MTI860 - SUBJECT PROPOSAL

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Subject : Study of the embodiment and the visual representation in a game of reflex and coordination.

General description: The concept of our project is inspired by the "batak game". We will model targets in front of and/or around the participant that will light up at semi-random time intervals for a given duration. The goal of the participant will be to hit the targets before they go out. As our project is based on the impact of embodiment on performance, the user will experience variations of the experience; the appearance of the hands and targets will be modified.

Research question: How does embodiment and visual representation influence performance in a reflexive and coordinative game?

Assumptions:

- The embodiment changes the reaction time.
- The appearance of the targets changes the reaction time.

Variables:

- Appearance of the hands
- Appearance of the targets

Interaction element:

- Pressing with hands on targets
- Move your body (stand up/down and/or move left/right) to reach the targets with your hands

Description of conditions presented:

- The user is standing.
- The user is in front of and/or surrounded by targets that he will have to turn off.

Measurements and exported data :

- Reaction time to extinguish targets
- Accuracy (smallest distance measured between the hand and the target)
- User questionnaire on the feelings related to the embodiment and appearance of the targets.

Reference

S. Vlahovic, M. Suznjevic, N. Pavlin-Bernardic and L. Skorin-Kapov, "The Effect of VR Gaming on Discomfort, Cybersickness, and Reaction Time," 2021 13th International Conference on Quality of Multimedia Experience (QoMEX), 2021, pp. 163-168, doi: 10.1109/QoMEX51781.2021.9465470.

Rutkowski S, Adamczyk M, Pastuła A, Gos E, Luque-Moreno C, Rutkowska A. Training Using a Commercial Immersive Virtual Reality System on Hand-Eye Coordination and Reaction Time in Young Musicians: A Pilot Study. Int J Environ Res Public Health. 2021 Feb 1;18(3):1297. doi: 10.3390/ijerph18031297. PMID: 33535539; PMCID: PMC7908336.