Reverse Task Interference in Prospective Memory

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Background

Prospective Memory is the concept of forming intentions to perform specific actions, and then remembering to perform these actions at a later time (Ex. Remembering to buy milk on the way home from work after seeing the grocery store). These intentions are remembered in response to cues related to that intention in the environment, or through actively seeking the cue.

There are two views on prospective memory:

Multiprocess View-People use multiple resources for remembering an intention, and these mechanisms are done so automatically (McDaniel and Einstein 2000).

Preparatory Attentional and Memory (PAM)-There are no automatic processes in prospective memory, task interference will always get in the way of retrieval.

Methods

154 participants from the University of Michigan-Dearborn
Between subjects design-Four conditions
All conditions have two phases.

Phase 1-Lexical Decision task (LDT) learning phase.

Phase 2-Source Memory phase. When intentions are given, particpants were asked to press the "/" key before continuing with the LDT.

Control condition-lexical decision task(LDT) learning phase followed by source memory phase-no intentions given.

Nonfocal-Syllable -TOR given as nonfocal intention during LDT.

Focal 1-HISTORY given as focal intention during LDT.

Focal 4- Four words given as focal intention: HISTORY, DORMITORY, TORTOISE, TORNADO

Results & Discussion

It was found that there were no differences in source memory for focal and non-focal conditions. Differences between hits and misses in prospective memory cues were found to be significant. It suggests that source memory could be relatively automatically encoded, it's robust. Lack of differences in source memory for ongoing task might suggest some aspects of automaticity in source memory, monitoring didn't steal away from source memory as was originally predicted. Such that if participants fail to execute the prospective memory task, they actually improve the source memory. The data may suggest that focal cues have better memory due to a priming effect and prospective memory may serve to disrupt source memory only if it is not executed. If the prospective memory task is executed, it may utilize the cognitive resources to encode source memory and as a result will lower source memory performance. Additionally, it was found that the Focal 4 condition exhibited better source memory for cues that were missed, but much faster at missing it compared to other conditions that took longer if the prospective memory task was executed.

Figure 1: Procedure

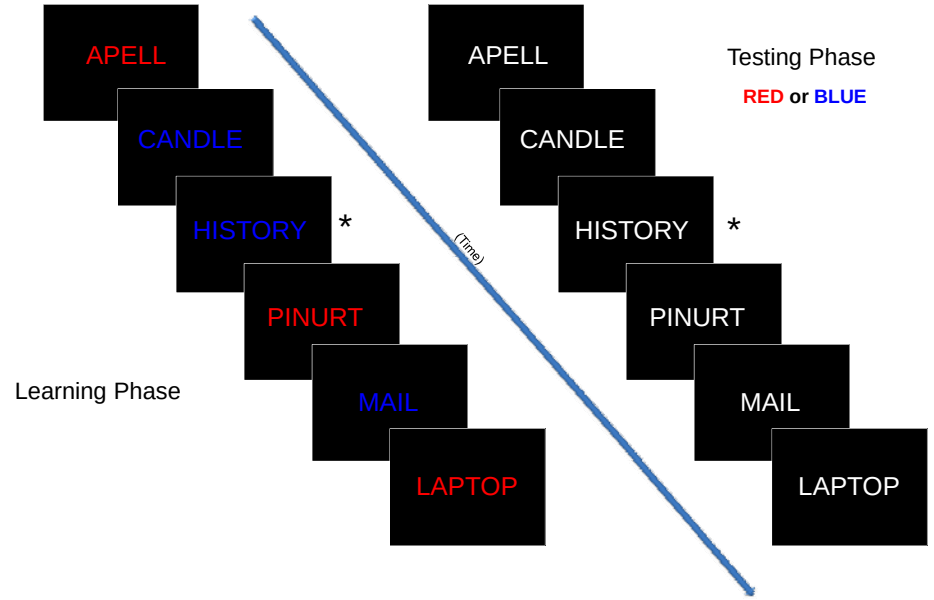
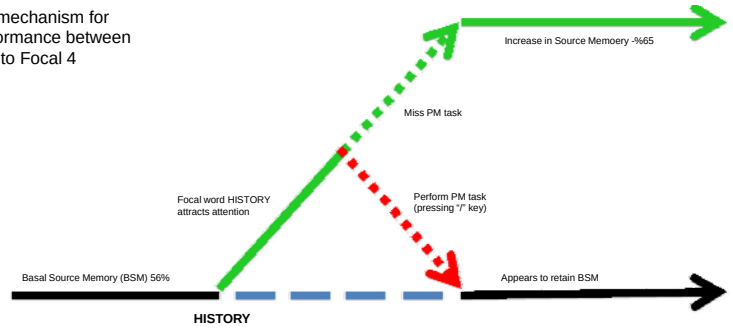
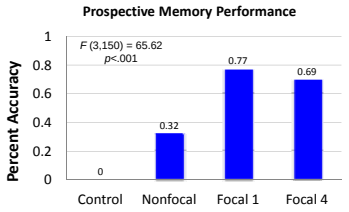
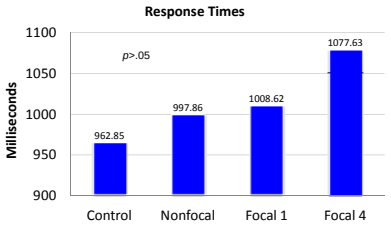
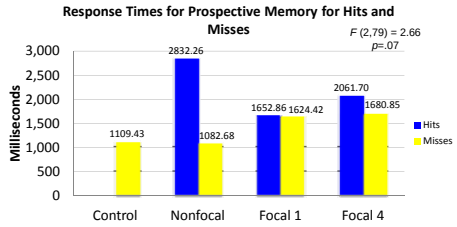


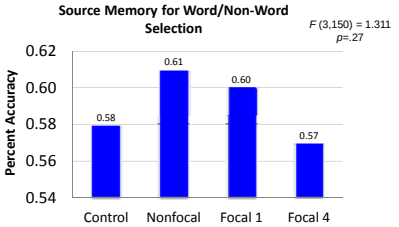
Figure 2: Proposed mechanism for source memory performance between Non-focal compared to Focal 4

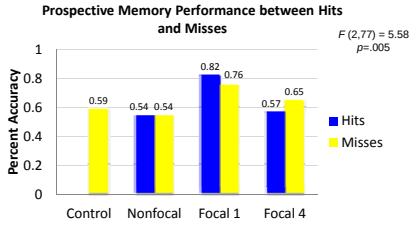












References

McDaniel, M., & Einstein, G. (2000). Strategic and automatic processes in prospective memory retrieval: A multiprocess framework. *Applied Cognitive Psychology*, 14, S127-S144.

Smith, R., & Bayen, U. (2004). A multinomial model of event-based prospective memory. *Journal of Experimental Psychology: Learning, Memory and Cognition*, 30. 756-777.

Acknowledgments

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