The Use of Virtual Reality in Mindfulness Meditation

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Gabriela Górska is a PhD candidate at the Robert Zajonc Institute of Social Studies (Warsaw University) and an employee at the National Information Processing Institute.

At the Laboratory of Interactive Technologies we are interested in the topics such as:

- Virtual Reality as a tool to explore emotional processing, temperament, contemplative states
- VR measurement / eye-tracking
- technology moderating social interactions, ex. Altruism
- immersive experience / immersive journalism / social influence through technology
- the role of technology during the COVID-19 pandemic

The current study:

- In contemplative studies, there has been a wide range of evidence for VR being used as an efficient tool to enhance meditation, for example in the research of Gromala et al. (2015).

- Research using neurofeedback (EEG) for focused attention and body-scan (Kosunen et al., 2016) proves that immersive VR with or without neurofeedback can give significantly better results in self-reflection and relaxation compared to a computer monitor.

- Mindfulness meditation was proved to work as one of emotion processing strategies, next to suppression and positive reappraisal (Chambers, Gullone, & Allen, 2009).

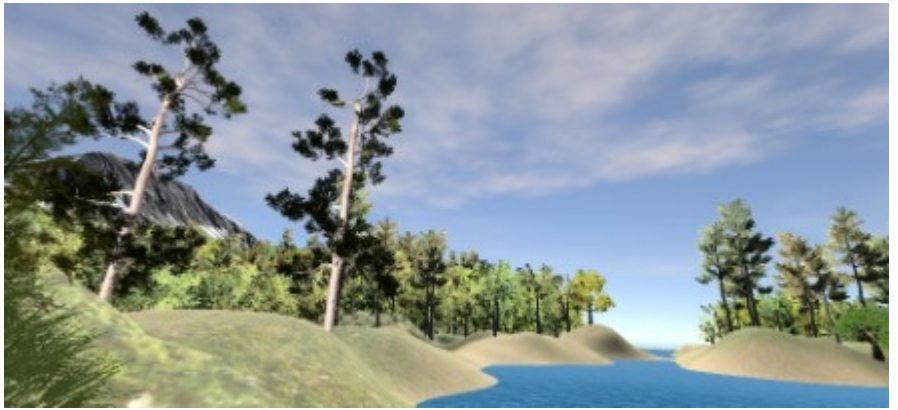
- Mindfulness has been commonly used as a relaxation method as well as part of therapeutic treatment (Garland, Gaylord, & Park, 2009).

Chambers, R., Gullone, E., & Allen, N. B. (2009). Mindful emotion regulation: An integrative review. Clinical Psychology Review, 29(6), 560–572.
Garland, E., Gaylord, S., & Park, J. (2009). The role of mindfulness in positive reappraisal. Explore, 5(1), 37–44.
Gromala, D., Tong, X., Choo, A., Karamnejad, M., Shaw, C.D. 2015. The Virtual Meditative Walk: Virtual Reality Therapy for chronic pain management. CHI, 18-23.
Kosunen, I., Salminen, M., Jarvela, S., Rounala, A., Ravaja, N., Jacucci, G. (2016). RelaWorld: Neuroadaptive and immersive virtual reality meditation system. IUI for Entertainment and Health, March 7-10, 2016, Sonoma, CA, USA.

H1 Mindfulness group would feel happier and more open to their thoughts and emotions after the training than the relaxation group.

H2 Due to the VR-related immersion, there would be higher scores on the subjective well-being scales as well as meditation-related scales in the groups with VR comparing to those without VR.

H3 The mindfulness group would present more empathic thinking and would identify with all humanity more than the relaxation group.



