

Low-Income African American Mothers' Language to their Preschool Children in Play: Amount, Variation, and Dialect



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Renewed Interest in the Impact of Mothers' Language Input on Children Language and Literacy Development

- Quantity of talk: the 30 million word gap? (Hart & Risley, 1995)
- Diversity of lexical input (Pan et al, 2005; Rowe, 2012)
- Use of “sophisticated” vocabulary (Weizman & Snow, 2001; Rowe, 2012)
- Syntactic variety and complexity (Huttenlocher et al, 2002; 2010)
- Quality of joint communication (Hirsh-Pasek et al, 2015)
- All of these may vary with the SES of the caregiver (Huttenlocher et al, 2010; Hoff, 2013)
- What about non-mainstream language? (Hoff, 2013)

Project Research Goals

- We explored the effects and non-effects of African American mothers' language input to their preschool children on the children's later reading comprehension at 1st Grade.
- The AA mothers were all from low income communities and the children were participating in an NIH-funded curriculum intervention program.
- Amount of talk, AAE dialect use, vocabulary variety, and complex sentence syntax use in the mothers' child-directed language were studied.

The School Readiness Research Consortium (2005-2012)

- A large-scale NICHD funded curriculum intervention program with preschoolers in center-based preschools in low-income communities in the Houston TX and Tallahassee, FL regions.
- An integrated pre-reading, early math, and socio-emotional development curriculum. (Lonigan et al, *Child Development* (2015))

The Participants

- 105 African-American mother-child pairs from low-income communities in the Houston, TX and Tallahassee, FL areas.
- The children's ages varied from 3;9 to 5;5 (mean 4;9) when the language interaction sample was collected.
- All of the children were in center-based day care and eligible for free lunch.
- Mothers' education levels (PED) varied from some high school to a bachelor's degree, with a median of a high school diploma or GED.



The Mothers' Language Samples

- Mothers and their preschool children engaged in a 10 minute free play session with a Fisher-Price castle and characters, and with Play Dough.
- The play session took place at the child's day care center in the middle of the preschool (curriculum intervention) year and was videotaped.
- The mothers' language was transcribed from the videotape.
- The language samples varied from 52 to 221 utterances, with a mean of 123.

Coding of the Mothers' Language – Amount of Talk, Vocabulary Variation, and use of AAE

- Amount = The number of utterances and words in 10 mins
- Vocabulary Variety:
 - Variety of different words used was measured by the VOCD index (McGee, 2000)
 - VOCD is less affected by sample size than other vocabulary variation measures.
- Use of AAE:
 - Number of characteristic AAE feature tokens per 100 utterances (e.g. Charity, 2011; Rickford, 1999; LSU research lab)

Coding of the Mothers' Language – Sentence Syntax Variety

- Mothers' use of complex syntax was measured as their production of seven different sentence structures:
 - embedded questions, tag questions, adverbial clauses following a main clause, fronted adverbial clauses, tensed complement clauses, relative clauses, and passive voice sentences (see also Huttenlocher et al, 2010).
- Following the scoring system used by the IPSyn (Scarborough, 1990), mothers were given credit for up to two instances of each structure in the 10-minute transcripts. Scores therefore varied from 0 to 14.

Language and Literacy Measures on the Children

- As part of the NICHD preschool curriculum intervention study all of the children had completed a battery of language, social, and cognitive assessments at the beginning of preschool, at the end of preschool, at the end of Kindergarten, and at the end of 1st Grade.

The present study concentrates on:

- the vocabulary production (EOWPVT-R) and phonological awareness (Pre-CTOPP) tests at the end of preschool
- Scores on the DELV-NR short narratives and the DELV-ST dialect neutral (risk) items
- And the reading comprehension outcome measure (The Woodcock-Johnson III Passage Comprehension subtest) at the end of 1st Grade.

