

## RATIONALE

- Older adults are vulnerable to declines in fluid cognitive abilities, like working memory, episodic memory, and verbal fluency (Salthouse, 2014).
- Prior research provides evidence that reading is a skill that provides beneficial effects that support cognition relative to growth in crystallized abilities, such as vocabulary and declarative knowledge (Stanovich, West, & Harrison, 1995).
- Reading can also exercise fluid abilities needed for creating mental representation of text (Stine-Morrow, Hussey, & Ng, 2015). Yet, little research has examined the effects of long-term reading engagement on fluid abilities in old age. The goal of this study was to fill that gap.

## METHOD

Participants ( $N = 71$ , 63% female) were healthy community-dwelling older adults, between ages 60 and 79 residing in Champaign County. MoCA scores ranged from 13-30 and the young-old had lower MoCA scores relative to the old-old. Data from the pretest of an intervention contrasting a literacy intervention against an active puzzle control group are reported; because of this, participants were screened for <15hrs per week of engagement with reading and puzzles. The cognitive battery measured reading-related fluid abilities, representing working memory, episodic memory, and verbal fluency (see Table 1).

Table 1.  
Summary of Measured Constructs, Descriptives, and Reliabilities

Variable	$\alpha$	M
Age		68.6
MoCA (Nasreddine et al., 2005)		25.2
Education		15.11
Verbal ability	.90	
NAART (Uttl, 2002)		19.2
ETS Adv Vocab (Ekstrom et al., 1976)		20.38
Print Exposure	.90	
Author Recognition Test (ART; Acheson et al., 2008)		21.79
Magazine Recognition Test (Acheson et al., 2008)		20.52
ART - Fict (Marr & Rain, 2015)		8.82
ART - NF (Marr & Rain, 2015)		4.26
Working Memory (Conway et al., 2005)	.79	
Category Span		3.96
Operation Span		4.19
Reading Span		
Episodic Memory	.82	
HVLTL Total (Hester et al., 2004)		21.68
HVLTL Delayed (Hester et al., 2004)		7.21
Verbal Fluency	.82	
Category Fluency (Brickman et al., 2005)		46.66
Phonemic Fluency (Brickman et al., 2005)		36.67
WJ Reading Fluency (McGrew et al., 2014)		21.48
Global Cognition	.83	
Working Memory		
Episodic Memory		
Verbal Fluency		

## RESULTS

- Print exposure had a relationship with self-reported time spent reading ( $r = .26, p < .05$ ), but not with time spent with puzzles ( $r = .09, p > .05$ ), which suggests criterion-related validity.
- Print exposure was correlated with all fluid ability measures, as well as the composite of Global Cognition (see Table 2).
- Controlling for verbal ability, print exposure was still significantly related to Global Cognition, an effect that was localized to verbal fluency and episodic memory (see Figure 1).

