Evan Timmons advised by Dr. Richard Stone

The Efficacy of Using Virtual Reality for Therapeutic Purposes: An Analysis

Abstract Through an extensive array of trials, virtual reality therapy has proven itself to be effective in treating and preventing both mental and physical ailments. Research on the subject began as far back as the early 2000's, and the technology provided promising results from the beginning. Its adoption has been mediated by human and technological factors like skepticism and high prices, however recent studies have proven these detriments obsolete. Regardless, adoption rates remain incredibly low. Virtual reality therapy can be a remarkably effective tool in treating a wide variety of human affects and should be implemented where applicable.

Objectives

- Investigate existing methods of VR therapy
- Research implementations of existing methods
- Analyze results to draw conclusions about efficacy

Methods

The original plan for this project was to conduct experimental research on virtual reality therapy through the means of virtual transposition. Due to the COVID19 pandemic, the plan and research methods had to shift focus. This study was conducted as a literature review of existing academic works.

Key Studies

Hoffman, 2004

- Large pain reduction for burn victims treated while in VR
- Visible decrease of pain response in brain

(Hoffman, 2004)

Šalkevicius, Damaševičius, Maskeliunas, & Laukienė, 2019

- Treat in vivo triggered anxiety
- Virtual public speaking in front of reactive crowd
- Vitals monitored and analyzed

Freeman, et al. 2019

- Monitored participants with persecutory delusions
- Brought into triggering environments before and after therapy
- VR therapy reduced delusions and stress over previous methods by a Cohen's d value of 1.3 and 0.8 respectively

Zhang & Ho, 2017

- Study to address video game addiction
- Show users personalized negative impacts of addiction
- Effectively use cheaper equipment

Conclusions

The comparatively minute final barrier to acceptance appears to be the lack of knowledge and dissemination of equipment itself. It is speculated that if therapists were trained on the benefits and methods of virtual reality therapy, and, if taught how to easily acquire and use the equipment, the technology would be more universally adopted. The data collected has conclusively shown the immense impact VRT could have on the mental health field, now all that remains is a catalyst.