2016

The Relation Between Infant Construction Strategy and Language Development in Toddlers

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Introduction & Purpose

- Infants acquire sensory information through interaction with physical objects in their environment.
- Self-guided object manipulation is important to cognitive development during infancy and toddlerhood.
- One such manipulation is object construction, or merging individual objects into a single structure. Infants initially combine two objects together, and then graduate on to combine three pieces or more.
- The way in which an infant develops the ability to combine objects is similar to the way word combinations (like sentences) develop during toddlerhood. Therefore, the development of object construction may be related to the development of language.
- The purpose of this project is to explore if infant construction ability is related to language in toddlers.

Hypothesis

- The more advanced the infant’s construction ability at 14 months, the more advanced their language ability will be at 24 months.

Participants

- 47 typically-developing infants from Greensboro, NC
- Assessed at 14 months for object construction skill and at 24 months for language.

Methods

- Infants given sets of nesting cups (4 to infants, 10 to toddlers) to assess construction strategy while video-recorded.
- Examiners presented dissembled cups two different ways: one with the open side up and second with the open side down.
- Examiners demonstrated assembly of the cups, and infants were given 20 seconds to interact with the objects.

Results

- Data was analyzed using a regression model, using Hierarchical Linear Modeling 7 (Student version).
- Of the 47 infants sampled at 14 months:
  - 11 infants exhibited no combination
  - 27 infants paired cups
  - 9 infants potted cups
- Infants who paired (β=14.29, t(44)=2.62, p=0.01) or potted (β=8.52, t(44)=2.19, p=0.034) cups scored higher on expressive language, than infants who performed no combination (M=92.82) at 14 months.
- Infants who potted at 14 months also scored higher on expressive language at 2 years, than infants who only paired at 14 months (β=7.27, t(44)=2.06, p=0.046).
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Discussion

- This project found that object combination ability at 14 months relates to higher expressive language scores at 24 months, but not receptive language scores.
- Combining objects at a younger age may relate to the development of greater expressive language abilities.
  - Physical object combinations could lay a foundation for combining abstract concepts, such as word combinations (e.g., more cookie) or sentences (e.g., I want more cookie); however more study is needed to identify how these skills relate to one another.
- However, the development of receptive language may be more related to other developmental mechanisms.
- Future study could investigate how more complex object combination strategies performed at older ages, such as interrupted strategies, may uniquely affect the development of language at older ages.
  - This will provide more evidence on the relations between infant interaction with physical objects and language development throughout early childhood.

Acknowledgments

This research was partially supported by NSF grant #0718045 (given to GM), the Center for Developmental Science grant #3380430706 (given to EN), and the Virginia Commonwealth University School of Allied Health Professions Promotion of Research Program grant (given to SD).