Politecnico di Torino

Honors Thesis

Master of Science in Architecture Construction City

Abstract

SPACE, EMOTION, OBJECTS AND STORIES. Design experiments in museum settings for a dialogue between Architecture and Neuroscience.

Tutor: Valeria Minucciani

Correlator: Nilufer Saglar-Onay

External tutor: Annamaria Berti

Candidate

Carolina Tempora

December 2022

We know that humans inhabit built spaces, outdoor spaces but particularly indoor spaces. Nowadays we spend on average about 90% of our time indoors. The routine of our days, or society more generally, engages us to live much more indoors than outdoors: in the house, on the subway, in the car, in bars, in the office, at school, or in other confined spaces. Buildings serve a variety of functions, they certainly house us, they house our possessions, they are the places where we perform actions; however, they must not only provide for our basic needs, «they must not only give hotel to our bodies», buildings «must also house our minds, memories, desires, and dreams» (J. Pallasmaa, H. F. Mallgrave, M. Arbib, Architecture and Neuroscience, Finland, Tapio Wirkkala Rut Bryk Foundation 2013, p. 9).

We have known for many years that the environment plays a fundamental role in determining our mental, physical, cultural and social evolution. «The brain controls our behavior. Genes control the design and structuring guidelines of the brain. The environment can regulate the functioning of genes and, essentially, the structure of our brains. Changes in the environment modify the brain and thus they cause our behavior to change. Consequently, architectural design changes our brains and our behavior» (Rusty Cage, keynote address at the 2003 AIA National Convention, San Diego, May 10, 2003).

In recent years, thanks in part to technological development, the biological sciences have made incredible discoveries that have revolutionized the knowledge we have about ourselves as biological beings. Knowledge about the functioning of the brain, and the nervous system more generally, has been greatly revised. Therefore, since environments change us so profoundly, and since architects are among the main architects of built spaces, an exchange of knowledge between those who study the workings of the brain and those who design spaces could be not only a fruitful, but also a wise choice. Looking at architecture from a different, multidisciplinary perspective is attracting the attention of many architects. Probably also driven by a critique of contemporary architecture, which, increasingly, tends to prioritize pragmatic, functional and technical problem solving.

The thesis is divided into two parts. In the first, research part, I tried to answer the questions: what is neuroscience? why are architects becoming interested in neuroscience? how can we use this new information? Above all, two statements are animating the dialogue between neuroscientists and architects. First, initial contact with environments is pre-reflective and meaningful. It is an immediate judgment, a first impression, and at that moment the body receives sensory stimuli to which it responds emotionally. Second, experiencing built environments is an emotional and kinesthetic experience, a hypothesis that stems from the discovery of mirror mechanisms.

In the second part of the thesis, I set out an experiment: a number of people were asked to evaluate, through an anonymous survey, certain rooms for a museum (Figure 1 and Figure 2). The responses are the basis for formulating design hypotheses but also a source of new questions. Specifically, with this experiment

we asked: what kind of relationship exists between spatial/installation choices and emotions? does knowledge or lack of knowledge of the facts surrounding an artifact vary people's attitudes toward a given environment and thus their judgment?

