

# Chapter 10

## Role of Emotions in Interactive Museums: How Art and Virtual Reality Affect Emotions

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### ABSTRACT

*Virtual reality (VR), augmented reality (AR), and artificial intelligence (AI) are increasingly being used by educational institutions and museums worldwide. Visitors of museums and art galleries may live different layers of reality while enjoying works of art augmented with immersive VR. Research points out that this possibility may strongly affect human emotions. Digital technologies may allow forms of hybridization between flesh and technological objects within virtual or real spaces. They are interactive processes that may contribute to the redefinition of the relationship between identity and technology, between technology and body (Mainardi, 2013). Interactive museums and art galleries are real environments amplified, through information systems, which allow a shift between reality, and electronically manipulated immersive experiences. VR is emotionally engaging and a VR scenario may enhance emotional experience (Diemer et al., 2015) or induce an emotional change (Wu et al., 2016). The main purpose of this chapter is to verify how art and VR affect emotions.*

### INTRODUCTION

A new generation of mobile devices flanks the traditional media and the generation of desktop computers. The technologies, connected and wearable, submit humans to a multisensory perception where the real special dimension and the virtual one are mixed together extending and amplifying emotional stimuli (Griziotti, 2012). The bio-hypermedia is a neologism to highlight the fact that using these sophisticated devices there is a qualitative jump in the interaction. They are characterized by miniaturization and portability, and they can be worn. Nowadays, emotions are dominant and the interaction of five senses with

DOI: 10.4018/978-1-7998-1796-3.ch010

the network is central. Handheld tools can augment reality by overlaying information, or they may become the hub of vital biological functions. In addition, anthropomorphic devices, like *Google Cardboard* (i.e. the VR platform developed by Google. Named for its fold-out cardboard viewer, a low-cost system to encourage interest in VR applications), increasingly flank screens. All these smart interfaces can augment human senses and impose extra attention or cognitive overload. The skilled user, after having overcome technological barriers, introduces settings, multimedia and applications in relation to the dynamics of his/her own life and aspirations. When mobile devices are constantly reshaped, their usage, content and performance evolve and transform themselves (Griziotti, 2012). Smart and wearable interfaces require the use of new habits, practices, rituals and gestures. The actions people enact using handheld devices or wearable technologies are repeated every day, each time a multisensory experience is required. Some people are dependent and need to perform these new gestures from when they wake up in the morning. All the actions people enact, each time they walk in a path superimposed with AR and VR, are repeated. The reiteration of new habits may represent a daily ritual. In a VR performance, the concept of ritual behavior of participants may become a contemporary social procedural. The ritual is the connection between the trials using AR and performance. The experience of 'Walking Eight' rebuilds the empathy of visitors with usual and homologated places, to protect those places, their uniqueness and complexity. Mobile device and VR facilities 'may represent access points to navigate the city, to observe different layers of reality, to redraw the urban geography and to explore the real environment. It is an emotional journey to observe also familiar places from different perspectives and angles: a continuous sliding between two worlds (real and virtual), an invitation to participation, reflection and rediscovery of public spaces' (Guazzaroni, 2013). In this context, 'Walking Eight' is an invite to dynamic reflection, an offer to walk usual places, of every city. An invite to re-collocate semantic fields relating to a city in unusual semantic fields, open to creative reflection and self-empowerment. It is a sort of performative city, a micro universe, characterized by the symbol of infinity ('eight'). It is also a stage; the stage of Leonardo Da Vinci renewed in a post-contemporary way to offer the vision of virtual tours and add information in museums and art galleries. The objective of this chapter is to explore how the combination of art and VR may affect human emotions. For this purpose, a real experience, regarding an art exhibit is described.

## **BACKGROUND**

Brain research highlights the role of emotions in the fruition of art. Damasio (2000) uses the term emotion to refer to internal changes in the state of human body (e.g. chemical, visceral, muscular etc.) and the resulting changes in the nervous system. Emotions are not aware, and can be induced, for example by the sight of an object in a museum. They can create a specific emotional state, which can be a stimulus for the action. Emotions play a crucial role in an aesthetic experience. The visual act is not a passive recording of the physical environment, but an active construction that involves elaboration and analysis processes. Complex cognitive and affective psychic processes are involved when people visit an art gallery. Authors separate emotion from cognition, based on a differentiation of the cerebral hemispheres, placing the processing of emotions on the right hemisphere. When individuals live an aesthetic emotion, the action consists in the interest aroused by the artwork. The interest produces a mobilization of the whole organism based on the exclusive role of the perceived aesthetic object. The object is contemplated by the subject (e.g. visitor of a museum), if this occurs in an intense way the emotion can induce tears or other strong reactions (Mastandrea, 2011). The aesthetic emotion can generate en-

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