Effects of interpersonal distance during interactions with avatars in virtual environments

Galina Ya. Menshikova (Russia)¹, Olga A. Saveleva (Russia)¹, Yury P. Zinchenko (Russia)¹

Lomonosov Moscow State University Psychology Department, Moscow, Russia

In social interactions body and eye movements are both necessary to provide a constructive dialogue between communicators. Behavioral patterns during social interactions depend on many factors including social attitudes, such as prejudice based on race/ethnicity appearance. The aim of our study was to study the participant’s behavior when interacting with avatars of different ethnic appearances in virtual environment. Previously it has been shown that social interactions in virtual worlds are governed by the same social norms as interactions in the real world (Yee et al., 2007). So using Vittools.4.0 we constructed four virtual scenes to investigate the effects of social interactions with avatars of different ethnic appearance. Each scene represented a living room in the center of which a group of three avatars of the same race/ethnic appearance was located. The avatars by appearances represented three ethnic groups namely Russians, Tatars and Dagestanis. Virtual scenes were presented using the CAVE virtual reality system Barco Ispace 4. All participants (Russian, 32 F, 24 M, age range 18-34) were tested on the memory task which was to walk around each avatar in a group and remember all the details of its appearance. During the execution participant’s body and eye movements were recorded. Then participants answered the questions about details of avatar’s appearances and filled out two questionnaires assessing their presence effect and ethnic attitudes. Behavioral characteristics were analyzed including average minimal and maximal interpersonal distances between the participant and avatars of a certain ethnic group, the average time spent near avatars of a certain ethnic appearance, the time spent in a zone “eye-to-eye contact”, some eye movement parameters (fixation counts and durations, blink counts, saccade amplitudes). The results showed the compensation effects in interpersonal distances: shorter - with the “like me” avatars which represented subject’s ethnic appearance and longer - with the avatars of other ethnic groups. The percentage of time spent near the avatars and in a zone “eye-to-eye contact” also reflected the ethnic preferences: longer for “like me” avatars (22% and 13%) and shorter for the avatars of different ethnicity (16% and 7%). Significant differences in eye movement characteristics during interaction with avatars of different ethnic groups were also revealed. The obtained results could be of great importance for developing complex methods of testing the behavioral patterns during social interactions.

The study was funded by Russian Scientific Fund project № 15-18-00109.