

## Introduction

- Semantic verbal fluency (SVF) tasks require participants to name as many items from a particular category as possible (e.g., “Tell me as many animals as you can.”) in 60 seconds.
- Previous studies have shown that *cluster switching*, or a transition between adjacent subcategories (e.g., from ‘pets’ to ‘zoo animals’), is a measure of mental flexibility and is associated with a greater number of items recalled in SVF tasks.<sup>1</sup>

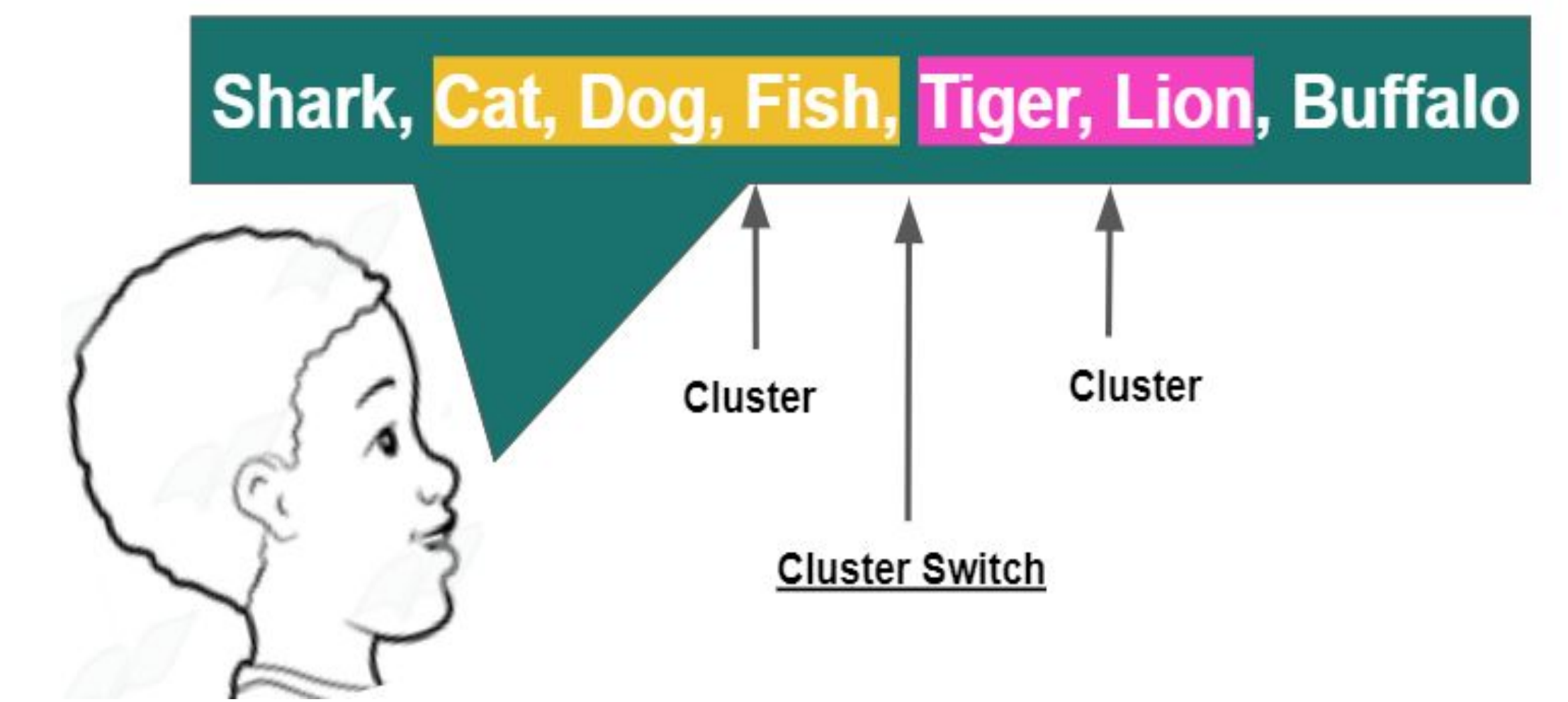
## Research Questions

For three-year olds, is there a relationship between SVF performance and:

- 1) Scores on receptive and expressive vocabulary tests?
- 2) Cognitive task performance?
- 3) Use of clusters and/or switching behaviours?

