

SUMMARY / KEYWORDS

The primary purpose of this paper is first to review the studies on the effects of virtual reality on psychological well-being and second, to empirically verify whether the virtual avatar's breathing frequency in virtual reality (VR) can impact the breathing of the virtual reality user. Inspiration for this paper are the exciting results of previous virtual reality research. One of the classic experiments in this field is the Rubber Hand Illusion experiment, which gave rise to the idea that humans can experience a sense of embodiment of an artificial object as if the object belonged to a person's body. The phenomenon of the embodiment can also be induced in virtual reality-in this case, towards the virtual body of an avatar. The illusion of embodiment manifests itself on many levels: psychological, physiological, and behavioral. The present study tested the possibility of a non-directive regulation of breathing frequency by manipulating the breathing frequency of a virtual avatar observed from a first-person perspective. An experiment was designed in which participants, through a head-mounted display, saw a virtual avatar breathing in one condition faster and in the other condition slower (compared to the participant's breathing rate). The experiment was conducted in a dependent group model. Participants in a rotating order both participated in the condition with increasing and decreasing avatar's breathing rate. The participants' breathing rate was monitored using a breathing sensor coupled with a computer and virtual reality software. Each time the participant began breathing at a rate similar to the avatar's breathing, the virtual breathing rate accelerated or decelerated. A linear regression analysis was performed to see if the participants' breathing rate slowed down or speeded up depending on the experimental condition. The results provided evidence that the avatar's perceived breathing can affect the participants' breathing rate. In the accelerating avatar breathing condition, participants breathed ever more quickly. Similarly, in the condition of the avatar's slowing breathing rate, participants breathed ever more slowly. In addition to broadening knowledge regarding the effects of the embodiment illusion on physiological parameters (i.e., breathing), the present paper's results have practical significance. Many therapies include a breath manipulation component, and new methods for achieving a therapeutically beneficial breathing rate may increase the attractiveness and effectiveness of such therapeutic interventions in the future.

Keywords: virtual reality, breathing exercise, entrainment, VR, psychology.