

Active visual search boosts memory for objects, but only when making a scene

Emilie L. Josephs¹, Dejan Draschkow², Jeremy M. Wolfe³, Melissa L.-H. Vo³

¹Brigham and Women's Hospital

²Ludwig-Maximilians University

³Harvard Medical School, Brigham and Women's Hospital

It seems intuitive that intentionally memorizing objects in scenes would create stronger memory representations than incidental encoding, such as might occur during visual search. Contrary to this intuition, we have shown that observers recalled more objects from photographic scenes following object search than following intentional memorization of the same objects (Draschkow, Vo, & Wolfe, 2013). Does the act of searching itself produce better memorization, or is it necessary to search in realistic scenes? We conducted two experiments in which exemplars of the target objects from the naturalistic scenes were placed on non-scene backgrounds. Object placement was random in Exp1. In Exp 2, placement mimicked real-world positions (e.g. mirror above sink) but did not convey depth information. Displays contained 15 critical objects. Ten were targets in the *search* or *memory* tasks. In the search task, Os located target objects – indicated by word cues - as quickly as possible, but were not told to memorize anything. In the memory task, the target object was framed by a red square for 3s immediately after the cue, eliminating the search. Os were instructed to remember as much as possible about the scene, especially the framed objects. Each task was followed by a free recall test, which consisted of drawing as much of the displays as they could remember. Recall performance was evaluated by counting the number of drawn targets. The recall benefit for searched over memorized objects in scenes was eliminated in non-scene displays. Apparently, the simple act of searching is not enough to create a search benefit. While grouping the objects in Exp2 caused better overall object memory, it also failed to produce the recall benefit for searched objects that was observed in naturalistic scenes. Thus we conclude that realistic inter-object relationships are not sufficient to benefit memory for searched objects.