

BRIEF RESEARCH REPORT

**Low-income fathers' speech to toddlers during book reading versus toy play\***

VIRGINIA C. SALO

*University of Maryland, College Park*

MEREDITH L. ROWE

*Harvard University Graduate School of Education*

KATHRYN A. LEECH

*University of Maryland, College Park and Harvard University Graduate School of Education*

AND

NATASHA J. CABRERA

*University of Maryland, College Park*

(Received 24 April 2014 – Revised 16 January 2015 – Accepted 21 September 2015 –  
First published online 6 November 2015)

ABSTRACT

Fathers' child-directed speech across two contexts was examined. Father–child dyads from sixty-nine low-income families were videotaped interacting during book reading and toy play when children were 2;0. Fathers used more diverse vocabulary and asked more questions during book reading while their mean length of utterance was longer during toy play. Variation in these specific characteristics of fathers' speech that differed across contexts was also

[\*] This research was supported by an NIH grant (R03 from NICHD: HD066017) to Natasha Cabrera and Meredith Rowe. The first author also received support from the NICHD Training Program in Social Development Grant (NIH T32 HD007542) awarded to the Department of Human Development and Quantitative Methodology at the University of Maryland by the NICHD. We are grateful to Bridget Mullan for her administrative work on this project, and to Jenessa Malin, Elizabeth Karberg, Simone Templeton, Jeff Wang, Sophia Castro, and Jennifer Anderson for help with transcription and coding. Address for correspondence: Virginia C. Salo, Department of Human Development and Quantitative Methodology, 3304 Benjamin Building, University of Maryland, College Park, MD 20742; e-mail: vcsalo@umd.edu

positively associated with child vocabulary skill measured on the MacArthur-Bates Communicative Development Inventory. Results are discussed in terms of how different contexts elicit specific qualities of child-directed speech that may promote language use and development.

## INTRODUCTION

Research suggests that fathers play a unique and important role in their children's development (Cabrera, Shannon & Tamis-LeMonda, 2007; Carlson & Magnuson, 2011). Importantly, fathers' language input contributes to their children's language development (Pancsofar & Vernon-Feagans, 2006; Pancsofar, Vernon-Feagans & The Family Life Project Investigators, 2010; Tamis-LeMonda, Baumwell & Cristofaro, 2012), and several studies show that fathers communicate with their children differently than mothers (e.g. Gleason, 1975; Rowe, Coker & Pan, 2004; Tomasello, Conti-Ramsden & Ewert, 1990). Mothers' speech to children differs across contexts (e.g. Yont, Snow & Vernon-Feagans, 2003). However, little is known about whether fathers' speech varies contextually. The current study examines whether low-income fathers' speech to toddlers differs across book reading and toy play contexts and whether there are relationships between fathers' speech in these different contexts and children's language ability.

Fathers contribute to their children's language and literacy development. For example, the frequency with which fathers engage in home literacy activities is found to predict children's later reading (and math) scores (Baker, 2013). Research with fathers and their young children from a range of socioeconomic backgrounds interacting in a variety of settings finds that variability in paternal vocabulary and complexity of speech relates to child expressive and receptive language ability both concurrently (Tamis-LeMonda *et al.*, 2012; Tamis-LeMonda, Shannon, Cabrera & Lamb, 2004) and predictively (Baker, Vernon-Feagans & The Family Life Project Investigators, 2015; Pancsofar & Vernon-Feagans, 2006; Pancsofar *et al.*, 2010). Previous studies also show positive associations between low-income fathers' use of conversation-eliciting speech, such as questions and clarification requests, during combined book reading and toy play interactions and their children's receptive vocabulary (e.g. Leech, Salo, Rowe & Cabrera, 2013).

Comparisons of mothers and fathers from diverse backgrounds engaging with their children in a variety of contexts have found important average differences in child-directed speech depending on the parents' gender. Mothers are found to talk more to their children (Davidson & Snow, 1996; Hladik & Edwards, 1984), while fathers produce more directives,

more often request clarification of their children's utterances, and ask more questions, particularly *wh*-questions (Gleason, 1975; Leaper, Anderson & Sanders, 1998; Masur & Gleason, 1980; McLaughlin, White, McDevitt & Raskin, 1983; Rowe *et al.*, 2004; Tomasello *et al.*, 1990). During book reading, fathers are found to use more metalingual talk than mothers (e.g. extra-textual talk that labels new items, prompts the child to produce language, or re-casts the child's utterances; Malin, Cabrera & Rowe, 2014). Taken together, these findings suggest that fathers interact with their children differently from mothers, and highlight the importance of understanding the nuances of fathers' child-directed speech and how it relates to child language development.

