Virtual green, real impact

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Taking a walk in nature can reduce stress, which is especially helpful for urban citizens [1]. But if one takes a walk in virtual nature, will there be similar positive effects? Some new studies using virtual reality (VR) technology suggest that exposure to virtual nature has positive psychological impacts on humans.

A study using electroencephalography to measure the brain activity of people exploring virtual urban environments shows that the presence of greenery, such as trees, is associated with less stress [2]. Another study using electrocardiography to measure the heart activity of people taking a walk in virtual urban environments accompanied by heavy traffic noise shows that vertical greenery (vegetation) on buildings has a buffering effect against stress [3]. Interestingly, this study also reports that the buffering effect disappears if the virtual plants are replaced by just green color.

A 2022 study again provides evidence that natural settings with plants in virtual environments are perceived to be more pleasurable compared to typical urban settings with grey concrete [4]. In the setting with virtual plants, people tend to walk slower, look more frequently at the surroundings rather than the ground, and have lower gaze fixation (this gaze pattern reflects mental relaxation). However, non-natural color designs increase physiological arousal and gaze fixation. This is probably similar to why strong artificial visual stimuli in urban environments are often perceived as attractive but tiring.

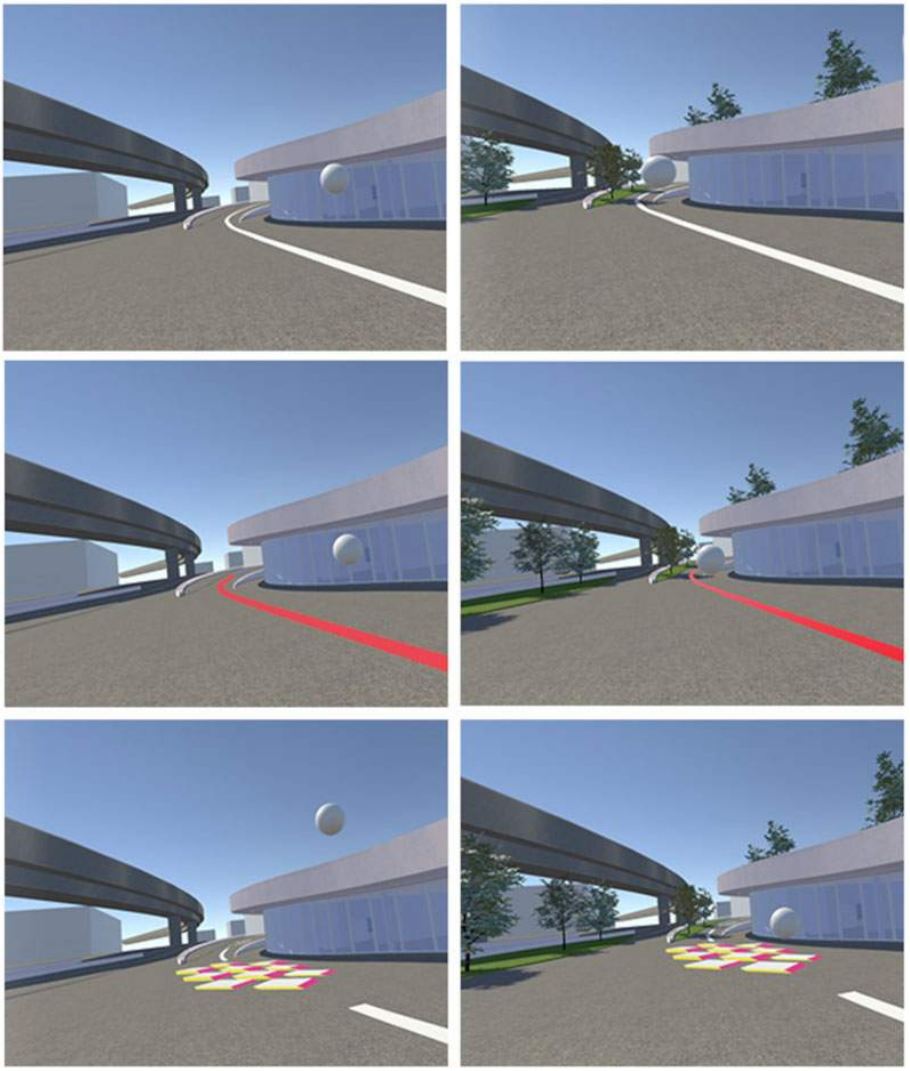

Figure: Illustration of the six virtual environments in the study by Batistatou et al. (2022) [4] (CC BY 4.0); https://www.frontiersin.org/files/Articles/819597/frvir-03-819597-HTML/image_m/frvir-03-819597-g002.jpg

Human sensory perception had evolved to adapt to the species' natural living environment long before the first city was built. The information processing system of the human mind is good at recognizing patterns of the natural world and regulating psychological responses accordingly [5]. In fact, not just humans but other animals should have the same tendency toward VR as well. Caged chickens were found to get better physiologically when exposed to virtual representations of cage-free chickens' natural environments [6].

As VR technology advances more and more each passing day, we need to seriously think about the position of humanity in the universe. If reality can only be perceived through the interactions between the self and its surroundings, what will be real

when either the self or the environment is not real?

References

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