



Presentation Abstract

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Presentation Title: Spatial and semantic memory for kinesthetic learning in large-scale visual displays

Location: Halls B-H

Presentation time: Tuesday, Nov 12, 2013, 2:00 PM - 3:00 PM

Topic: ++F.01.b. Human learning: Perceptual and spatial learning

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Abstract: The advent of large-scale, high definition interactive computer displays make it possible to investigate the relationships between the scale of visual stimuli, active locomotion and spatial memory processes. The present study examined how efficiently observers can encode both episodic and implicit memories of the semantic and spatial information present on a large (3m wide) high definition computerized display. Research shows that physically larger visual displays improve cognitive performance on spatial tasks through kinesthetic learning. However, it is unclear whether kinesthetic learning uniquely enhances spatial memory compared to semantic learning, and

whether enhanced memory performance affects different mnemonic processes such as familiarity and recollection. Participants performed a standard episodic memory task in which they were required to recognize whether or not they had seen a single noun during the study phase of the experiment. Participants gave verbal confidence ratings for yes/no responses, and also gave confidence ratings for their ability to walk and point to the spatial location of remembered items (which were no longer visible during the test phase). The confidence ratings allowed for ROC analysis of memory performance, including the estimation of the strength of recollection and familiarity processes. Participants' head and pointing finger locations were tracked in 3D during study and test phases, which allowed measurements of locomotion behavior and of spatial source memory accuracy. On the whole, participants were more sensitive to (better d') and showed a stronger bias (to identify items as previously seen) for items that were viewed at eye level during encoding. This study will have implications for both spatial memory and wayfinding in large-scale immersive displays.

Disclosures:	D. Smith: None. C. North: A. Employment/Salary (full or part-time);; Virginia Polytechnic Institute and State University. A.D. Cate: A. Employment/Salary (full or part-time);; Virginia Polytechnic Institute and State University. H. Chung: None. J. Self: None. E. Ragan: None.
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