The Role of Planning and Memory in the Navigational Ability

Authors: Greeshma Sharma, Sushil Chandra, Vijander Singh, Alok Prakash Mittal

Abstract: Navigational ability requires spatial representation, planning, and memory. It covers three interdependent domains, i.e. cognitive and perceptual factors, neural information processing, and variability in brain microstructure. Many attempts have been made to see the role of spatial representation in the navigational ability, and the individual differences have been identified in the neural substrate. But, there is also a need to address the influence of planning, memory on navigational ability. The present study aims to evaluate relations of aforementioned factors in the navigational ability. Total 30 participants volunteered in the study of a virtual shopping complex and subsequently were classified into good and bad navigators based on their performances. The result showed that planning ability was the most correlated factor for the navigational ability and also the discriminating factor between the good and bad navigators. There was also found the correlations between spatial memory recall and navigational ability. However, non-verbal episodic memory and spatial memory recall were also found to be correlated with the learning variable. This study attempts to identify differences between people with more and less navigational ability on the basis of planning and memory.

Keywords: memory, planning navigational ability, virtual reality

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