Correlations within the Mothers' Language

- Mothers' AAE usage was significantly correlated with their education level ($\rho = -.26, p < .01$)
- But mothers' AAE usage was unrelated to their use of varied vocabulary (VOCD) ($r = -.06$) or their use of complex syntax ($r = -.05$)

Linear Hierarchical Regression Relating Child Language Measures and Mothers' Language Input to the Children's Woodcock Johnson III Reading Comprehension Standard Scores at the End of Preschool

	R ² change	F (df)	p		Beta	t	P
Background	.045	4.72 (1,100)	.032*	NVIQ	.212	2.17	.032*
Children's Language	.157	4.73 (4,96)	.002**	DELV-ST Risk	-.275	-2.54	.013*
				DELV-NR Narr	.002	0.02	.988
				Vocabulary	.093	0.84	.403
				Phon. Awareness	.158	1.56	.122
Mothers' Language	.101	3.34 (4,92)	.013*	#Words/10min	-.105	-0.96	.338
				AAE	.057	0.61	.541
				VOCD	-.012	-0.11	.910
				Complex Syntax	.381	3.56	.001**

Longitudinal Predictors of 1st Grade Reading in the Regression Analysis

- The child language measures were entered into the analysis as the second block of predictors and they had a significant combined effect on the children's later reading comprehension ($\Delta R^2=.157$, $p=.002^{**}$).
- All of the child language measures are significantly correlated with each other, so it is difficult to tease apart their separate effects, but the Risk Score on the DELV-ST (a dialect neutral measure) was a significant unique predictor of later reading ($p=.013^*$).
- The mothers' language measures were entered as the third block of predictors in the regression and similarly had a significant combined effect on the reading outcome ($\Delta R^2=.101$, $p=.013^*$).
- Of the separate input measures, only the mothers' use of a variety of complex sentence structures was an independent predictor of later reading comprehension ($p=.001^{**}$).
- The mothers' use of AAE dialect was not a predictor of the children's later reading achievement.

Structural Equation Modeling (SEM)

- The large sample of mother-child pairs allow the use of SEM analysis of the relationships between mothers' language at T2, children language skills at T3, and their reading comprehension scores at T5.
- A longitudinal SEM can separate correlated variables and measures both *direct effects* of variables on later outcomes and their *indirect effects* on the outcomes through their effects on intermediate mediators.
- An SEM analysis of the relationships between mothers' language measures and the children 1st grade reading achievement in the present study produced an excellent statistical fit using child language as a composite latent variable.

Structural Equation Model of Interrelations between Mothers' Language, Children's Language, and Children's Early Reading Comprehension

