

Haptic perception of spatial relations in children and adults

Fraussen M, Kappers A, Van Mier H*

Maastricht University, Faculty of Psychology, Neurocognition, Maastricht, *University of Utrecht, Dept of Physics, Helmholtz Institute, Utrecht

Research in adults has shown that what subjects perceive as haptically parallel deviates from what is physically parallel. Furthermore, increasing the distance between two bars that had to be put haptically parallel lead to larger deviations. The present study was set up to examine if these effects would also be found in children and if there would be a developmental change. Forty-eight subjects participated in the experiment, thirty-six children of 6, 8 and 10 years old (twelve in each age group) and twelve adults. Each group consisted of 6 boys/men and 6 girls/women. Blindfolded subjects were instructed to rotate a test bar, which could appear at an orientation of 0, 45, 90 and 135 degrees, in such a way that it felt parallel to a reference bar. Three distances between the reference and the test bar were used: a short, a medium and a long distance. Each orientation and distance was presented three times in random order. The dependent variable was the deviation between the test and reference bar. A repeated measurement ANOVA was performed with age and gender as between factors, and orientation and distance as within factors.

A significant effect of age was found, however this was due to the fact that the deviations of the children were significantly larger than those of the adults. No developmental or gender effect was found. As for orientation, a haptic oblique effect was found. Significantly larger deviations were found at the oblique orientations than at the orthogonal orientations. A significant effect of distance was observed. At the longest distance, the deviations were also significantly larger than at the short and moderate distance.

The results show that in children haptic space is also not Euclidean, an oblique effect can be observed, and larger distances result in larger deviations.

Marijke Fraussen, Maastricht University, Faculty of Psychology, Neurocognition, P.O. Box 616, 6200 MD Maastricht, e-mail m.fraussen@student.unimaas.nl

Poster in Cognition & Behavioral Neuroscience session on Friday 4 June