

# VR gaming may make the mind a bit confused about reality

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Science fiction often describes a dystopian future where humans become heavily dependent on virtual reality (VR) technology and cannot distinguish between what is real and what is not. A typical example would be the famous movie series “The Matrix,” depicting most of humanity living together in a collective virtual reality, forever oblivious of the objective world outside. The core idea of the simulation hypothesis is also based on the capacity of hypothetical forms of extremely advanced VR technology. Maybe we can explore the early patterns of this speculative cyber-dystopia through the psychological effects of VR gaming.

Exposure to VR can induce [dissociative experience and lower one’s sense of presence in objective reality](#) [1]. A more recent study published in *Computers in Human Behavior* further suggests that [VR gaming can increase the degrees of depersonalization](#) (feeling detached from one’s self) and derealization (feeling detached from one’s objective surroundings) [2].

In this study, two groups of participants played the game *The Elder Scrolls V: Skyrim* for about 30 minutes – one with VR headsets and one with normal PC screens. Immediately after playing, the VR group had significantly stronger depersonalization and derealization effects compared to the PC group. The researchers found no evidence of any long-lasting effect when they examined the participants one day and one week after playing.



**Figure:** VR gaming at Gamescom, by dronepicr (CC BY 2.0); [https://commons.wikimedia.org/wiki/File:Gamescom\\_Playstation\\_VR\\_Playseat\\_\(36454815300\).jpg](https://commons.wikimedia.org/wiki/File:Gamescom_Playstation_VR_Playseat_(36454815300).jpg)

For experienced gamers, it is known that Skyrim's virtual environment, while being immersive to certain degrees, is certainly far from being realistic – both in terms of graphics and distinct robot-like NPC (non-playable character) behaviors. However, these characteristics may not matter as much as we think regarding how the mind is affected by VR.

The mind is an information processing system that takes inputs from the external environment (in relation to the system); and will always try to adapt to the environment from which it receives feedback [3]. Thus, regardless of whether the environment is real or virtual, the brain adjusts itself to optimize information exchange activities. After a while, one's subjective sphere of influence [4] may deviate from what it originally was in the attempt to fit into the virtual world. Returning to the real world can cause temporary dissonance in the perception of self (center of the sphere) and of the external world (coverage of the sphere).

Future studies can explore this aspect by comparing the effects of VR gaming between ultra-realistic and cartoonish environments. Full-body tracking may increase the adaptation rate, while prolonged exposure may reinforce the adapted state and cause long-lasting effects.

## References

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