

INTRODUCTION

Increasingly, young children are learning pre-literacy skills using different digital tools, such as tablets and smartphones. There is research evidence showing children were more engaged when digital stories were shared relative to when print stories were shared (e.g., Richter & Courage, 2017).

Some studies (e.g., Korat & Segal-Drori, 2015) have reported better outcomes on core reading predictors, such as expressive vocabulary, oral narrative skills, and word recognition when children shared digital books relative to when they shared paper books. However, other studies (e.g., Parish-Morris et al., 2013) have reported worse learning outcomes in the context of digital books compared to paper books.

Why do some children not learn as much from digital stories?

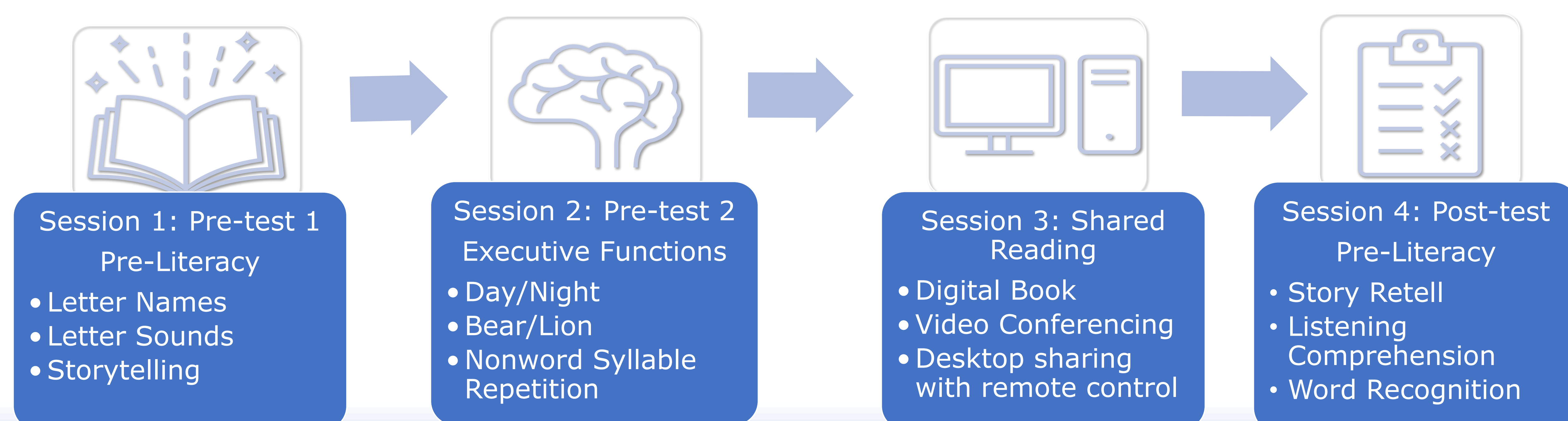
It is possible that the interactive features in digital stories which likely contributed to higher engagement, challenged some children's ability to attend to the learning task. Boys and children with poorer executive function skills may be particularly at risk.

RESEARCH QUESTIONS

- RQ 1:** Do executive functions explain why some children learn less from shared reading of digital books online?
- RQ 2:** Is there a sex difference favouring girls in pre-literacy outcomes from online shared reading due to poorer executive function skills in boys?

METHOD

25 children (10 boys, 15 girls) aged 48 to 71 months ($M = 58.28$, $SD = 6.80$) participated in the following procedure:



