



Understanding Preschool Children's Reading Engagement and Learning with Interactive eBooks

Ying Xu*, Joanna C. Yau, & Stephanie M. Reich
University of California, Irvine
* ying.xu@uci.edu

Paper presented at AERA annual conference, April 2018

Storybook Reading on Touch Screens

- Story book reading is important source of language and literacy development
- Changing landscapes of book reading



Read for the child
Interact with the child



“Read” for the child
On-screen response

**Can tablets replace
adults for story
reading?**



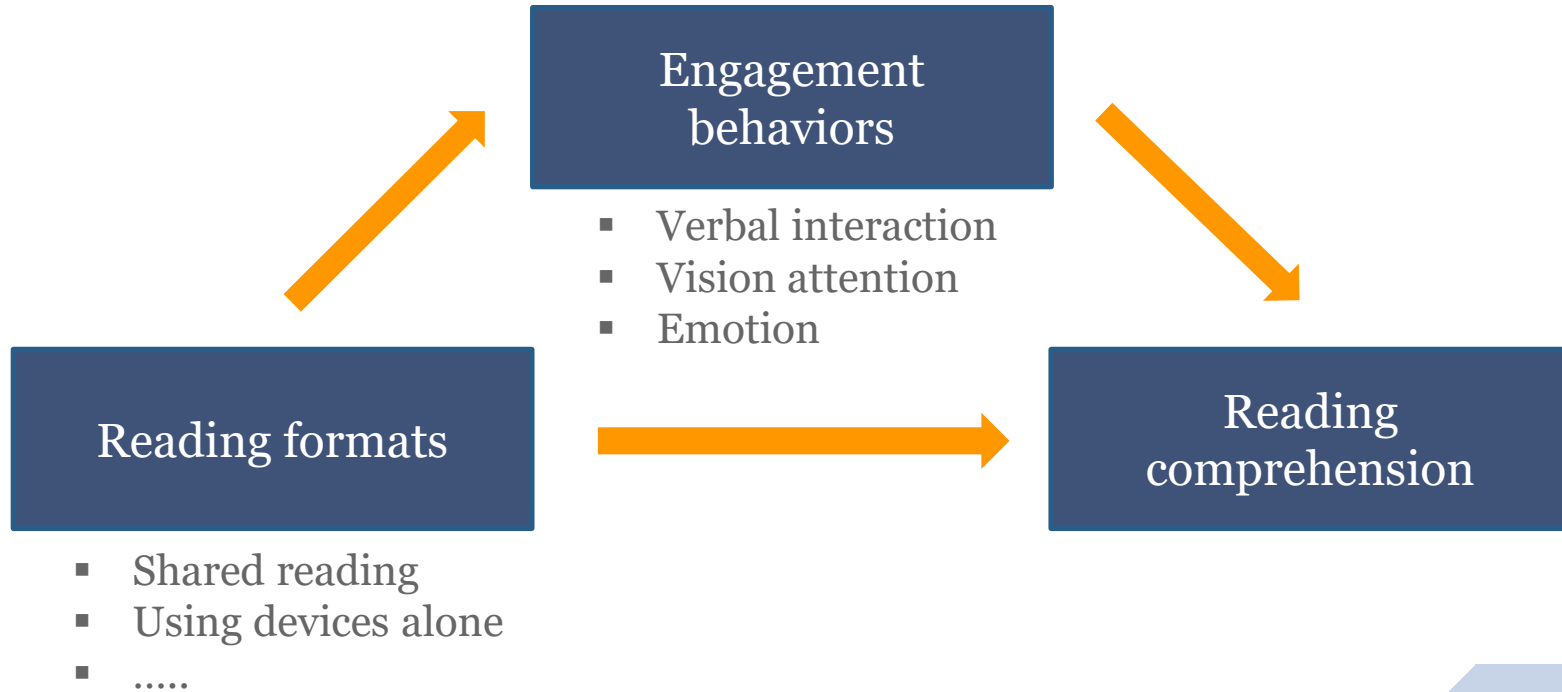
Related Studies

- Previous studies have compared reading **outcomes** in the two conditions: Adult-child shared reading & child' reading independently with computer.
- Focused on two outcomes:
 - Reading comprehensions
 - vocabulary gains
- Results are mixed
- Meta-analysis indicates the two conditions are comparable (Takacs, et, al, 2014; Takacs, et, al, 2015)

