

## Target prevalence in a visual search task differentially modulates lure effects from visual working memory

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Performance on Visual Search (VS) is driven by bottom-up, stimulus-based information and the top-down state of the observer: What is she looking for? What else is on her mind? Here, we investigate the top-down effects of holding task-irrelevant objects in working memory during VS. Observers searched through 16 real-world objects looking for a target, while maintaining other specific objects in working memory (1 or 4). The memorized objects could appear as "lures": distractors in the VS task. We varied target prevalence in VS (4%, 50%, 96%, and a 100% target present condition). Our results demonstrate that lure effects clearly depend on target prevalence. For *target absent* trials, RTs are longer when lure is present for almost all conditions, particularly in the 96% condition, and this effect did not interact with target prevalence. This slowing may reflect the cost of recognizing and disengaging from the lure. For *target present* trials, at low (4%) prevalence, lures significantly decreased RTs ( $p < .001$ ), while there was no effect of lures for 50% and 96%. This speeding may be related to the elevation of miss error rates. Perhaps finding a lure encouraged quicker search termination, which could be related to the "satisfaction of search" effect in radiology. In fact, real world search tasks vary widely from low prevalence tasks like radiologists screening for cancer, or high prevalence tasks like looking for posts of a trending topic in Twitter. The present results suggest that the effects of distracting information held in working memory depend on the nature of the VS, and remind us that prevalence has complex effects on search performance.

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