RESULTS

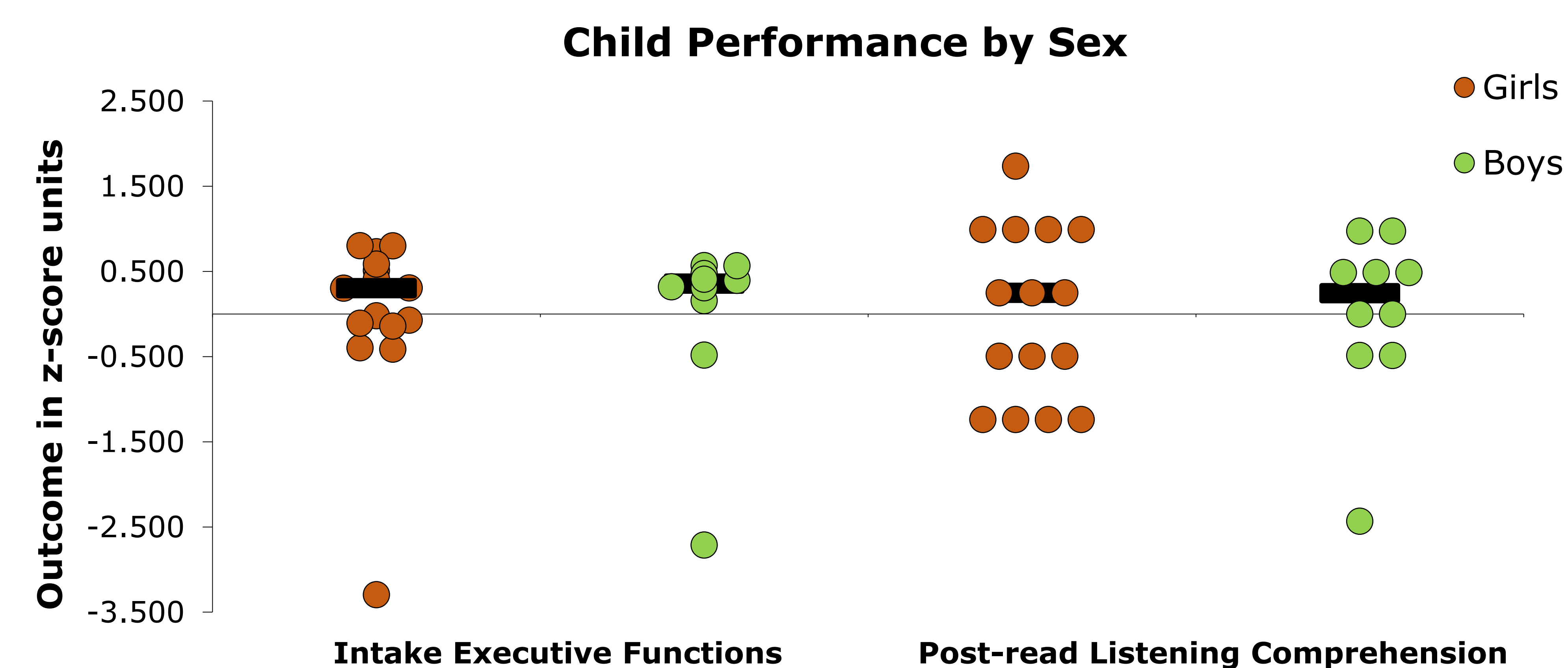
RQ 1: Hierarchical linear regression analyses showed executive functions significantly predicted children's listening comprehension and word recognition. Executive functions accounted for 59% and 30% variance in outcomes, respectively. Executive functions did not predict story retell outcomes.

Listening Comprehension				
Model	R ²	R ² Change	F	p
1	.047	.047	(3, 20) 0.32	.80
2	.637	.590	(6, 17) 4.97	< .01

Word Recognition				
Model	R ²	R ² Change	F	p
1	.249	.249	(3, 20) 2.20	.11
2	.551	.302	(6, 17) 3.47	.02

Model 1: Intake pre-literacy skills; **Model 2:** Executive functions controlling for intake pre-literacy skills

RQ 2: Independent Samples *t* Test and Analysis of Variance revealed there were no significant differences between boys and girls in intake executive functions or post-read measures (e.g., listening comprehension).



CONCLUSION AND FUTURE WORK

- The results demonstrate that executive functions predicted children's learning from online shared reading and there were no significant sex differences in post-read measures. However, the results perhaps reflect sampling error, as the sample size is small and consisted of mostly high SES boys.
- The findings suggest that differences in executive functions might help parents, teachers, and clinicians better understand why some boys and girls learn less from digital reading contexts.
- Future work should consider what types of strategies (e.g., appropriate turn-taking) can be embedded into digital reading contexts to support boys' and girls' executive functions while learning.

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LITERACY LEARNING IN A DIGITAL WORLD: CONSIDERING THE ROLES OF SEX AND EXECUTIVE FUNCTIONS IN LEARNING DIFFERENCES

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