## Methods

- Participants: 24 English-speaking three-year-old children ( $M_{age} = 3;4$ ,  $SD = 2.9$  months).
- 16 participants were male and 8 were female.



SVF performance was determined by:

- (1) total number of correct items
- (2) total number of clusters
- (3) average cluster size
- (4) number of cluster switches.

Cluster switches during the SVF tasks were coded using a coding method outlined by Chami et al.<sup>1</sup>

Test Battery		
SVF Tasks	Vocabulary	Executive Function
<ul style="list-style-type: none"> <li>• Clothes</li> <li>• Animals</li> <li>• Food/Drink</li> </ul>	<ul style="list-style-type: none"> <li>• Peabody Picture Vocabulary Test-III (PPVT-III)<sup>2</sup></li> <li>• Expressive Vocabulary Test-II (EVT-II)<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Dimensional Change Card Sort (DCCS)</li> </ul>

## Results

- Overall, three-year-old children produced an average of 10.17 correct items across all three SVF tasks ( $SD = 4.91$ ), with a mean of 2.375 clusters produced across the three tasks ( $SD = 1.79$ , range = 0-7).
- The number of total correct items was positively correlated with participants’ total number of clusters across tasks, average cluster size, and cluster switches (see Table 1).
- DCCS post-switch scores did not significantly contribute to SVF performance (see Table 1).

Table 1. Correlations with Semantic Verbal Fluency Scores

	Total number of clusters	Average cluster size	Cluster switches	Total number of correct items
Total number of correct items	0.868**	0.882**	0.657*	
PPVT standard score	0.459*	0.607*	0.171	0.651*
EVT standard score	0.436*	0.499*	0.073	0.596*
DCCS post-switch score	-0.08	-0.136	-0.064	-0.127

\*\*  $p < .001$  \*  $p < .05$

- Children’s EVT standard scores were positively correlated with the total number of correct items ( $r(22) = 0.60$ ,  $p = .001$ ; see Figure 1a).
- Children’s PPVT standard scores were positively associated with the total number of correct items ( $r(22) = 0.65$ ,  $p < .001$ ; see Figure 1b).

