

Investigating the Relationship between Parental Communicative Behavior During Shared Book Reading and Infant Volubility

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BACKGROUND

- There is a well-established relationship between pre-linguistic vocalization and later language development. Infants who are “better babblers” demonstrate accelerated language development. [1,2]
- Child internal factors (e.g., hearing status, disability, language status, etc.) are known to affect quantity and quality of babble [3,4].
- Some external/environmental factors have been found to increase infant volubility under experimental conditions:
 - Contingent verbal and non-verbal parental responsiveness [5, 6, 7]
 - “Still Face” paradigm [8]
 - Imitation of child vocalizations [9]
- Parents use a variety of behaviors (e.g., sound effects, singing, interjections, etc.) to engage infants during play.
- Little is known, however, about the impact of these naturally occurring parental communicative behaviors on infant volubility.

CURRENT STUDY

- The goal of the current study was to explore the relationship between parent communicative behavior and infant volubility during play sessions with books.
- It was hypothesized that increased parental talk, greater use of engaging/excited expressions, and greater parental responsiveness would be associated with increased infant volubility. A variety of additional parental communicative behaviors were also explored.

METHODS

Participants

20 parent-infant dyads

Infant information

- Age : Mean = 13.4 mo (range = 10.8 – 16.9)
- 8 male, 12 female
- Standard score on *Lena Developmental Snapshot**: Mean = 103.3 (range = 86-123)
*Mean = 100; s.d. = 15

Parent information

- 18 biological mothers, 2 biological fathers
- English is the primary language used in the home
- Education level: 4 or more years college (n=15); some college (n=4); high school degree (n=1)
- Race/ethnicity: non-Hispanic white (n=18); Hispanic (n=1); Native American (n=1)

Procedures

- Data presented are taken from a larger study investigating the effect of the type of toy used during play on parent-infant communicative behavior
- Data for the current study include 1 parent-infant play session with infant books, lasting approximately 15 minutes
- Books: 2 with farm animal theme, 2 with shapes theme, and 1 with color theme

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- Play sessions occurred in the participants' homes and were not observed by researchers
- Play sessions were audio-recorded using the LENA System
- Additionally, 3 full-day recordings were made in order to obtain automatic measures of general home language environment

Data coding

- Play sessions were orthographically transcribed by graduate student research assistants
- The following measures of parent communicative behavior were calculated:
 - 1) adult words per minute
 - 2) questions per minute
 - 3) directives per minute
 - 4) rejections/negations per minute
 - 5) “engaging and excited expressions” per minute (i.e., interjections, sound effects/animal noises, gasps, utterances with singing, nursery words, baby games, claps, use of infant’s name)
 - 6) verbal responsiveness (**calculated by dividing the number of parent responses per minute by the number of child vocalizations per minute)
 - 7) imitation of child vocalizations per minute (**there were no instances of parental imitation of child vocalizations in the data set)
- Infant volubility was determined by calculating the number of infant vocalizations per minute. An infant vocalization was defined as a speech-like utterance consisting of, at minimum, a voiced vowel. Cries, grunts, and vegetative noises were not included.

RESULTS

Measure (per minute)	Mean (S.D.)
Adult words	65.72 (21.34)
Questions	5.08 (1.9)
Directives	2.07 (1.08)
Rejections/negations	0.11 (.19)
Engaging/Excited exp.	8.66 (3.55)
Verbal responsiveness rate	0.55 (.21)
Infant vocalizations	4.02 (2.26)

Analysis

- Correlational analysis was conducted to explore the relationship between parental communicative behaviors and infant volubility during the play session.
- When all dyads were included in the analysis, there were no significant correlations between parental communicative behaviors and infant volubility.

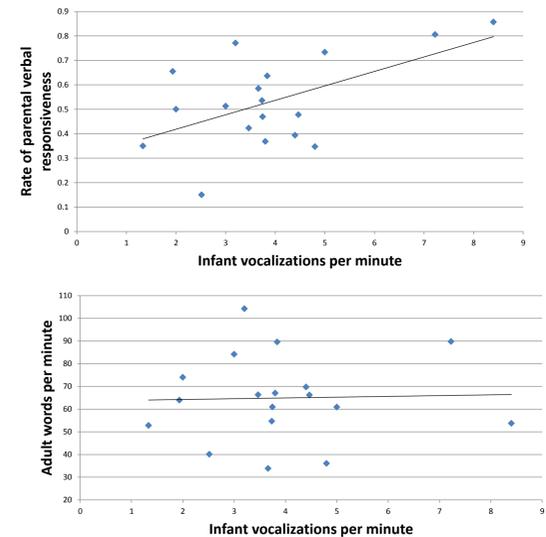
Pearson *r* values for correlation between infant volubility and select parent communication measures

	Infant Vocalizations
Adult words	-.32
Engaging/excited expressions	-.18
Verbal responsiveness	.07

- When the 2 most extreme cases were removed (1 infant who vocalized only .29 times per minute and another who vocalized 9.6 times per minute), there was a significant correlation between parental verbal responsiveness and infant volubility ($r=.55$; $p<.05$). There was still no relationship between adult words per minute and infant volubility.

RESULTS (continued)

Relationship between parent verbal responsiveness, adult words per minute, and infant vocalizations



- There was a significant positive correlation ($r=.53$; $p<.05$) between infant volubility during the play sessions and infant vocalization rate as measured by the LENA automatic analysis software over 3 days of recording.
- Similarly, there was a significant positive correlation ($r=.55$; $p<.05$) between # of adult words produced during the play sessions and adult word count over 3 days of recording.
- However, there was no correlation between overall parent volubility and overall infant volubility over the 3 days of recording.

DISCUSSION & CONCLUSIONS

- There was no clear relationship between parental communicative behavior during play and infant volubility. This is consistent with results of Franklin et al. (2014), who found no relationship between parent and infant volubility during lab play sessions.
- Overall “talkative” babies babbled more during play and overall taciturn babies babbled less, regardless of their parent’s communicative behavior during play.
- Surprisingly, there was no relationship between the amount of adult language heard by infants over the course of 3 days of recording and infant volubility, in spite of the fact that children who hear more adult language have been reported to exhibit accelerated language development. [10]
- The relationship between quantity of language input heard by infants and language development may only be present over an extended period of time, not at a single measurement point. [1]

References

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