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The Influences of Infant-Directed Reading and Singing on Word Learning

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Introduction

Singing & reading both occur in infants' environments.

Similarities: repetition; consistency
Differences: auditory v. visual representation; reading more heavily studied for linguistic content.[1]

Parent-child book reading increases children's vocab.[2,3]

When an infant can see and is attending to an object that is being discussed, word comprehension is improved.[4]

Research Questions:

1. Does the frequency of infant-directed reading and singing affect word learning?
2. Does the effect of reading/singing vary by source (electronic or human)?
3. Do differences in object presence between singing and reading contribute to differences in comprehension outcomes?

Methods

Analysis of SEEDLingS Corpus (N = 44, 21 female, studied longitudinally from 6-18 months of age)

6-17 months:

- **Full day audio + 1 hour video** recorded monthly
- Coded in each recording:
  - **Object words** (concrete, imageable)
  - **Type of utterance** word was used in (eg. question, singing)
  - **Speaker** (eg. mother, brother)
  - **Object presence** (was object present and attended to by the infant?)

6-18 months:

- **Total productive vocabulary** collected through MB-CDI parents filled out each month

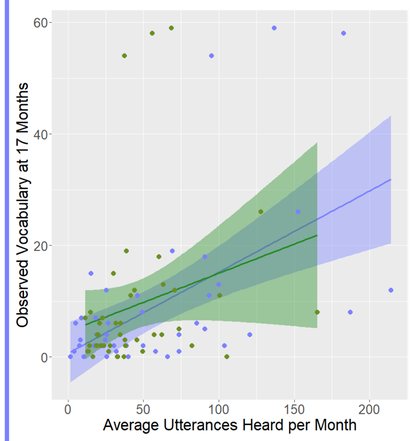
Results

The nouns in reading more lexically diverse than those in singing in type-token ratio ($t(86) = 4.46$, $p<.001$***)

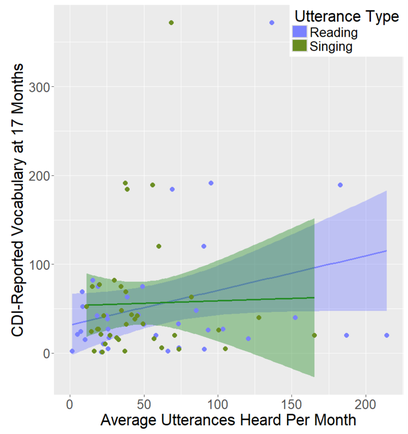
	Types	Tokens	TTR
Singing	1,089	23,604	0.24
Reading	2,194	31,073	0.35

Reading (but not singing) positively correlated with child talkativeness at 17 months (Spearmans' $\rho = .43$; $p < .01$**).

Avg. amounts of reading and singing correlate with observed vocab. More robust effects seen with reading.

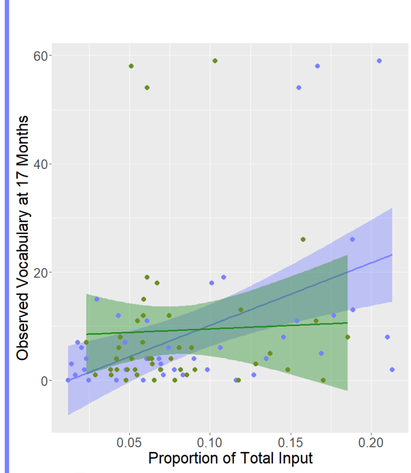


Reading: $\rho = .46$; $p < .01$**
Singing: $\rho = .38$; $p < .05$*

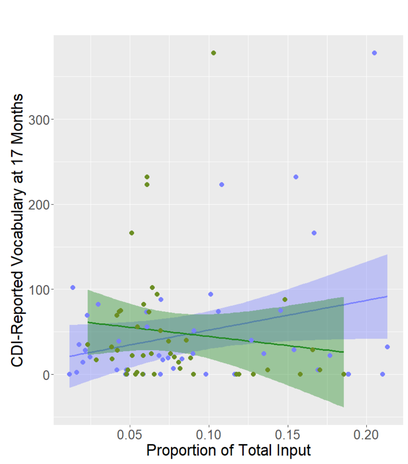


Reading: $\rho = .33$; $p <.05$*
Singing: $\rho = .27$; $p = .12$

Proportion of reading (but not singing) linked to both observed and reported vocabulary at 17 months.



Reading: $\rho = .43$; $p < .01$**
Singing: $\rho = .085$; $p = .58$



Reading: $\rho = .10$; $p = .51$
Singing: $\rho = -.24$; $p = .11$

Speaker Variability

Speaker Type	Reading	Singing
Human	98.7 %	56.4 %
Electronic	0.12 %	36.9 %
Unison	<0.01 %	0.67 %

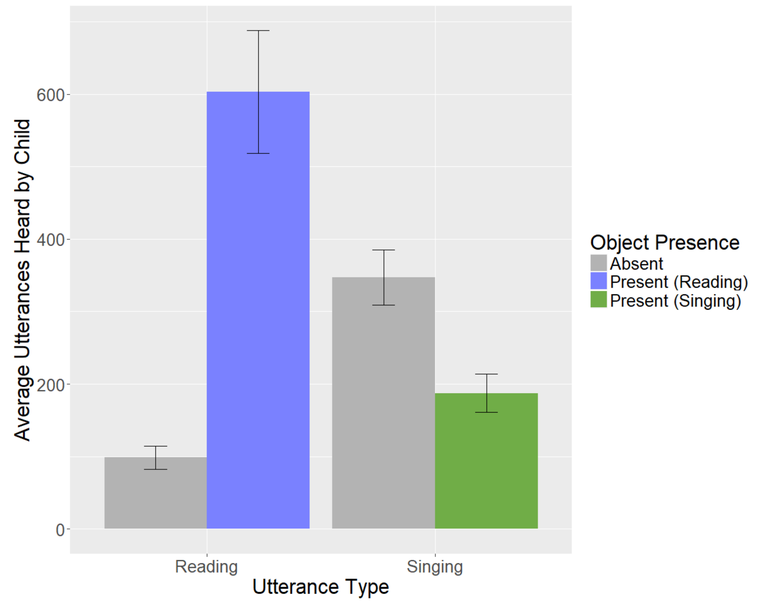
Higher proportion of electronic singing than reading

Type-token ratios did not differ by source type, both $p>0.05$

- Human and electronic input exhibit similar lexical diversity

We see no clear links between proportion of reading or singing from humans and subsequent vocabulary.

Children may benefit from singing and reading, regardless of source



Reading: $df = 45.95$, $t = -5.86$, $p < .0001$****
Singing: $df = 76.73$, $t = 3.43$, $p < .001$***

Object presence may explain the larger impact of reading:

- Objects are more likely to be:
  - **Present** when infants are **read to**
  - **Absent** when infants are **sung to**

Parents and teachers may direct children's attention to visual representations of the words children are hearing

Conclusions

Revisiting our initial questions, we found:

1. Frequency of nouns heard in reading and singing from 6-17 months tied to 17-month vocabulary; reading effects more robust.

2. Electronic singing input far more common; Source of singing/reading (electronic or human) seems unrelated to learning.

3. Object presence high for nouns heard in reading, low in singing.

Future Directions

- Follow-up with children at age 3.5 - long term effects?
- Child's own participation in reading/singing
- demographic and SES effects on reading and singing

References

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