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The brain on VR: Practical and ethical impact of the use of VR in video games
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Abstract

With the advent of virtual reality, game developers and technology enthusiasts find themselves facing new challenges and new problems to overcome. The brain doesn't react the same way while experiencing virtual reality as it does when in front of a screen. This paper aims to explore the difference between how virtual reality is perceived compared to similar elements on screen to highlight its practical and ethical implications. Virtual reality being a quite recent innovation, content producers have yet to find the full potential, but also the limits, of this technology. If Virtual reality is already use by psychotherapists to treat various kind of phobias as shown in the work of Ivan Alsina, its impact on the brain can be a delicate issue when it comes to the entertainment industry. Michael Madary and Thomas K. Metzinger have recently published the first ethical code for virtual reality with some "tips" to avoid negative repercussions on the brain but this guide is only made of recommendations that game developers can use or ignore. For now almost each and every game studio has its own idea of what can or cannot be shown with virtual reality. With that in mind I would like to deepen my analysis by trying to find common points between the rules game developers impose to themselves, the ethical code of virtual reality and the studies led by various psychologists to draw an ethical line of conduct for virtual reality. The democratization of Virtual Reality, like any innovation, brings its own new questions. The level of immersion brought by this new technology can influence our brains and our perception of the reality in a way that has never been reached before. The lack of screen to determinate the limit between the real and the virtual world can lead us to "feel the game" strongly, resulting in perturbing situations for our brain. Virtual reality can even conduct the user to accept as their own part of their virtual bodies –or avatar- as shown in a study led by French researchers. In the latter, the academics "found that participants responded positively to the possibility of controlling the six-digit hand despite the structural difference, and accepted to some extent the virtual hand and individual digits as their own". If we can implement a part of the body through virtual reality, which impacts can that technology imply? If some researches have been done about the involvement of Virtual Reality in the treatment of psychological disease, how does it influence our brain? Finally, as Virtual Reality is mainly used in the entertainment sector, how do the video game producers perceive –and therefore limit- the potential negative impacts on the players? Through the use of already existing studies and a joined analysis between VR and game design ethics, this research paper aims to provide new insights for a possible ethical game design code of conduct.