Going through the Motions: Investigating Strategies for Spatial Integration of a Small-Scale Array

Mia Velazquez
Temple University, Philadelphia, Pennsylvania, United States

Corinne Holmes
Trinity College, Dublin, College Green, Dublin, Ireland

Nora Newcombe
Temple U, Philadelphia, Pennsylvania, United States

Abstract

The ability to integrate locations viewed sequentially into a unified representation spatial integration is important for cultivating an accurate mental map. We investigate the cognitive strategies underlying this process by manipulating the encoding experience. Participants viewed an array piecemeal and experienced the transition between viewpoints by rotating the array or moving around it. At test, participants reconstructed the layout by placing stamps of the spatial locations on a blank map. Participants who rotated the array at encoding mainly reconstructed the array by rotating it at test. However, those who moved around it were equally likely to use a rotation or observer movement strategy during reconstruction, and did so more accurately than those who learned the array via rotation, regardless of strategy choice. Importantly, all participants used motion to reconstruct the array in a step-wise manner. These findings suggest that movement around a spatial array is key to flexible spatial integration.