The effects of parent coaching and child language outcomes in the first 18 months: A randomized controlled trial

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Background

- Language learning crucially relies on *social interactions*[1,2]. Recent studies call for interventions targeting children's early social environment[3].
- This longitudinal randomized controlled trial investigates the effects of two crucial social aspects of parent-child communication:
  1. Parental Speech Style: Parentese exaggerates phonetic distinctions by stretching key phonetic cues. Infants show a preference for parentese over standard speech[4,5]. Parentese facilitates language learning and processing[6,7,8].
  2. Turn Taking: Contingent interactions are integral to social exchange[9] and present before onset of speech[10]. They are associated with language development[11,12] and neural language processing[13].

Research Questions

- Can parent coaching at 6, 10, and 14 mo enhance the use of parentese and parent-child turn taking?
- Does altering these variables enhance child language outcomes?

Study Design:

- English-speaking families (n=71) across a range of SES backgrounds split into Intervention (n=48) and Control (n=23) group; matched on age, gender, SES, number of adults and siblings in household.
- All families recorded with LENA over two weekend days at 6, 10, 14 and 18 mo.
- All families provided CDI at 18 mo.
- Intervention families received parent coaching at 6, 10, and 14 mo.

Parent Coaching:

Individual ~45min session following a 4-step format:

1) Providing linguistic feedback derived from latest LENA recording. Comparing families' measures against research based targets.
2) Listening to audio snippets of intervention behaviors in families' own recordings.
3) Discussion of concrete interactive activities through Vroom Brain Building Moments®[14] cards.
4) Discussion of upcoming language milestones.

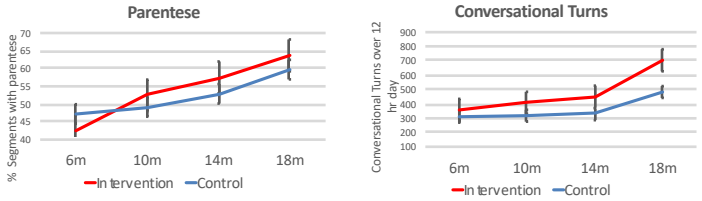
Measures: blue = parent measures; orange = child measures

		6m	10m	14m	18m
LENA AUTOMATIC COUNTS (Averaged over two full weekend days at each age, projected 12-hr estimates)	Adult Word Count (AWC)	x	x	x	x
	Conversational Turn Count (CTC)	x	x	x	x
	Child Vocalization Count (CVC)	x	x	x	x
MANUAL CODING OF LENA RECORDINGS (100 30s snippets per child per age)	% Parentese	x	x	x	x
	% Standard Speech	x	x	x	x
	% Baby Babbling	x			
	% Baby Words				x
MacArthur-Bates Inventory, Words and Sentences	CDI Words Produced				x

Hypotheses:

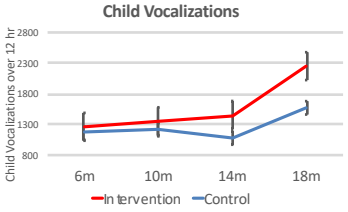
- The Intervention increases the use of parentese and parent-child turn taking between 6 and 18 mo.
- The Intervention leads to enhanced growth in child language between 6 and 18 mo, and enhanced outcomes at 18 mo.
- Changes in target parent behaviors are correlated with changes in children's language between 6 and 18 mo.

Results: Changes in parental language between 6 and 18 mo



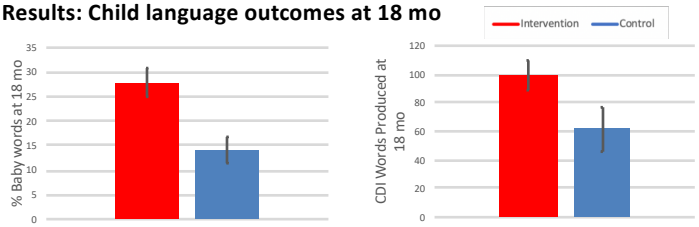
- Significantly larger increase in parentese (p = 0.033) and conversational turns between 6 and 18 months for Intervention group (p = 0.01)
- Interactions remain significant when controlling for SES, ps < 0.033

Results: Changes in child language between 6 and 18 mo



- Significantly larger increase in Child Vocalizations for Intervention group, p < 0.001
- Interaction remains significant when controlling for SES, p < 0.00

Results: Child language outcomes at 18 mo



- At 18 mo, Intervention children produced a significantly higher proportion of words in the coded LENA segments, p = 0.004
- At 18 mo, Intervention children had higher productive vocabularies as measured by the CDI, p = 0.046.
- Both effects remain significant after controlling for SES

Results: Correlations between parent and child language

- Change in CTC between 6 and 18 mo significantly correlated with change in CVC between 6 and 18 mo, p < 0.001.
- Change in CTC between 6 and 18 mo significantly correlated with % Baby words at 18 months, p < 0.001, and CDI Words at 18 months, p < 0.001
- Change in parentese between 6 and 18 mo significantly correlated with % Baby words at 18 months, p = 0.008

Summary

- Parent coaching at 6, 10, and 14 mo enhanced parental language input as measured by two variables: parentese and conversational turns between parents and children.
- Infants of parents who received coaching showed greater growth in language production between 6 and 18 mo, and had enhanced language outcomes at 18 mo.
- Parent and child measures were correlated, suggesting that their language behaviors coevolved between 6 and 18 mo.
- Parental language behaviors are malleable and can be enhanced through coaching, across a wide range of SES backgrounds.

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