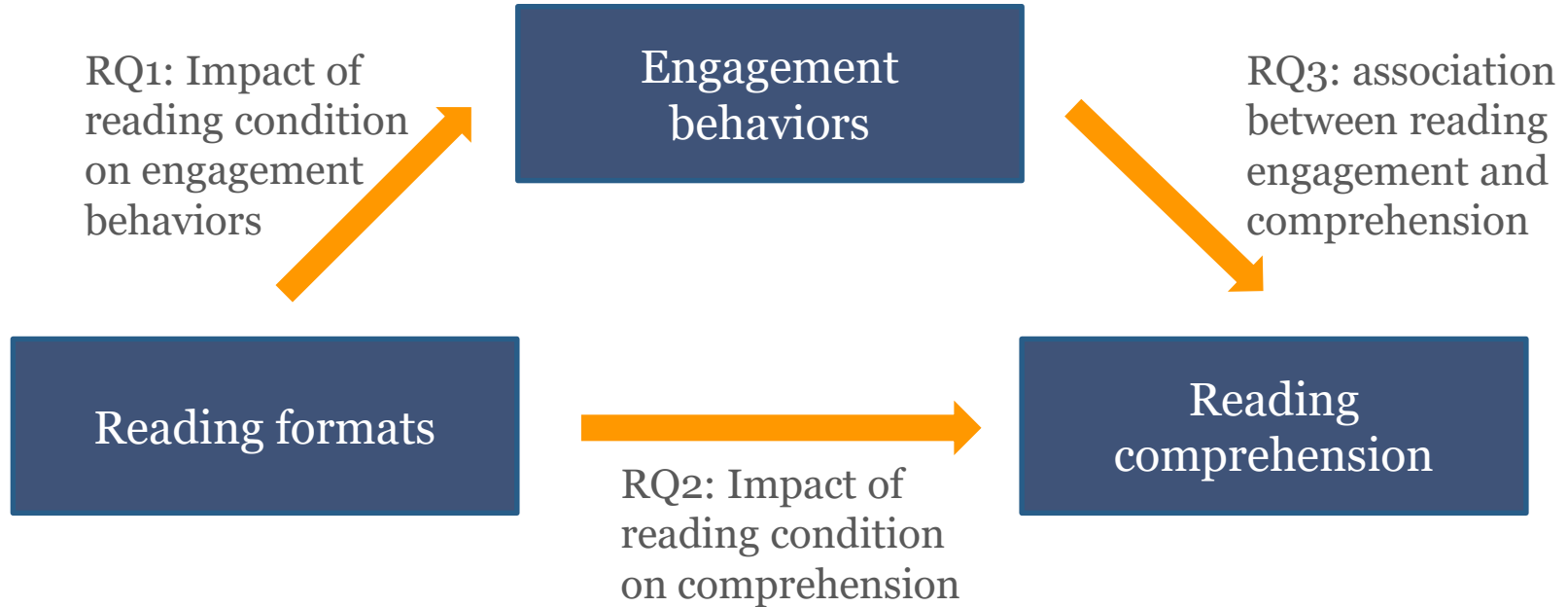
How about the reading **process**?



Conceptual Framework



Research Questions

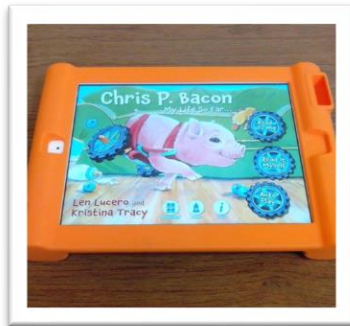


Study Design

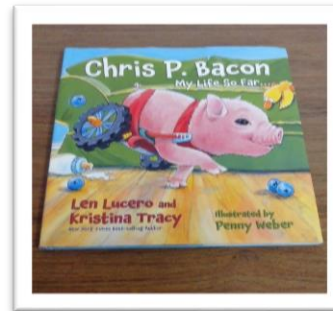
156 preschool children
aged 3-5 years

- Mean age = 50.1 month, SD = 1.5 months
- 50% boys; 50% girls
- Mean family income = 150k

eBook with read to me
feature (independently)



Print book read by an adult



- Little help from experimenter
- Videotaped reading
- Post reading assessment of comprehension



Key Measures

Engagement Behaviors

- Video coding by two trained research assistants (IRR > 0.85)
- Coded whether a specific behavior occurs every ten seconds
- Proportion of time segments child engaged in each behavior below

Verbal Comments

- About the story
- About the device
- Other comments (e.g., *“What is my friend doing?”*)

Emotional Expression

- Positive non-verbal expression (smile)
- Positive verbal expression (e.g., I like the book!)

