



Intrusion errors in older adults induced by recognition practice

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Introduction

The act of retrieving an object from memory alters its representation, typically by strengthening that object's representation. Objects that are related to the retrieved memory are also altered, typically by weakening their representation (Anderson, Bjork, & Bjork, 1994). This effect, known as retrieval-induced forgetting, has been shown with older adults (Hogge, Adam, & Collette, 2008). One important but untested consequence of retrieval practice in older adults is their ability to correctly identify related novel objects as unfamiliar. It may be that older adults are poor at confirming related novel objects are unfamiliar because of their tendency to report an object as familiar when it is not (Lamont, Stewart-Williams, & Podd, 2005). In the present study, we examined the presence and consequence of *recognition-induced forgetting* of visual objects in older adults.

General Method

Study Phase

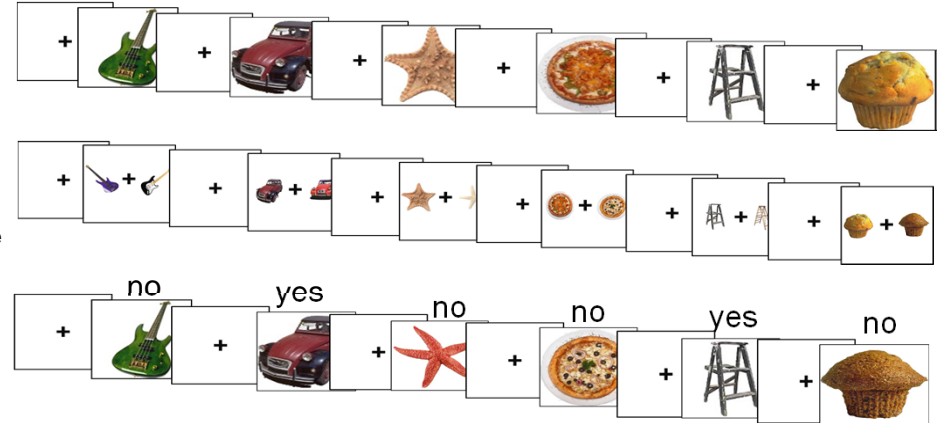
- Fourteen cognitively intact older adults, ages 65 or older, passed a colorblind test and an MMSE to participate.
- Participants were shown 6 objects from 12 categories

Recognition Practice Phase

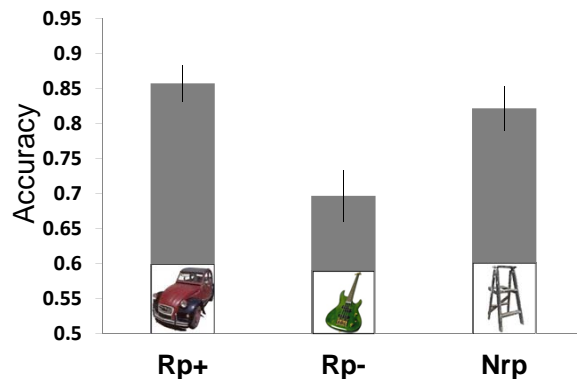
- Participants practiced recognizing half of the objects from half of the categories.
 - Items participant had practice recognizing
 - Items participants were exposed to in the study phase but did not have practice recognizing

Test Phase

- Participants were shown objects, half were new and half were old, and asked if they had seen them before



Basic RIF Effect

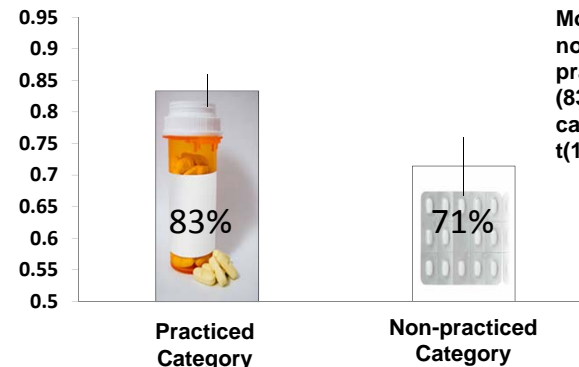


Cost for Rp- (70%) from Nrp (82%), $t(13) = 2.94, p = .01$

No benefit for Rp+ (86%) over Nrp (82%), $t(13) = 0.86, p = .41$

Error bars show the 95% within-subjects confidence intervals

Novel Objects



More accurately reject novel objects from practiced categories (83%) vs. non-practiced categories (71%), $t(13)=2.95, p = .01$

Predictions

- Older adults exhibit recognition induced forgetting
- Older adults consequently exhibit an increase in intrusion errors

Conclusions

- Older adults exhibit cost but not benefit of recognition induced forgetting
- Older adults exhibit more intrusion errors to objects from non-practiced categories

Application

Repeated exposure to:



Increases intrusion errors to:



References

- Anderson, M. C., Bjork, R. A., & Bjork, E. L. (1994). Remembering can cause forgetting: Retrieval dynamics in long-term memory. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 20, 1063-1087.
- Hogge, M., Adam, S., & Collette, F. (2008). Directed forgetting and aging: The role of retrieval processes, processing speed, and proactive interference. *Aging, Neuropsychology, and Cognition*, 15, 471-491.
- Lamont, A. C., Stewart-Williams, S., & Podd, J. (2005). Face recognition and aging: Effects of target age and memory load. *Memory & Cognition*, 33, 1017-1024.
- Maxcey, A. M., & Woodman, G. F. (in press). Forgetting induced by recognition of visual images. *Visual Cognition*.

Reprint

