

INFLUENCE OF TESTING LANGUAGE AND AGING ON VERBAL LIST LEARNING IN DEAF ASL-ENGLISH BILINGUALS.

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01 INTRODUCTION

- Memory function is commonly used in assessments of cognitive abilities and to identify various disorders₁
- Language proficiency can have powerful effects on list memory₂, but it is not known how language of testing affects free recall in deaf ASL-English bilinguals.
- Currently, there are no standardized tests of list memory for deaf ASL-English bilinguals.

RESEARCH QUESTIONS:

How does language of testing impact ASL-English bilinguals' free recall performance?

How does aging among deaf bilinguals impact free recall for English and ASL lists?

02 METHODS

PARTICIPANTS

79 deaf, ASL-English bilinguals
 Average age = 52.96 (SD = 17.45)

Younger (ages 20-45): n = 32
 Age Groups: Middle (ages 46-63): n = 15
 Older (ages 64-84): n = 32

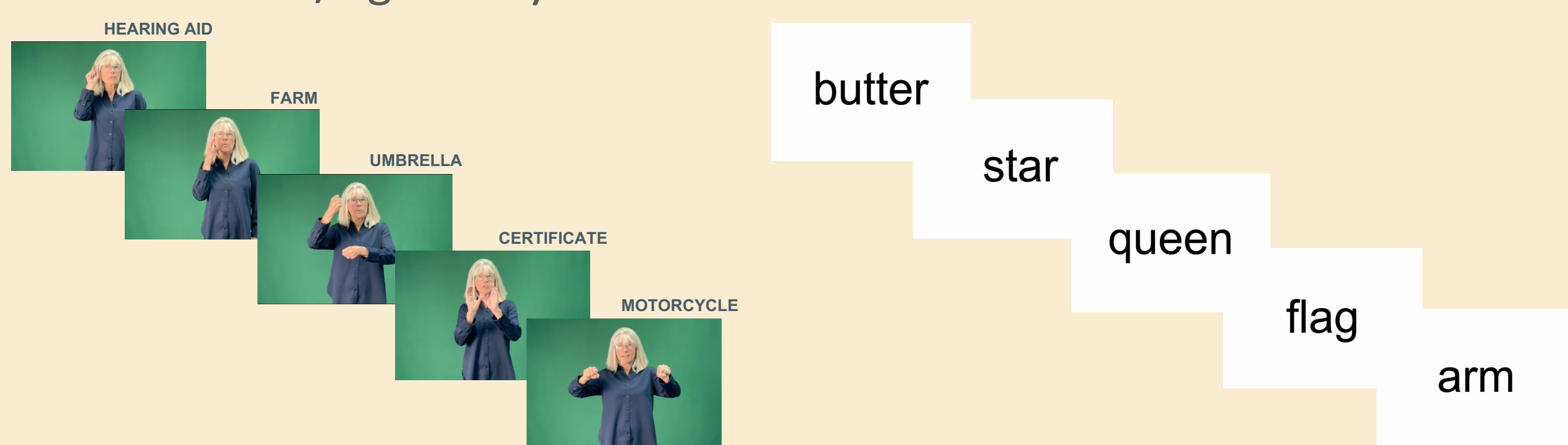
PROCEDURE

- Participants saw each list three times, language order counterbalanced
- After each learning trial and the delay, participants were asked to name as many words/signs as they could remember



STIMULI

- Stimuli adapted from the ten-item list memory learning task from the Consortium to Establish a Registry for Alzheimer's Disease (CERAD) neuropsychological battery₃
 - English stimuli modeled after CERAD task
 - ASL signs selected to match English stimuli for frequency, and all ASL items matched on sign duration, iconicity, and handedness
- 10 ASL signs and 10 unrelated English words presented at a rate of one word/sign every 2 seconds

