

Virtual social interaction in a multiplayer-online videogame increases implicit learning

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Nowadays, virtual environments, such as videogames, are designed to support the development of social interactions among players. Through social interaction, it is easier to maintain joint attention, which is crucial for the development of efficient solutions in cooperative tasks. The aim of this study is to investigate whether virtual social interactions “in videogames” can improve joint attention and, consequently, implicit learning. 18 healthy participants were asked to play ‘Overcooked!’ for approximately fifteen minutes (i.e., “Gaming session”™) in three different conditions of gaming modality: alone (i.e., Single-Player); with another player, who is possible to verbally interact with (i.e., Multiplayer +); and with another player, without verbal interaction (i.e., Multiplayer -). Following each condition, participants listened to a stream of sounds presented according to a roving paradigm, while we recorded their EEG (i.e., EEG MMN task). The roving paradigm was composed of auditory stimuli differing in their frequency (high and low pitch). Within the sequence, standard-repeated tones alternated with novel-deviant tones. To explore the effect of each gaming condition on neural responses, we then computed the MMN (i.e., deviant minus standard responses), a well-validated index of implicit learning. As expected, the amplitude of MMN responses was significantly greater in Multi-player + compared to Single-Player condition and as compared to Multi-player -. Surprisingly, the t-test comparing Single-Player and Multi-player-conditions was not statistically significant. These results indicate that, in virtual environment, implicit learning processes are enhanced only in the case of an active, verbal interaction between players, as in Multi-player + condition. It is possible that, in virtual environments, verbal communication among participants is necessary to develop the impression of social co-presence, thus improving joint attention. This finding, if confirmed, may have interesting implications in the study of social interactions in virtual environments.

References:

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