of the possible, that is, the virtual existence of the infernal world (Giannetti, 2006, p. 150).

When virtual reality is thought, many authors refer to the development of stereoscopy and the first images in three dimensions, as well as others point to interfaced experiences out of the body. The principle of stereoscopy presents each eye an image corresponding to their point of view. Thus, it is possible to simulate the sensation of depth and relief, since human eyes are distant from each other by a few centimeters, it does not have the same view of the world (Arantes, 2005, p. 114).

For most authors, it was between the years 1950 and 1960 that the pioneers started the development of stereoscopic instruments for immersion and graphic simulation. It should highlight the Sensorama of Morton Heilig in 1950 as a kind of synesthetic theater. In it, an immersive booth, a vibrating seat, handlebars, a binocular display device, a set of fans, stereo speakers and a nasal device simulated the experience of driving a motorcycle in specific places of the United States (Rejane, 2001, p. 29).

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