

# Ageing and implicit memory: A benefit of distraction?

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## INTRODUCTION

- Ignoring task-irrelevant / distracting information is particularly difficult for older adults<sup>1</sup>.
- Processing distracting information can have memorial benefits for older adults under certain conditions<sup>2,3</sup>. Thomas and Hasher (2012): Older adults' recall of previously distracting words was equivalent to that of young adults' when the task was indirect in its use of distraction. Young adults' recall of the distracting words exceeded that of older adults only when they were explicitly cued about its relevance to the task.
- Does this reflect qualitatively distinct processing of distracting information by young and older adults, i.e. do young adults only have explicit (but not implicit) access to previously encountered distracting information?
- Conversely, are young adults simply better at suppressing retrieval of previously distracting information on a test in which its use is not overtly relevant?
- Two experiments examined these questions.

## EXPERIMENT 1

Replication of Thomas & Hasher (2012)

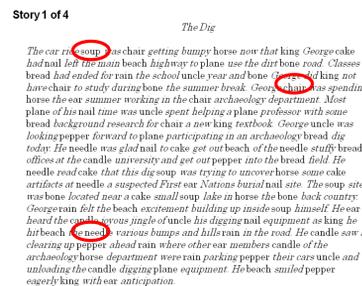
**Question:** Do young adults retrieve more previously distracting items than older adults when the task instruction is explicit, but not when it is implicit?

### Method

- Healthy Young adults (n=43; M age=20.5 years) and Older adults (n=38; M age=70.9 years)
- Participants read stories containing distracting words (ignored), then studied a list of 16 words (8 previously distracting)
- Free recall of the study list:

**Implicit instruction:** No mention of the presence of distracting items in the study list

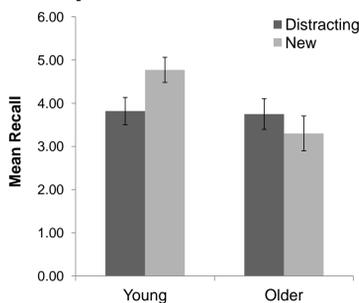
**Explicit instruction:** Informed immediately prior to **recall** about the presence of distracting items in the study list



## Results

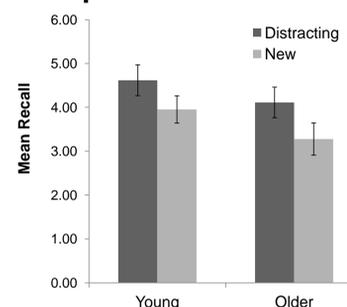
Figure 1. Mean recall of Distracting and New words in Young and Older adults. (New items appeared for the first time in the study list)

### Implicit Instruction



- Significant word-type \* age-group interaction [ $F(1, 40) = 4.92, p = .032$ ]. No main effect of word-type [ $F < 1$ ]. Significant main effect of age-group [ $F(1, 40) = 4.32, p = .044$ ].
- Young adults recalled significantly more New words than Older adults [ $t(40) = 2.96, p = .005$ ]. No group difference for Distracting items [ $t < 1$ ]

### Explicit Instruction



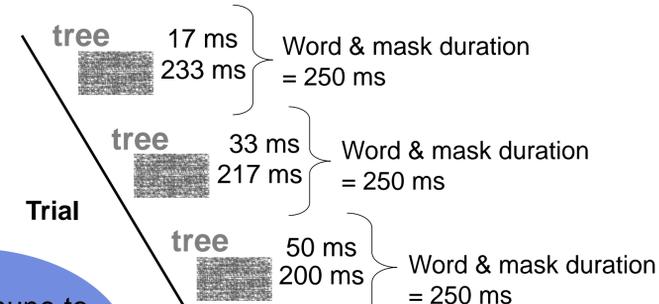
- Main effect of word-type [ $F(1, 37) = 5.48, p = .025$ ]. No main effect of age-group [ $F(1, 37) = 2.52, p = .12$ ]. No interaction [ $F < 1$ ].

**Do young adults have no implicit access to previously distracting items?**

## EXPERIMENT 2

### Method

- Healthy Young adults (n=20; M age=19.1 years) and Older adults (n=22; M age=70.3 years)
  - Study phase as in Exp. 1
  - Test: Continuous identification with recognition (CID-R)
- Each trial:** 1) speeded masked word identification (priming)  
2) Old / New judgement (recognition)

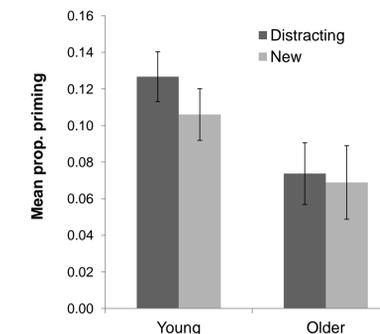


Task is immune to intentional memory strategies (no suppression)<sup>4</sup>

... continue blocks until ID word (RT captured)  
**THEN:** "Was the word shown in the study list?"

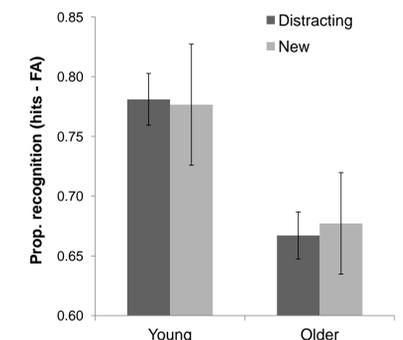
## Results

Figure 2. Mean proportion priming for Distracting and New items in Young and Older adults



- Main effect of age-group [ $F(1, 40) = 5.61, p = .023$ ]. No main effect of word-type and no interaction [both  $F < 1$ ].

Figure 3. Mean corrected recognition for Distracting and New items in Young and Older adults



- Main effect of age-group [ $F(1, 40) = 4.73, p = .036$ ]. No main effect of word-type and no interaction [both  $F < 1$ ].

## CONCLUSIONS

- Young adults do not recall as many previously distracting items under implicit instruction as they do under explicit instruction, leading to equivalent memory in young and older adults in the former condition.
- We provide new evidence that the pattern is not due to young adults having no implicit access to previously encountered distracting items → they show greater priming for such items in comparison to older adults on the CID-R task
- Thus, young adults are better at suppressing previously distracting information on tasks in which its relevance is not explicit.

Refs: <sup>1</sup> Darowski, E.S., Helder, E., Zacks, R.T., Hasher, L., & Hambrick, D.Z. (2008). Age related differences in cognition: The role of distraction control. *Neuropsychology*, 22, 638-644. <sup>2</sup> Rowe, G., Valderama, S., Hasher, L., & Lenartowicz, A. (2006). Attention disregulation: A long term memory benefit for implicit memory. *Psychology and Aging*, 21, 826-830. <sup>3</sup> Thomas, R.C., & Hasher, L. (2012) Reflections of distraction in memory: Transfer of previous distraction improves recall in younger and older adults. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 38, 30-39. <sup>4</sup> Ward, E.V., Berry, C.J., & Shanks, D.R. (2013). An effect of age on implicit memory that is not due to explicit contamination: Implications for single and multiple systems theories. *Psychology and Aging*, 28, 429-442.