Attention

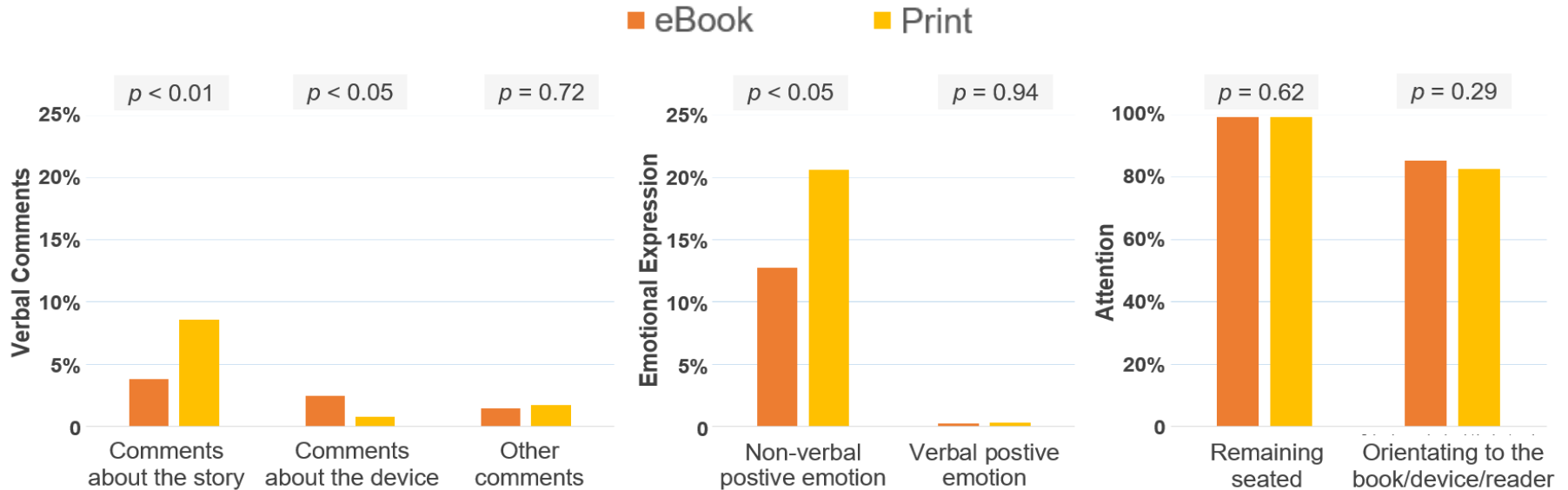
- Remaining seated
- Maintaining orientation to the book/device or the reader

Comprehension

- Four domains assessed: memory for story facts, story order, text awareness, novel vocabulary

Analyses and Results

- RQ1: Effects of condition on engagement behaviors



Differentiate engagement

Analyses and Results

- RQ2: Effects of condition on comprehension**



Comparable comprehension

Analyses and Results

- **RQ3: relation between each specific engagement behavior and total comprehension score**

	Partial correlation		
	Full sample	eBook	Print
Comments about the story	0.042	-0.080	0.100
Comments about the device	-0.079	-0.064	-0.135
Other comments	0.048	-0.161	0.217† ($p < .1$)
Remaining seated	0.063	0.033	0.136
Orienting to the book	0.138	0.158	0.087
Non-verbal positive emotion	-0.032	-0.102	-0.012
Verbal positive emotion	0.114	-0.075	0.214† ($p < .1$)

Weak but varying association



Discussion

RQ1: Different engagement

- Engagement patterns differ between eBook and print book reading.
- Novelty of the device?

RQ2: Same comprehension

- Children reading eBook and print book have comparable comprehension outcomes.
- May offer opportunities for children to read independently

RQ3: Weak but varying relationship between engagement and comprehension

- Engagement is weakly associated with reading comprehension, varying between conditions



THANKS!

We would also like to thank all the parents and children who participated in the study!

Ying Xu, Joanna C. Yau, & Stephanie M. Reich
University of California, Irvine