


Chapter 4

Exploring Digital Models and VR as Immersive Environments of Unbuilt Project: “Humanities Corridor” at University of São Paulo

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ABSTRACT

The immersive digital movement through the spaces makes us awake to the features of buildings. The dimensions and rhythms dictated by the surrounding architectural elements directly affect us as we walk through spaces. The digital documentation of unbuilt projects has become fundamental for the preservation of cultural and architectural heritage. We investigated the so-called Humanities Corridor, which consists of five buildings—both built and unbuilt—at the University of São Paulo, producing renderings and VR 360-degree images by manipulating three-dimensional digital models. While VR immerses the user entirely in a digital environment, pathway simulations were produced with the aim of revealing changing aspects of the environments to reflect how spatial transitions influence our preferences. We named

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promenade this temporal experience organized in a ritualized movement of people. This research contributes to revealing the bodily feelings experienced during virtual walking that evoke a sense of discovery, surprise, and pleasure.

1. INTRODUCTION

Architects tend to organize spatial elements carefully to achieve the best possible relationship between them, based on proportions, rhythms, and harmony, which evokes appreciation for the building and results in pleasurable emotions. In a conscious design, the intentionality of the architect guides his or her decisions about probable movements that would be derived from spatial transitions and sequences. Fortunately, new digital technologies have been enhancing realism and immersion to virtually explore architectural spaces.

The *promenade architecturale* is an orchestrated movement through a sequence of spaces that allows the observer to obtain spatiotemporal pleasure from the architecture. Orchestrate means carefully organizing the sequence (e.g., *succession*) of events along a route with the purpose of appreciating the environment. To achieve enjoyment during the walk, the spaces must be qualified with surprising effects, whether from the characteristics of spaces or from the wise play of light and shadow. In the last decades, new ways to investigate spaces by using technological devices, such as digital animations, VR, and AR, amplify the possibilities to discover, create, simulate, and evaluate spaces in architecture.

A path's spatial sequence determines *what* viewers observe, *how* they perceive spaces, and *when* they do so. The perspective can change markedly when traversing space, influencing and modifying our capacity to comprehend the spatial configuration and arrangement of a building's components. Additionally, while walking through spaces, we often focus our attention on something that surprises us. In this situation, virtual navigation in digital environments allows us to probe spaces in an intense way.

Body movements are circumstantial, resulting from the *stimuli* received by our senses as well as from perception, which is the intellectualization of corporeality. Sensory and perception *stimuli* influence the body's movements, forming the haptic system (Gibson, 1966). On the other hand, *kinesthetics*, which refers to the experience of the body's displacement and movement through space, is related to angles, speed, direction, and bodily orientation (Rapoport, 1977). More and more, digital simulations can simulate body movements to offer a virtual perception of the environment.

The rhythm of bodily movement through space generates varying sensations. As Steadman (2006) declared, the body's locomotion and the eye's direction affect

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