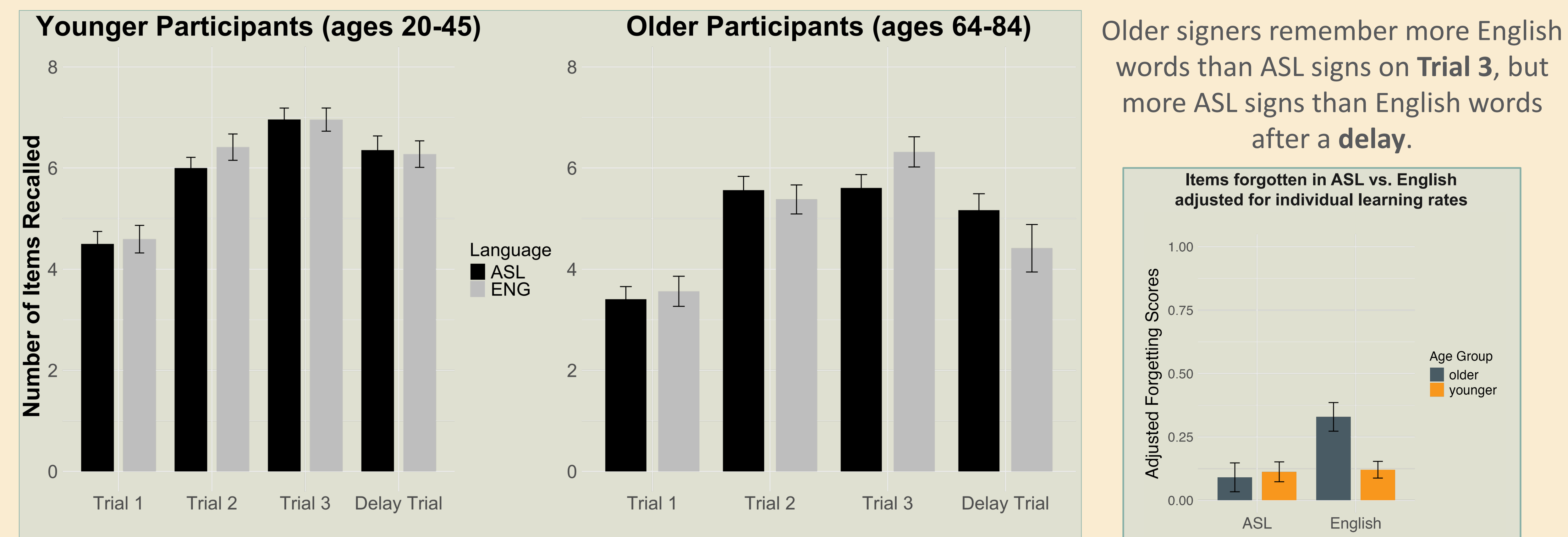


03 RESULTS

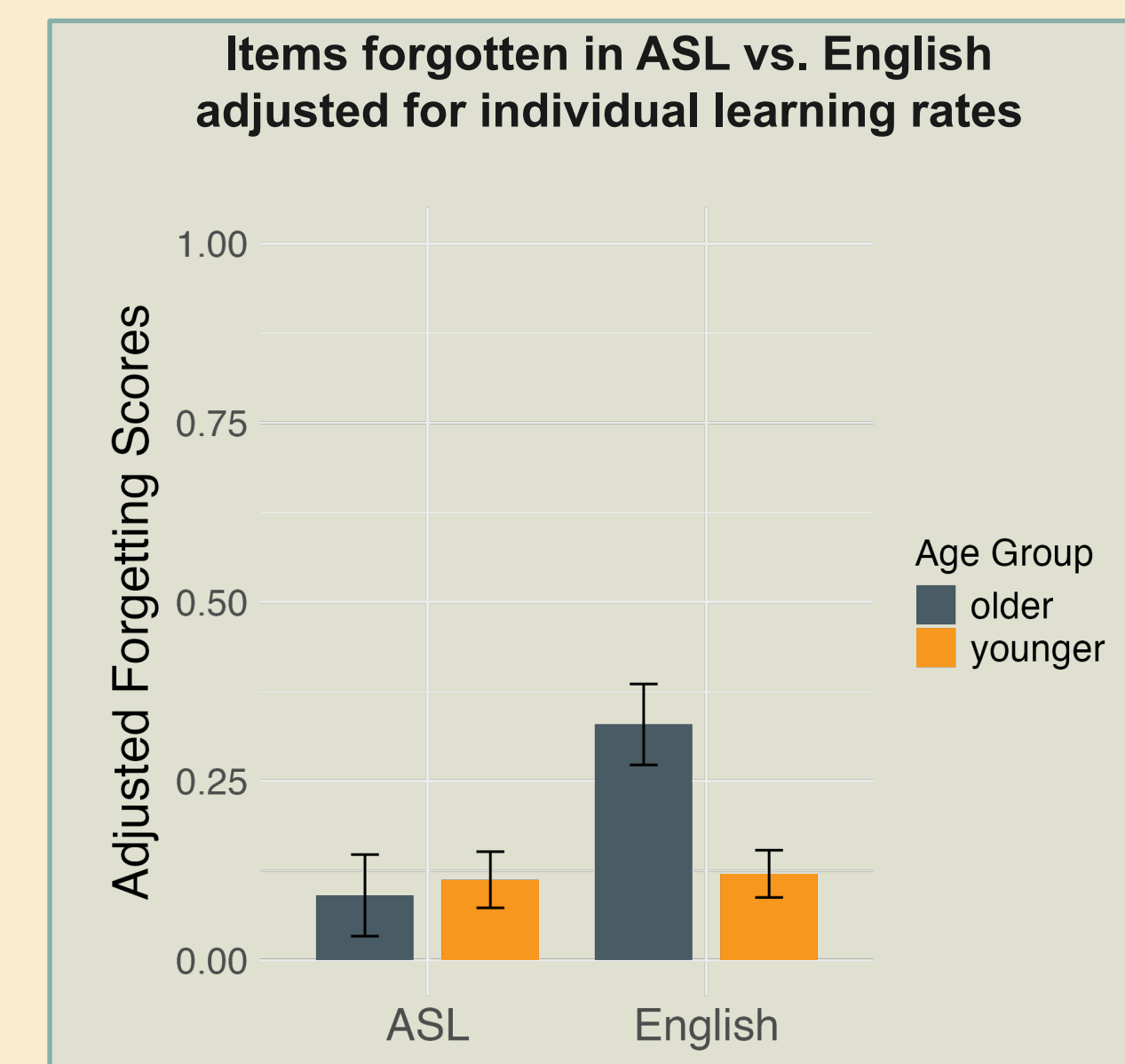
DEAF PARTICIPANTS FAVORED ASL AS A REPOSE MODE

Test Language	Sign Only	Combination Sign/FS	Combination Sign/Speech
ASL	60/64	3/64	1/64
English	30/64	33/64	1/64

DEAF ASL-ENGLISH BILINGUALS SHOW SIMILAR RECALL IN BOTH LANGUAGES, BUT OLDER SIGNERS SHOW A UNIQUE RECALL PATTERN.