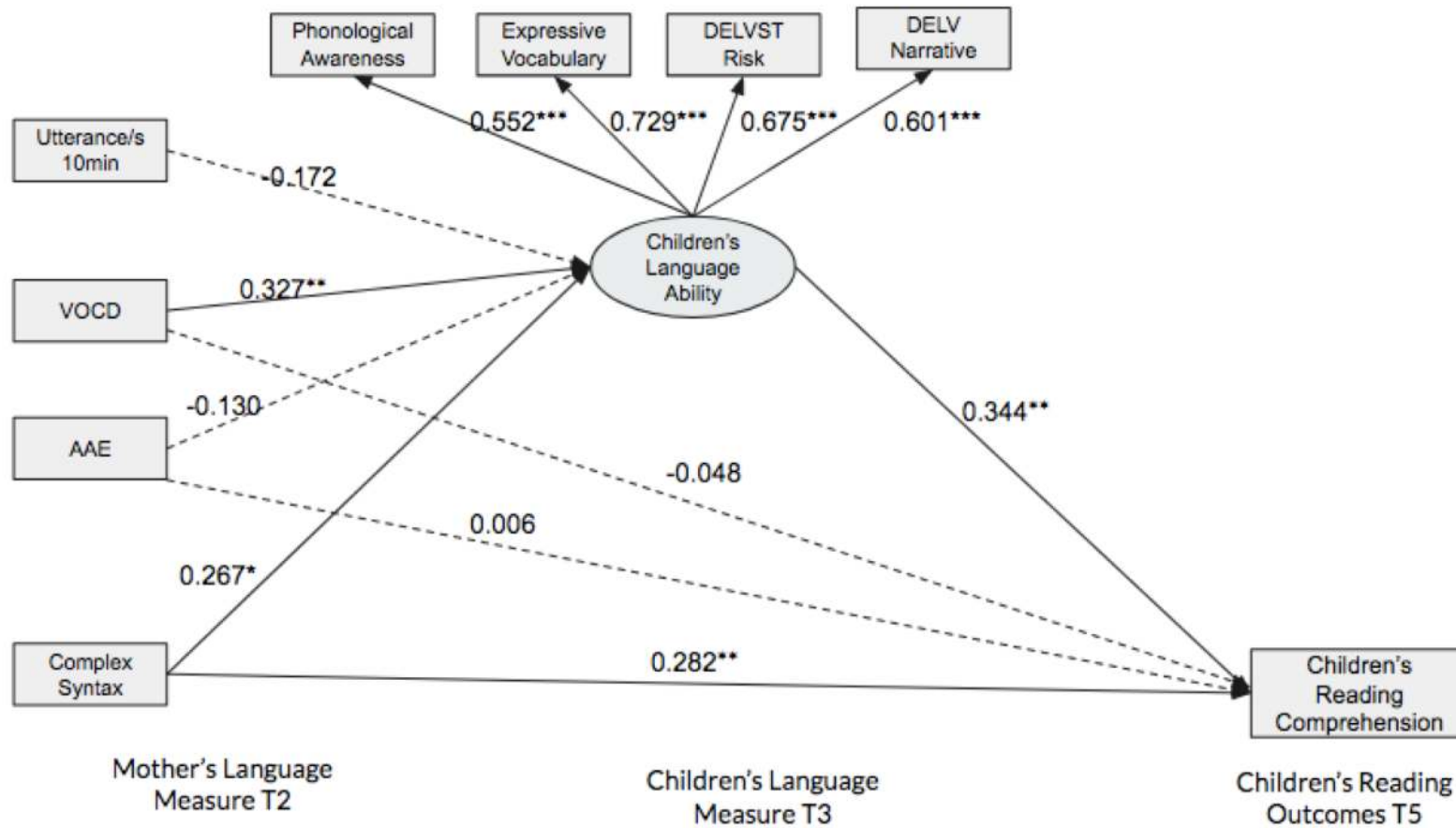
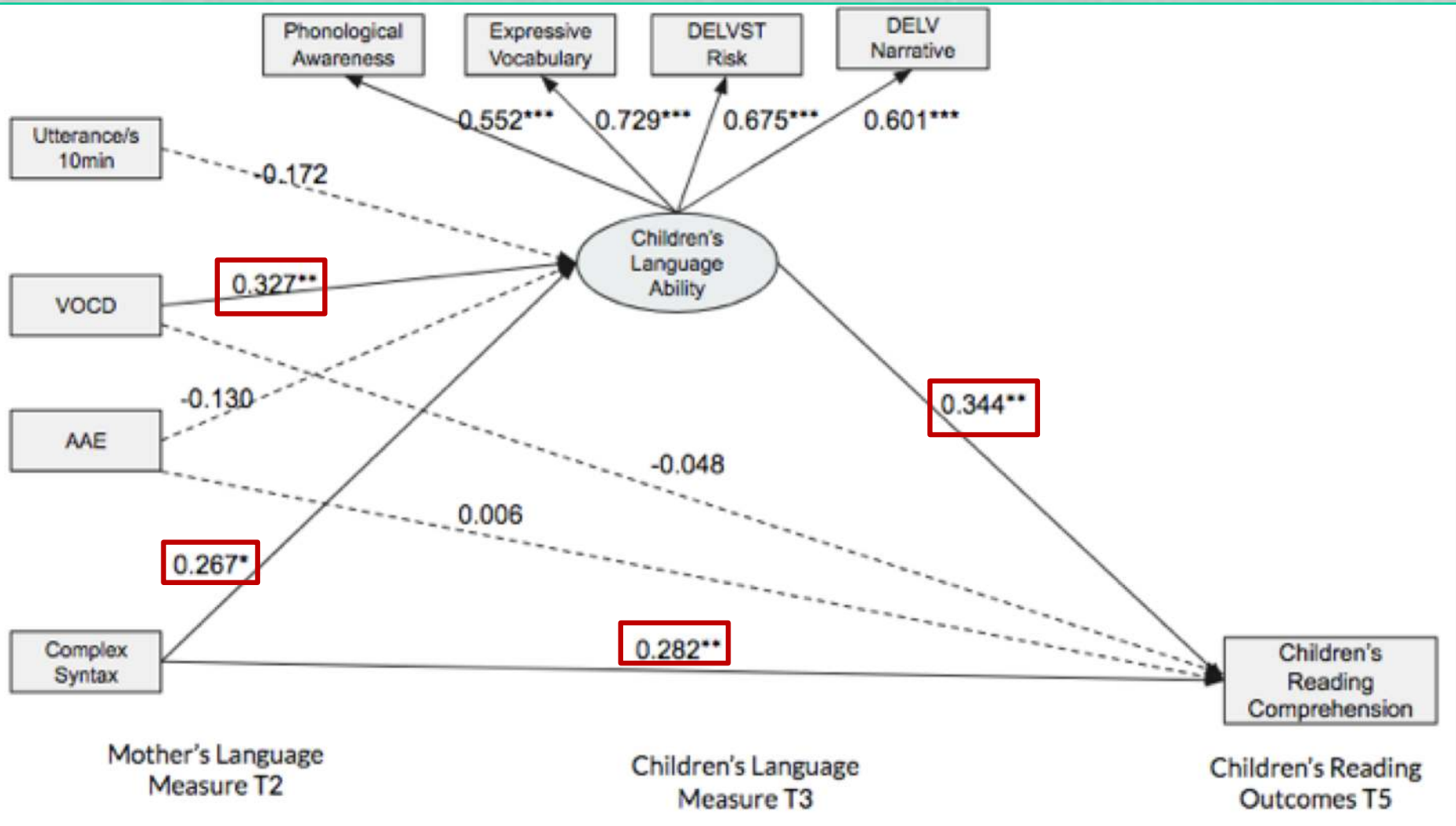


