A valid separation of location memory based on allocentric and egocentric reference frames

Jonna Nilsson
Northumbria University & Newcastle University

Kenny Coventry
Northumbria University

Nicol Ferrier
Newcastle University

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Jonna Nilsson, Kenny Coventry, Nicol Ferrier

The existence of two separate spatial systems, one based on an egocentric viewpoint-dependent reference frame and one based on an allocentric viewpoint-independent reference frame, is now well accepted both at a conceptual and a neurological level (O'Keefe & Nadel, 1978; Lavenex & Lavenex, 2009; Zaehle et al, 2007). However, methodologies intended to separate and compare location memory based on distinct reference frames in humans vary widely and are often confounded. To allow for a more reliable separation of the egocentric and allocentric reference frames, a new location memory task was developed that eliminated these confounds. The results of a series of studies based on this task are reported and discussed. The results highlight the importance of controlling for the extraneous variables present in previous studies. It is evident that the investigation of location memory has a lot to gain from the valid separation of the allocentric and egocentric spatial systems.