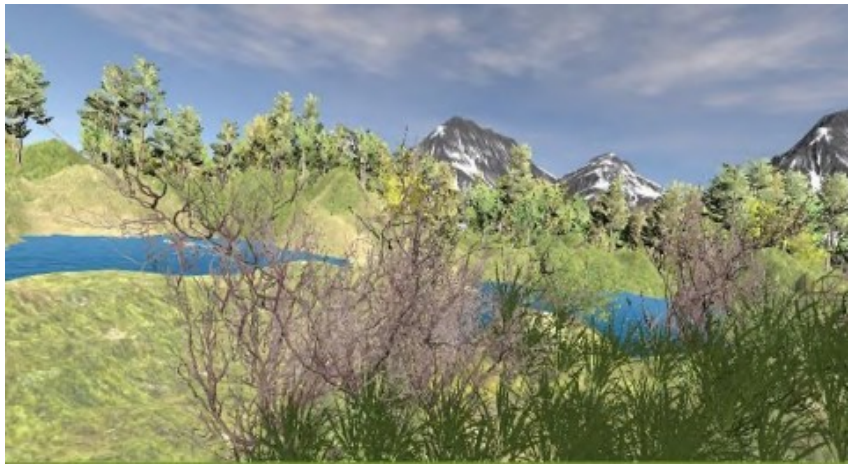
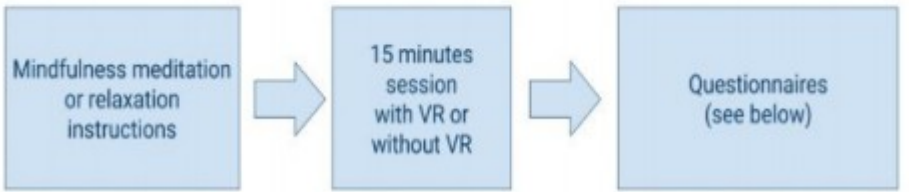
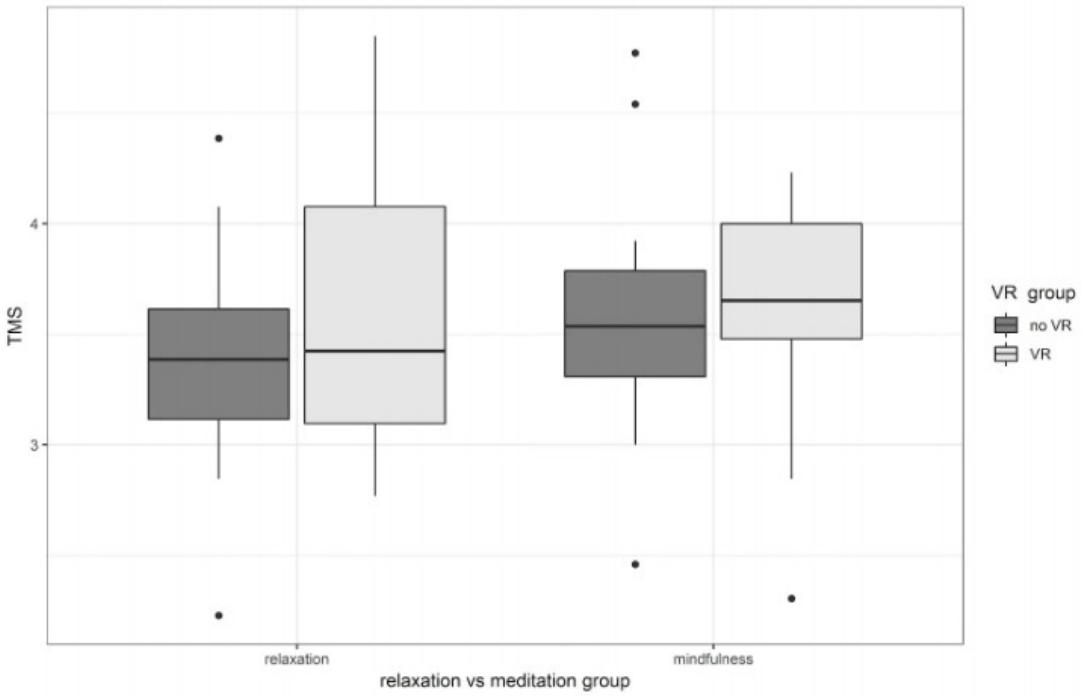


TABLE I. EXPERIMENTAL CONDITIONS DESIGN

	With VR	Without VR
mindfulness meditation	Group 1 (N = 20)	Group 2 (N = 20)
relaxation	Group 3 (N = 20)	Group 4 (N = 20)





RESULTS:

H1: The main effect was not significant neither for mindfulness nor relaxation condition. There was no significant effect of none of the condition on the dependent variables related to the mood.

H2: No proof for the hypothesis as we observed no statistically significant main effects nor interaction effects. Additionally we checked the effect of VR on the subjective-well being using two-way MANOVA: the effect of VR vs No VR condition was not significant.

H3: There was no significant effect of any of the independent variables on the variables related to the social processing.