

Using a Serious Game to Assess Spatial Memory in Children and Adults.

Datenbank

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Deskriptoren

Kind; Farbsensor; Validierung; Schallortung; Benutzeroberfläche; Serious Gaming

Abstract

Short-term spatial memory has traditionally been assessed using visual stimuli, but not auditory stimuli. In this paper, we design and test a serious game with auditory stimuli for assessing short-term spatial memory. The interaction is achieved by gestures (by raising your arms). The auditory stimuli are emitted by smart devices placed at different locations. A total of 70 participants (32 children and 38 adults) took part in the study. The outcomes obtained with our game were compared with traditional methods. The results indicated that the outcomes in the game for the adults were significantly greater than those obtained by the children. This result is consistent with the assumption that the ability of humans increases continuously during maturation. Correlations were found between our game and traditional methods, suggesting its validity for assessing spatial memory. The results indicate that both groups easily learn how to perform the task and are good at recalling the locations of sounds emitted from different positions. With regard to satisfaction with our game, the mean scores of the children were higher for nearly all of the questions. The mean scores for all of the questions, except one, were greater than 4 on a scale from 1 to 5. These results show the satisfaction of the participants with our game. The results suggest that our game promotes engagement and allows the assessment of spatial memory in an ecological way. /// Copyright Springer-Verlag. Reproduced with permission.

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Quelle

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