Abstract

The concepts of body and corporeality have been, over the past few decades, the focus of a attention that has led them to be the place of theoretical meeting between different disciplines and different trajectories of scientific research.

From philosophy to medicine, from neuroscience to anthropology, the disciplines that place man as the subject of their investigation have claimed all, each by its own peculiar epistemic point of view, the centrality of the body.

Within studies on cognition and learning, adjectives such as "situated", "embodied", "distributed", began to accompany the concept of knowledge in the scientific literature

This new perspective no longer considers the body as a simple "worker of thought" (M. Sibilio, 2002), but acknowledges that "most of the knowledge, especially those vital, are expressed in the very structure of the body" (Longo, 1995) , which is no longer considered as a simple mediator between the brain and external reality, but as the "main device through which, realizing experiences, we develop and produce learning knowledge" (Rivoltella, 2012).

The role of technology, in the broadest sense, is not alien to the processes that have led to this reversal of perspectives.

The idea that technology is not neutral in the process of knowledge production is not new.

Several lines in this area, overlap in an almost inextricable way: the idea of the media as an extension of men (McLuhan, 2001), the "place of innovation and extension of technologies of power" (Chignola, 2007) identified from the concept of biopolitics as claimed by Focault, the explicit (albeit outdated) analogy between mind and computer postulated by cognitive science, design and development of intelligent prosthesis, the design of brain-computer interfaces.

These lines contribute to move and make blurring the boundaries of the human body: the machine, extend the faculties of the subject than what predicted by theorists of communication, and violates the integrity of the body, redefining its identity.

From a technological point of view, the spread of Natural Interfaces, based on devices that allow for the recovery of the Human Computer Interaction paradigms of natural human interaction (sound, voice, touch, movement), breaks the bottleneck of graphical user interfaces: the

interaction does not occur "through the mirror" (Carroll, 2012) of the screen, but it takes place in the "perceptual bubble" of the subject, digitized space, which surrounds the user.

The Digital learning environments are gradually shifting from flattening on the Cartesian plane that forces reality in a non-natural dimension, limiting the interaction to only eye-hand binomial, to expand in three dimensional space, founding the interaction on the whole body, with cognitive implications that have not yet been explored.

Natural User Interfaces and Gesture Recognition technologies foreshadow the imminent scenario, in the field of education, of the convergence between the centrality of the body and the technological dimension: the augmented Body intended as body / interface in the Augmented Reality and in the Augmented learning.

With this background, this work intends to present, in the first part, a conceptual framework to frame the "augmented body" in the perimeter body - learning - technology and, in the second part, to present experiments conducted on the basis of this framework.