RoboGlove: A Design for Engagement and Hedonic Motivation with Visual-Spatial for Deaf and Hearing Impaired Children, Phase II

Muhyi, Hiba

Deaf and hard of hearing children across many parts of the world recount severe problems with their education because of the lack of access to the curriculum via a sign language on the one hand, and on the other, because of social isolation due to poor communication in the hearing world. Research indicates that humans are neurobiologically wired so our learning occurs when our mind is focused and our emotions are balanced. Emotions are crucial so that we can remember, retrieve, transfer, and connect all new information to what we already know. When learning about the actual science behind the 2015 film, Inside Out, I was inspired to integrate the emotion dimension into my system. Phase II presents an interactive vocabulary literacy system to increase the user experience pleasure to trigger positive emotions (e.g. joy, happy, excited) by integrating an interactive robot (that moves in the space) as well as providing visual-spatial feedback. Hedonic aspects and motivating function, as well as the general usability and overall impression evoked by the system, were tested, subject's emotion was verified by monitoring their facial expression while they used the system. I studied the effectiveness of the visual-spatial interactive system on enhancing positive emotions, language skills, reading level, towards a better self-esteem. The results shows a trend between robot smart activities and "positive" emotional responses and significant increase in reading level and vocabulary after four weeks of usage. These results supports the idea that core emotions and visual-spatial feedback could be universal- across cultures and may have a lasting effect among the deaf and hearing impaired learning and self-esteem improvement across the world.

Awards Won:
Fourth Award of $500
American Psychological Association: Third Award of $500