Figure 9. Standardized parameter estimation for the hypothesized model on children's reading outcomes at time 5 using mother's language measure at time 2. All reported estimates are the maximum likelihood standardized point estimates. $\chi^2(18, N=102)=24.968, p=0.126$, comparative fit index=0.941; Tucker-Lewis index=0.902, root mean square error of approximation =0.062, standardized root mean square residual =0.048. * $p<.05$. ** $p<.01$. *** $p<.001$. *Children's Reading Comprehension is standardized. All exogenous error covariances are omitted.



Results of the SEM

- Child language development at the end of preschool (T3) was a significant direct predictor of their reading comprehension at the end of 1st grade (T5).
- Mothers' use of varied complex syntax was the only measure of the input language with a significant direct effect on reading achievement.
- Mothers' use of varied complex syntax also had an indirect impact on reading through its significant direct effect on children's language.
- Varied vocabulary (VOCD) did not have a significant direct effect on reading outcomes, but it did have a significant effect on children's language.
- Amount of mothers' language (in either words or utterances) and mothers' use of AAE were not significant predictors of either children's language or later reading.¹⁶

Conclusions

- This study confirms that it is the richness rather than the quantity of the input language to children that matters for their later language and reading development.
- African American mothers use of AAE with their children is irrelevant to that relationship.
- Interventions seeking to facilitate African American children's language acquisition and reading achievement that focus on the amount of child-directed talk or the mothers' dialect are therefore misguided.

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A generation of Smith College undergraduates



For a relevant reading list please email:

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