

Title: Incidental memory for potential targets vs confirmed distractors

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Humans have very extensive recognition memory for pictures of objects. In Brady et al. (2008), observers viewed thousands of objects for 3 seconds each. They reported on items that repeated in the series. Subsequently, they could identify >87% of images as old or new even if “new” items were old items in new poses. In the real world, looking for repeated items is atypical. More commonly, we move through the world, looking for some objects and encountering other, irrelevant objects. How good is memory for these non-target items after we have searched for multiple target items in streams of hundreds of images? Groups of 10 observers memorized 1, 12, or 24 items. They then looked for any of those target items in a stream of 810 objects. 110 targets were present in the stream. Ten additional observers performed a repeat detection task similar to Brady et al. Afterwards, all observers performed the Brady et al. discrimination task. They saw pairs of images and were asked to indicate which item was previously seen. Different comparisons were tested. Previously viewed items could be paired with novel objects, categorically similar objects, or the same objects in different poses (e.g. backpack open or closed?). ANOVAs revealed that search for memorized target items produced worse incidental memory for distractors than did search for repeated items. There was no significant effect of the number of target items held in memory even though it took longer to determine that an item was not a member of a larger memory set. This effect was larger for the novel comparison than the state comparison. In the repeat detection task, every item could be a target. This produced better memory for non-targets than a task where non-targets are not task-relevant, even though all items must be processed in both cases.