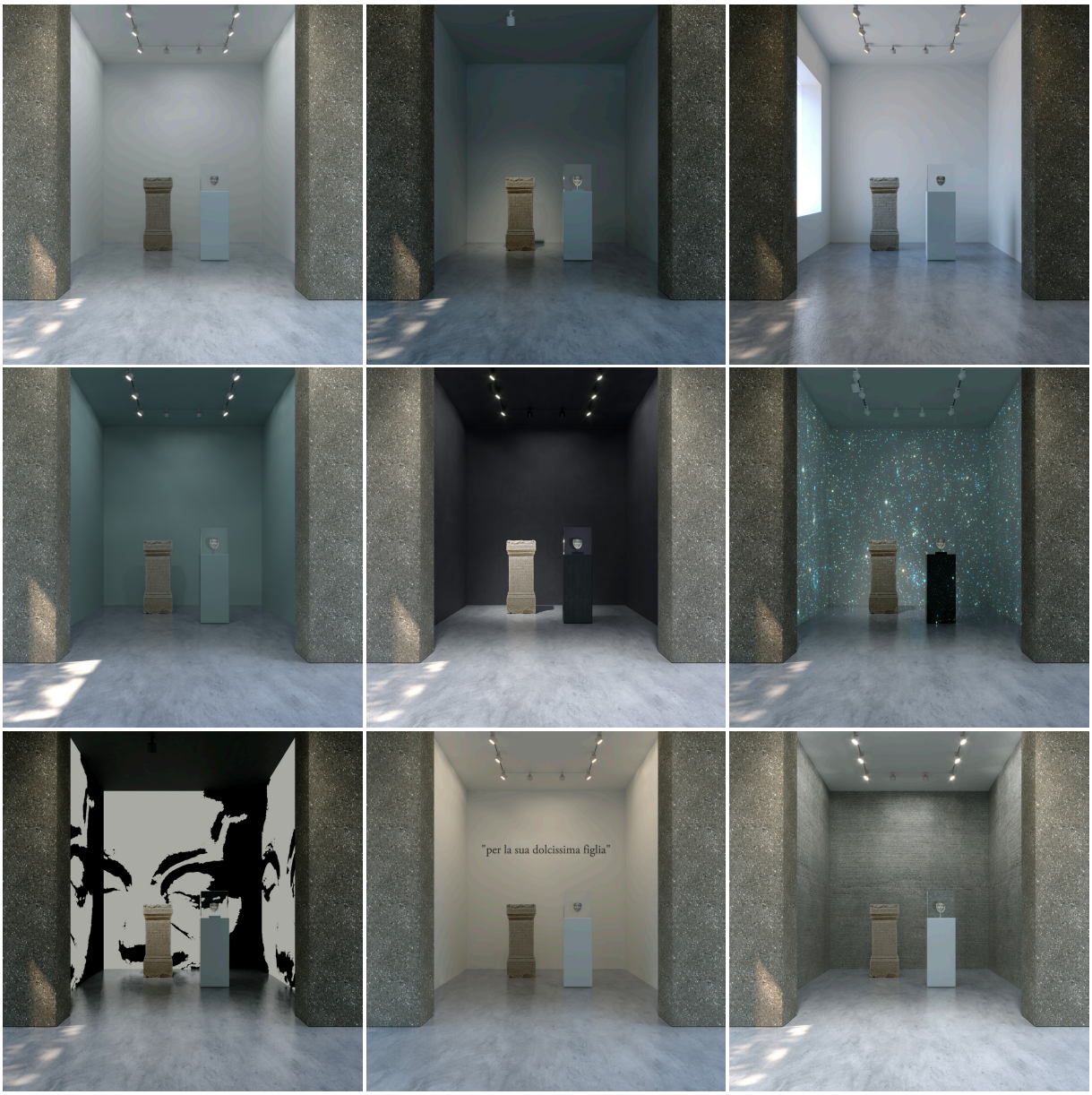

Figura 1. Some examples of the conditions of room presentation.

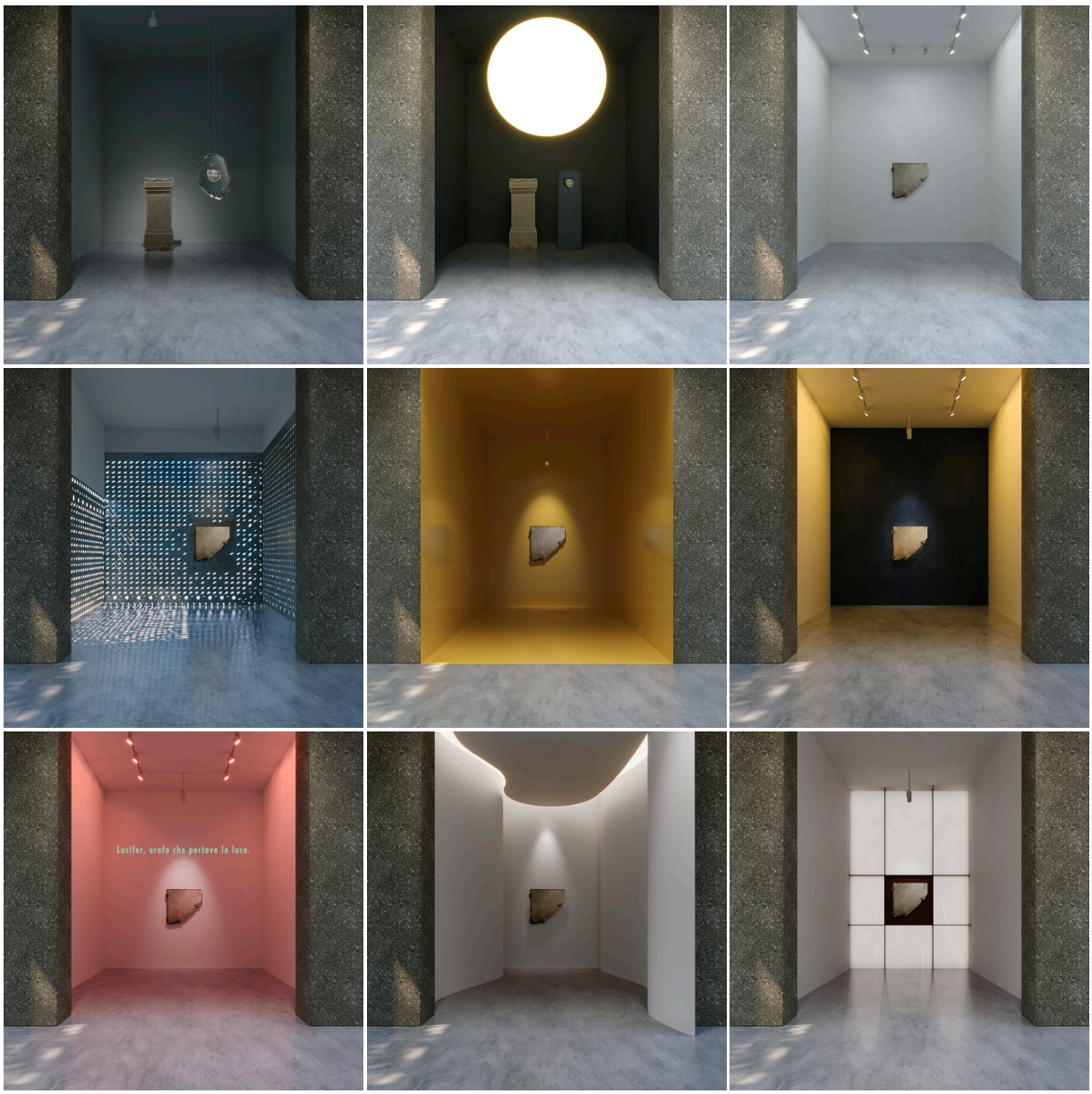

Figura 2. Some examples of the conditions of room presentation.