

The perception of categorical and coordinate spatial changes in children

Jessie Bullens • Albert Postma

Abstract The processing of visuospatial information is crucially important for human navigation and spatial memory. It gives us cues for orientation and makes us aware of the spatial relation(s) between ourselves and objects or within and between objects per se. Kosslyn (1987; see also Jager and Postma 2003) has suggested that specific forms of spatial relations (categorical vs coordinate) can be dissociated and are processed through distinct hemispheric networks. It is unclear yet whether these networks develop with age. Hence, in a perceptual divided-visual-field task, in which we also varied the time course in order to measure working memory, children

decided whether animal line drawings did or did not change between two consecutive presentations. Using signal detection analyses we calculated sensitivity and bias scores. The results indicated that discrimination sensitivity for spatial transformations improves with age and is higher in the right hemisphere. Furthermore we showed that specific functional lateralization might be a relatively late appearing phenomenon. In contrast to earlier findings, for the older children and adults, a right hemisphere advantage was found for the categorical information. Possible explanations for this latter finding will be discussed.