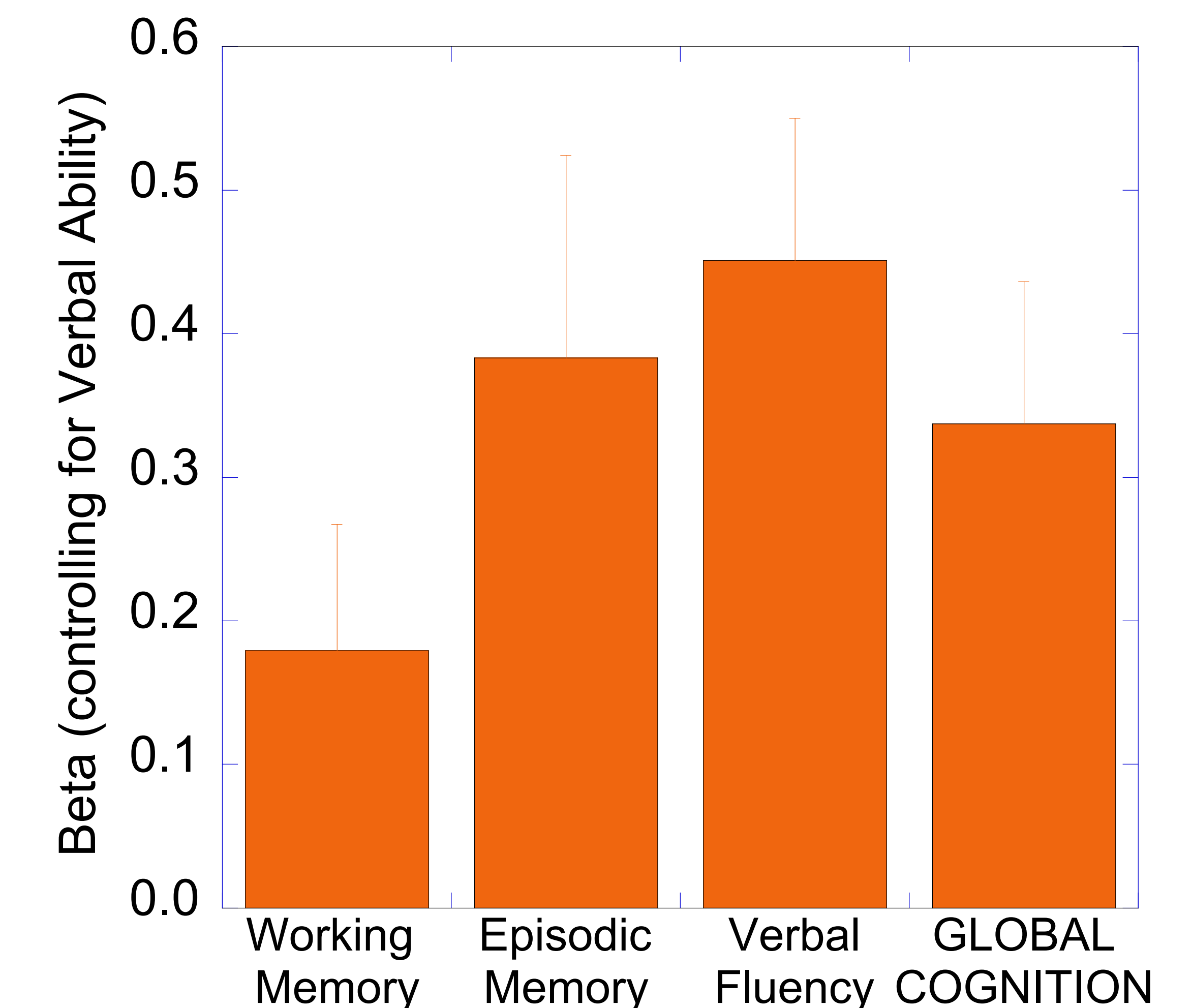
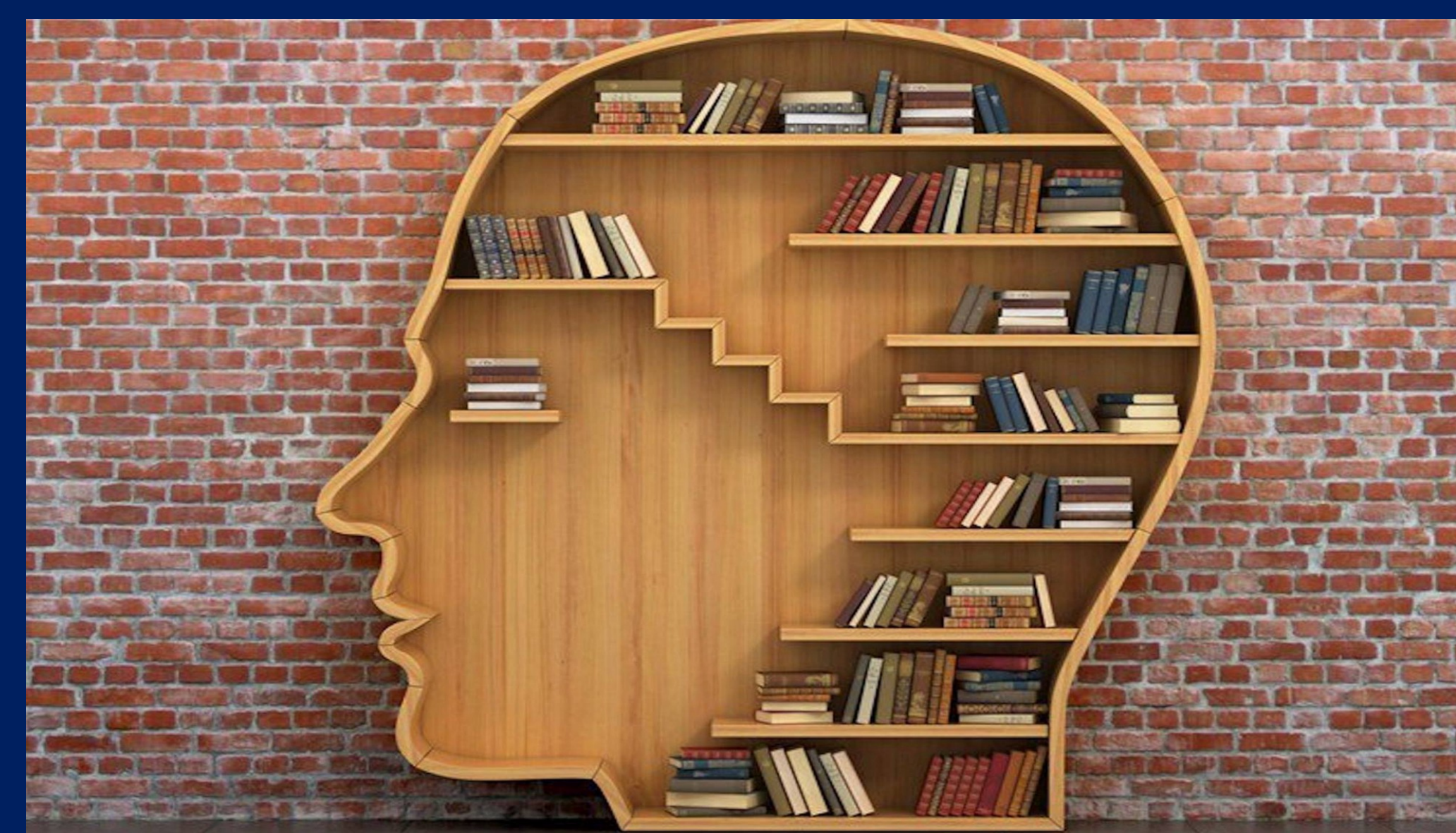


Figure 1. Unstandardized betas predicting cognitive abilities from print exposure (error bars are standard errors).

Table 2.  
Correlation Matrix

	1	2	3	4	5	6	7
1 Age							
2 Education	.13						
3 Verbal ability	.25*	.62**					
4 Print Exposure	.11	.52**	.67**				
5 Working Memory	.05	.34**	.49**	.43**			
6 Episodic Memory	.04	.46**	.53**	.56**	.57**		
7 Verbal Fluency	.09	.53**	.72**	.74**	.65**	.64**	
8 Global Cognition	.07	.51**	.67**	.67**	.85**	.86**	.88**

Notes. \* $p < .05$ . \*\* $p < .01$ .



## CONCLUSIONS

- Print exposure appeared to represent a valid measure of older adults' reading engagement.
- Long-term reading engagement may have cognitive benefits beyond crystallized ability in later life.

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## AUTHOR NOTES

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