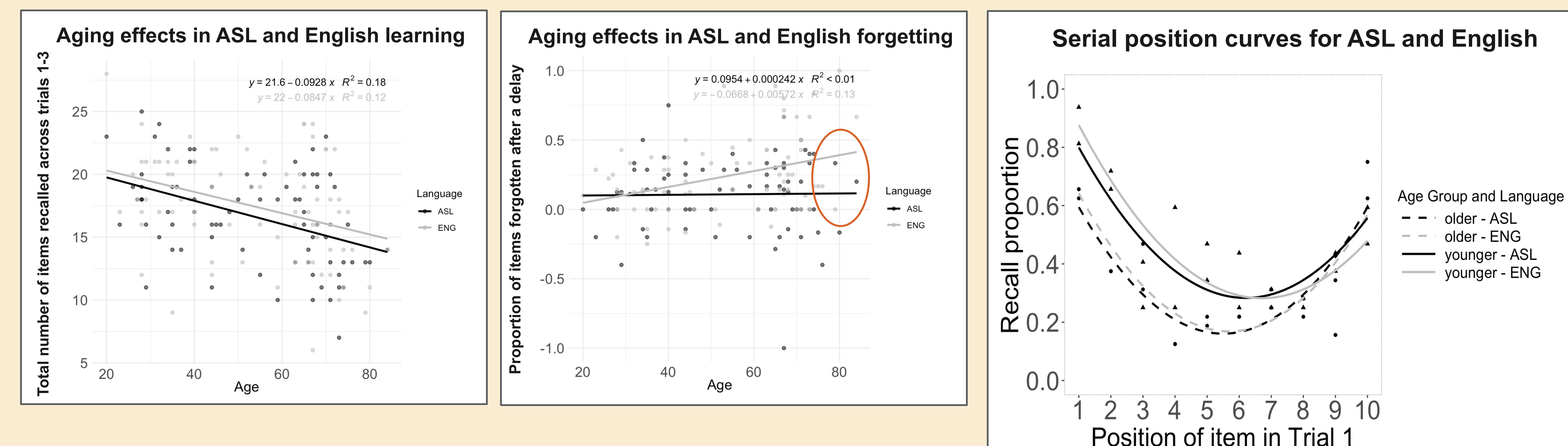


Older signers remember more English words than ASL signs on Trial 3, but more ASL signs than English words after a delay.



Learning-adjusted forgetting scores in each language [calculated as number correct on (trial 3 - delay)/Trial 3]. Error bars denote standard error.

AGING REDUCES OVERALL LEARNING IN BOTH LANGUAGES, ESPECIALLY IN THE PRIMACY REGION.



HOWEVER, FORGETTING RATES INCREASE WITH AGE FOR ENGLISH BUT NOT ASL.

04 DISCUSSION

WHEN TESTED IN ASL, YOUNGER PARTICIPANTS SHOW GREATER LEARNING THAN OLDER PARTICIPANTS, BUT EQUIVALENT RETENTION WHEN ADJUSTING FOR INITIAL LEARNING.

→ In line with previous research showing minimal aging effects in adjusted delayed recall₄

WHEN TESTED IN ENGLISH, OLDER PARTICIPANTS SHOW INCREASED INITIAL LEARNING BUT THIS BENEFIT DOES NOT PERSIST, LEADING TO PROPORTIONALLY LARGER FORGETTING RATES AFTER A DELAY.

→ Older participants may have benefited from speech-based encoding for English stimuli during initial learning
 → Differences in educational background may have influenced learning, as many older deaf individuals were taught with primarily oral educational methods

OLDER PARTICIPANTS SHOW REDUCED PRIMACY SCORES COMPARED TO YOUNGER PARTICIPANTS IN BOTH LANGUAGES.

→ Reduced primacy scores can be a potential marker of dementia₅ so it is critical to understand how healthy aging impacts primacy scores in deaf bimodals

05 CONCLUSIONS

While young deaf bilinguals show similar performance on ASL and English list memory tasks, older deaf signers show a unique pattern of better delayed recall of ASL signs compared to English words, and higher rates of forgetting in English.

→ Rapid forgetting is a hallmark symptom of Alzheimer's disease, so testing in English could increase the chance of false positive diagnosis in older deaf ASL-English users

→ Due to the importance of delayed recall in differential diagnosis, it may be critical to test memory in ASL for older deaf signers

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