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Editorial: Understanding and improving the "self" using immersive virtual reality

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Editorial on the Research Topic
Understanding and improving the "self" using immersive virtual reality

Over the last few years, advances in Immersive Virtual Reality (VR) have created new opportunities for developing experiences aimed at improving self-perception, behaviour, and emotional wellbeing. This editorial introduces the contributions of this Research Topic, which collectively examine how VR can be leveraged to enhance aspects of the "self," including cognition, social behaviour, and emotional resilience. VR's ability to simulate realistic environments has already been used extensively in treating anxiety and phobias, with additional potential for enhancing self-efficacy, motivation, and empathy through embodiment.

The increasing accessibility of VR has opened new avenues for research into cost-effective, technology-driven alternatives to traditional psychological interventions. This includes VR's potential for mental health treatments, skill acquisition, and applications in fields ranging from education to healthcare. This Research Topic aims to explore these technological advancements and their potential to not only augment but also transform existing therapeutic approaches. The seven papers published in this Research Topic present a wide range of applications and experimental approaches to improving the "self" using VR. A total of 33 authors across 9 countries have contributed towards the research published in the Research Topic, which showcases the collaborative and multidisciplinary nature of the Research Topic.

It is also important to note that 2 of the 7 papers are technical reviews of the literature. This is crucial, since VR development and its use as a therapeutic and training tool must be looked at holistically, so methodologies can be standardised. Taylor et al. in their review of XR and mental wellbeing, provide an in-depth bibliometric analysis of the current literature on extended reality (XR) technologies and mental health. Their study identifies positive psychological effects associated with XR use, such as reductions in stress and improvements in emotional resilience as well as potential risks in the context of the Metaverse.

Alternatively, the review paper by Bastardas-Albero et al. is more focused on a specific application of VR towards understanding intimate partner violence (IPV). Their review provides a useful compilation of the use of VR for observing and developing interventions for intimate partner violence (IPV). This paper discusses 11 studies where prevention and

rehabilitation for victims or offenders of IPV using VR are showcased. The review finds that VR is an effective platform to tackle the prevention and rehabilitation of intimate partner violence, as it allows the researchers to develop and design customised situations with a strong degree of control, while still maintaining safety and ethical standards.

In terms of original findings through experimental research, Tacca et al. study evaluates a novel VR-EEG enabled therapy system for treating depressive symptoms. Their findings show that the VR-EEG system created a more restorative therapeutic environment than traditional online therapy via Zoom, offering new insights into how virtual environments can be designed for enhanced mental health interventions. The study exemplifies VR's potential to provide accessible psychological support, especially in rural or isolated communities where traditional therapy might be unavailable.

Girondini et al. explore the efficacy of VR in addressing public speaking anxiety. This study highlighted VR's ability to simulate high-stress social situations and allowed participants to practise coping strategies in a safe environment, showing a reduction in physiological and emotional anxiety symptoms. This research underlines VR's effectiveness in addressing phobias and anxiety disorders by enabling repeated exposure in controlled settings. In the realm of sports and skill acquisition, Wu et al. study examines the application of VR in enhancing performance through realistic training simulations. This paper illustrates how VR can be employed to replicate real-world learning environments, improving athletes' mental preparation and cognitive skills. The findings suggest that VR could be extended beyond physical training into domains like education and professional development.

While it is important to be optimistic about the potential of the technology, it is equally essential to assess the risks and potential Research Topic, especially given the novelty of such solutions. Following that, Woo and Lee study explored the potential psychological risks of using VR in palliative care. They found that while VR can offer significant emotional relief for patients in palliative care by providing immersive and calming environments, it may also trigger maladaptive emotions if not administered carefully. Their study stresses the importance of psychological assessments before and after VR sessions, to minimise the risk of negative emotional responses. Specifically, they offer three methods of mitigating the risks as well, including assessment and training of facilitators.

Finally, the study by Pedersen and Musaeus explored how a phenomenological-driven approach to the design of virtual reality in psychiatry education could be implemented. To facilitate learning in acute psychiatry, the authors designed a scenario with two perspectives: one from the patient's viewpoint simulating a severe psychotic incident, and the other from the perspective of junior doctors, exposing them to the challenges of communication and stress in a clinical setting. This application of VR highlights the potential for VR to advance professional training by making complex mental health conditions more relatable.

The collective findings from these studies demonstrate VR's growing significance in therapeutic, educational, and cognitive applications. From reducing public speaking anxiety to fostering empathy in social contexts such as intimate partner violence, the versatility that VR offers for self-improvement has great potential. Additionally, these studies show that VR is not just a medium for replicating real-world environments, but it also offers unique opportunities for creating novel therapeutic approaches that can profoundly impact mental wellbeing and skill development, such as the study by Pedersen and Musaeus, and Girondini et al.

As VR continues to advance, there is growing need for research into how it can be integrated with other technologies, such as artificial intelligence (AI), and applied towards more disciplines, to enhance personalisation and overall therapeutic experience. However, the ethical implications of using VR, particularly its psychological risks, as discussed by Woo and Lee, must be rigorously addressed to ensure the safety of users. As VR becomes more accessible and integrated into daily life, future research should also focus on its long-term impact on mental health and the broader implications for self-improvement.

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