

# Distinctive encoding enhances performance, but not monitoring, during category cued recall for both young and older adults

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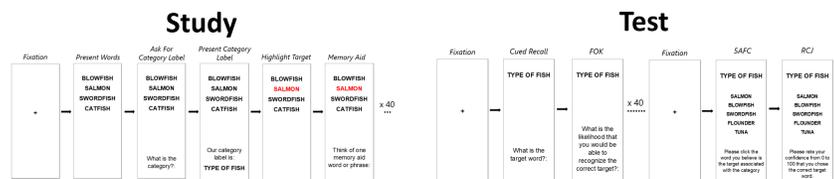
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## Introduction

- Older adults often have difficulties related to monitoring episodic memory output, resulting in high-confidence memory errors.
- This is particularly true when the to-be-remembered items share semantic features, such as words belonging to the same category.
- One way to reduce memory errors is by engaging in **distinctive encoding**, or encouraging learners to focus on unique attributes of semantically-related items (Hunt and Smith, 1996).
- Distinctive encoding has been shown to improve memory and metamemory accuracy for recognition memory in both young and older adults (Hertzog et al., 2021).
- We hypothesize that distinctive encoding will also enhance young and older adults' memory and metamemory accuracy in a semantic cued recall task.

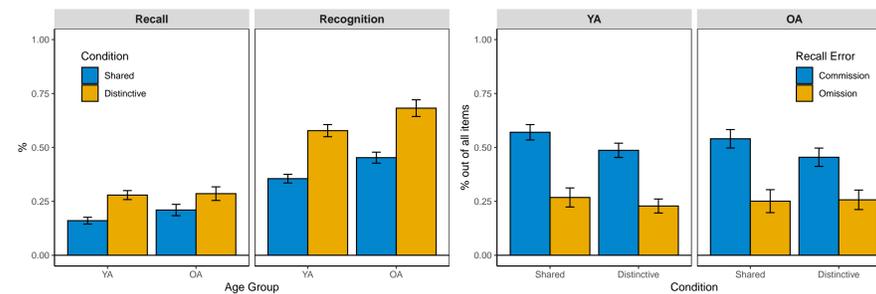
## Methods



- Young adults ( $N = 120$ ) were undergraduates recruited through Georgia Tech while older adults ( $N = 56$ ,  $M_{age} = 70.52$ ,  $SD_{age} = 4.59$ ) were recruited from a volunteer pool of community-dwelling adults living in the Atlanta Metro area.
- We implemented different lags between study and test for young (7 d) and for older adults (2 d).
- At study, participants were shown 4 words from the same taxonomic category, along with the category label, and asked to remember and generate a memory aid for the highlighted word.
- At test, participants were cued with a category label and asked to recall the target word associated with it. After each recall attempt, they were asked to give a *feeling-of-knowing* (FOK) judgment. Cued recall was followed by a 5-alternative forced choice recognition memory test.
- Participants were randomly assigned one of two study conditions: **Shared Encoding** ("generate a memory aid that highlights a *shared* feature between the target and co-presented words), and **Distinctive Encoding** ("generate a memory aid that highlights a *distinctive* feature of the target").

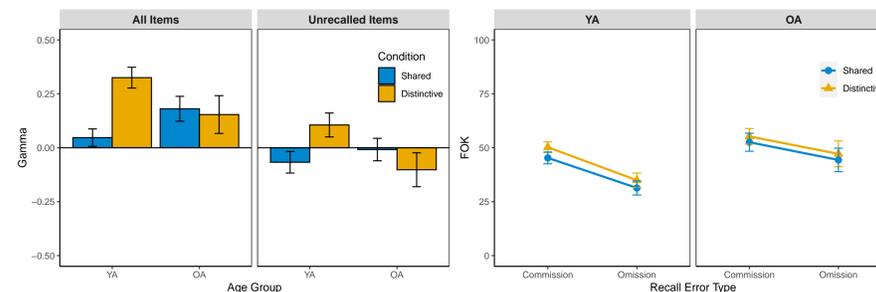
## Results

### Memory Accuracy



- Distinctive encoding improves recall accuracy,  $\eta_p^2 = 0.13$ .
- Distinctive encoding also improves recognition,  $\eta_p^2 = 0.32$ , and young adults outperform older adults,  $\eta_p^2 = 0.08$ .
- Recall is affected by high rates of commission errors compared to omission errors,  $\eta_p^2 = 0.24$ , which does not differ as a function of age or encoding condition.

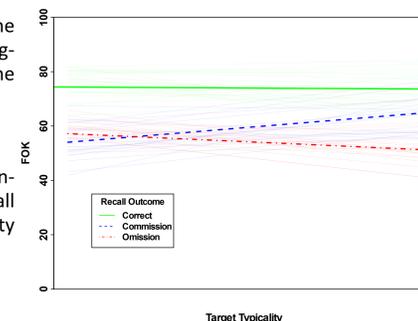
### FOK Accuracy



- For all items, FOK accuracy increases in the Distinctive condition (main effect of Condition:  $\eta_p^2 = 0.06$ ), but only for young adults (Age x Condition interaction:  $\eta_p^2 = 0.05$ ).
- A similar significant interaction occurs when only examining FOK accuracy for unrecalled items,  $\eta_p^2 = 0.04$ .
- On average, older adults report significantly higher FOKs for recall errors compared to young adults,  $\eta_p^2 = 0.04$ .
- Participants report significantly higher FOKs for errors of commission compared to errors of omission,  $\eta_p^2 = 0.07$ .

### Typicality

- The normative typicality of target (using the Castro et al. 2021 norms) predicts FOK judgments in both age groups, but only in the context of memory outcomes.
- FOKs in both age groups significantly influenced by the interaction between recall performance and the normative typicality of target word,  $F(2,5332) = 3.46$ .



## Conclusions

- As expected, distinctive encoding enhanced both recall and recognition memory accuracy.
- FOK resolution differences were found, despite similarities in recall and recognition memory performance.
- Importantly, FOK resolution was low-to-moderate for all participants, and the benefits of distinctive encoding on judgment accuracy are only apparent in young adults.
- Whereas all participants reported higher FOKs for errors of commission, older adults were more likely to report higher metamemory confidence during recall errors, despite performing worse during later 5AFC recognition.
- Overall, whereas distinctiveness encoding boosted recollection and reduced illusory semantic activation, OAs showed no benefit of distinctive processing for FOK resolution.

## References

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