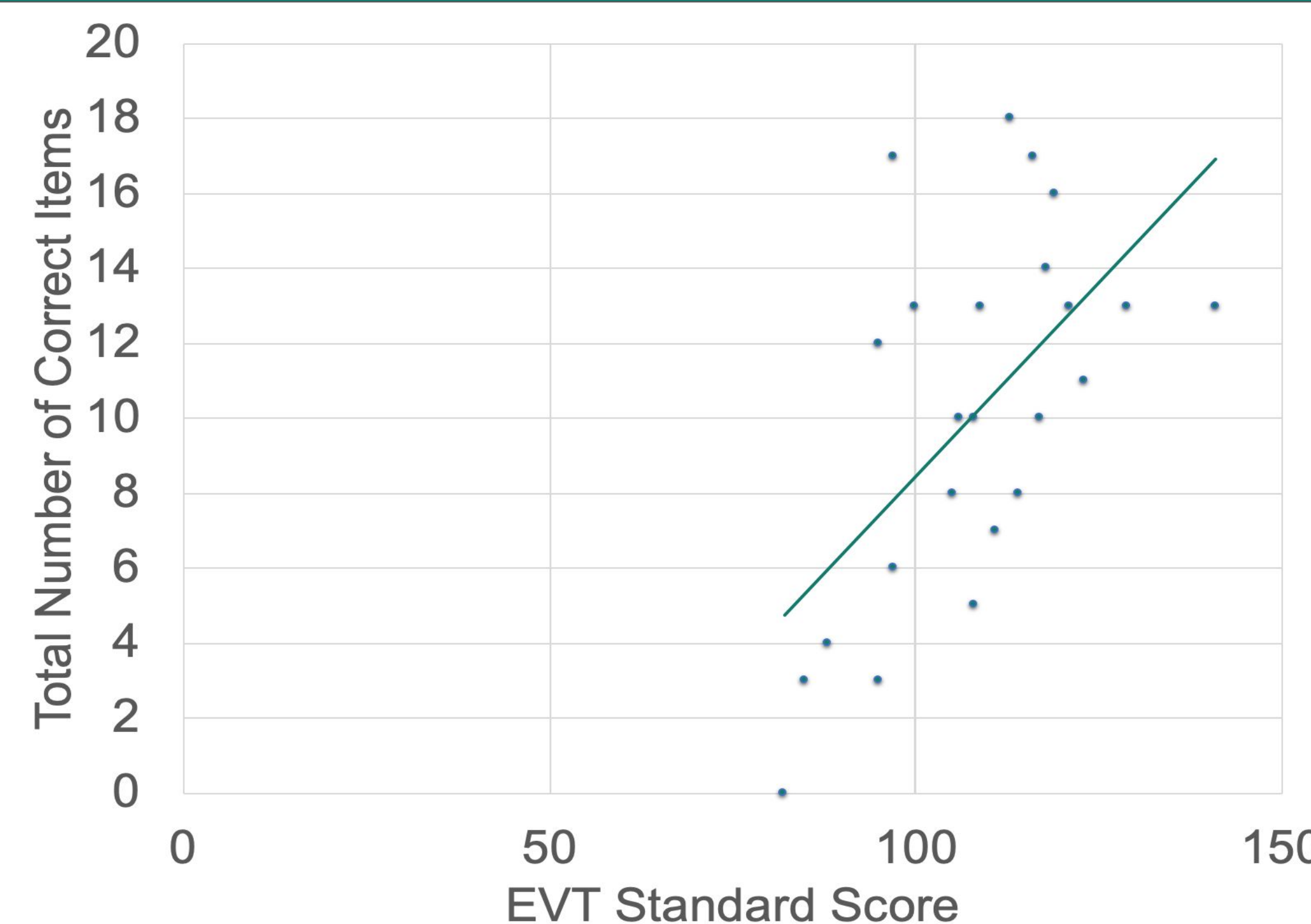


Figure 1a. The relationship between EVT standard scores and total number of correct items in SVF task.

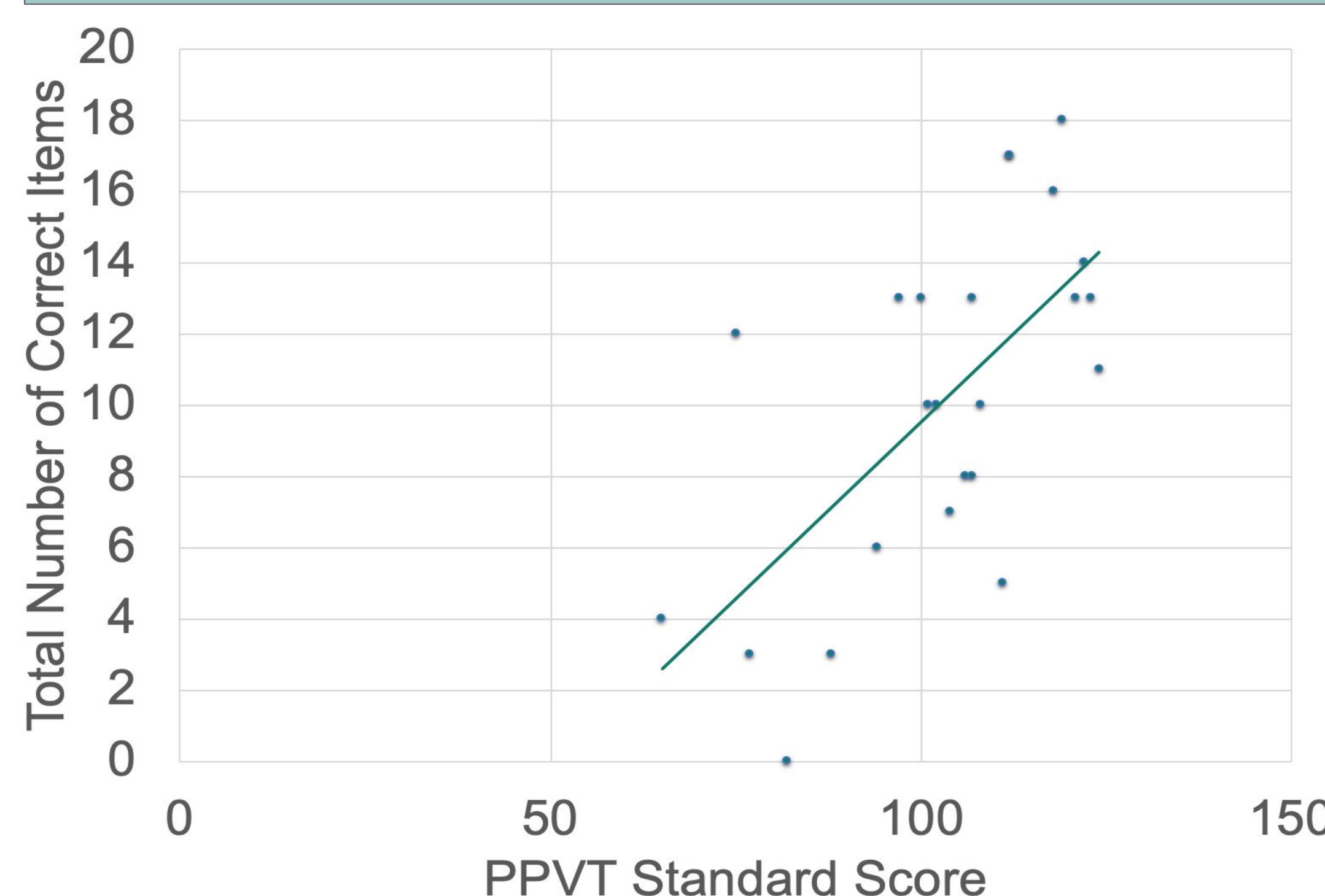


Figure 1b. The relationship between PPVT standard scores and total number of correct items in SVF task.

## Discussion

- These findings suggest that receptive and expressive vocabulary are predictors of recall ability in SVF tasks.
- DCCS score, a measure of inhibitory control, was not strongly related to SVF performance in three-year-olds. This finding contrasts previous claims that SVF tasks are measures of cognitive performance.<sup>1</sup>
- These findings suggest that three-year-old children may organize their lexicons categorically, which may improve recall abilities.

## Clinical Implications

- The high correlations between the results of the PPVT, EVT, and SVF suggest that the SVF task is a measure of vocabulary.
- This suggests that SVF tasks could be used as part of an assessment battery for SLPs, such as a screening tool.
- Future research should investigate the use of SVF as a potential measure of vocabulary.

## References

1. Chami, S., Munro, N., Docking, K., McGregor, K., Arciuli, J., Baker, E., & Heard, R. (2018). Changes in semantic fluency across childhood: normative data from Australian-English speakers. *International Journal of Speech-Language Pathology*, 20 (2), 262-273. DOI: 10.1080/17549507.2016.1276214
2. Dunn, L. M., & Dunn, L. M. (1997). *PPVT-III: Peabody Picture Vocabulary Test*. Circle Pines, MN: American Guidance Service.
3. Williams, K. (2007). *Expressive Vocabulary Test* (2nd ed.). Bloomington, MN: Pearson.