From a socio-cultural perspective, a child's language develops within particular social contexts (Rogoff, 1990; Vygotsky, 1978). Thus, it is important to examine how children's language environments vary across contexts, and whether such variations relate to children's language development. Book reading and toy play are two common contexts for parents and children to engage in (Hofferth & Sandberg, 2001), and are two of the most frequently utilized contexts in observational research on language development. Studies of mothers' speech to their young children find that book reading and toy play elicit different patterns of talk. When reading with their toddlers, both middle-class mothers (Hoff-Ginsberg, 1991) and mothers from low-income families (Weizman & Snow, 2001) use more diverse vocabulary, more complex speech, and more conversation-eliciting speech (i.e. questions intended to elicit a verbal response) than they do during toy play. Similarly, mothers' speech is more likely to have a metalingual function (eliciting labels, talking about language) during book reading than toy play (Jones & Adamson, 1987). Yont and colleagues (2003) found that mothers are more likely to treat language as a 'conversational tool' during book reading by engaging in discussions about the book (e.g. talking about objects pictured). Thus, it is generally accepted that book reading is an especially important context for children's language development because it stimulates conversation between parent and child (Dickinson & Tabors, 2001). In contrast, during toy play mothers are found to use more directives with toddlers, comment more often on ongoing activities, and provide frequent explanations about how to play with the toys (Yont *et al.*, 2003). Whereas explanations are shown to relate positively to children's vocabulary (Beals, 2001), parents' use of directives is often negatively associated with vocabulary development (e.g. Hart & Risley, 1995). Mothers' child-directed speech within book reading interactions is related to vocabulary development in their children (Ninio, 1983). And many studies that span a variety of activities including book reading and toy play show positive relations between maternal input and child language development (e.g. Hart & Risley, 1995). However, we are

not aware of any studies examining mothers' speech during only toy play and its relation to their children's language skill.

Research comparing fathers' child-directed speech across contexts is limited and based on relatively small samples, but there is some evidence that fathers' speech may also vary by context. In an exploratory study of six middle-class fathers and mothers interacting separately with their toddlers, Lewis and Gregory (1987) found that fathers talked more and produced longer utterances while reading a toy catalog as compared to during play. They also produced more directives during toy play than while reading the catalog. However, the pattern of mothers' speech was reversed across the two contexts. Rondal (1980) compared mothers' and fathers' talk within five French middle-class families across free play, picture book reading, and meal-time contexts. Overall, fathers consistently asked more *wh*-questions than mothers. While both mothers and fathers differed across contexts in their use of *yes/no* questions, mothers asked the most during free play whereas fathers asked the most during meal-time. Walker and Armstrong (1995) compared parents' child-directed speech within four American families and found that during play activities (which included book reading) both mothers and fathers used more conversation-eliciting speech than during caregiving activities such as dressing and meal-time. These findings suggest that fathers' child-directed speech differs across contexts. However, whether these differences follow a similar pattern to that of mothers is not clear, nor is it clear whether variation in fathers' speech across contexts relates to child language use and ability.

The current study examines interactions between low-income fathers and their children. While fathers' involvement within low-income families is beneficial for children, the mechanisms of this benefit are still unclear (Carlson & Magnuson, 2011). One potential mechanism could be the quality of the communicative interchanges between fathers and children. On average, caregivers differ across socioeconomic status (SES) in the quantity and quality of talk they use with their children (e.g. Hart & Risley, 1995), and SES differences in children's language development are seen early, persist, and place children from lower-SES backgrounds at greater risk for reading difficulties (e.g. Rowe, Raudenbush & Goldin-Meadow, 2012). Thus, a more nuanced understanding of the role of fathers in low-income children's language development is particularly important.

In sum, low-income fathers contribute to their children's language development (e.g. Pancsofar *et al.*, 2010), and are found to be more challenging communicative partners for their young children than mothers (e.g. Rowe *et al.*, 2004). Mothers' speech varies across book reading and toy play contexts (e.g. Yont *et al.*, 2003). However, it is not yet known whether fathers' child-directed speech differs across these contexts and whether features of fathers' child-directed speech in each context relate to

children's language abilities. We address the above-mentioned issues by posing the following research questions:

1. In this low-income sample, does fathers' child-directed speech with toddlers differ during book reading versus toy play?
2. Are qualities of fathers' speech during book reading or toy play related to children's speech within each context, or to children's vocabulary ability measured outside the interactions?

## METHOD

### *Data source and participants*

This study utilized data from the Father Involvement with Toddlers Substudy (FITS) of the Early Head Start Research and Evaluation Project (EHSREP), a randomized, controlled evaluation of the Early Head Start (EHS) program in the United States. For FITS, fathers were recruited from twelve of the seventeen participating EHSREP sites (see Boller *et al.*, 2006, for additional information on FITS). On average, fathers participating in FITS were more likely to be employed and have higher levels of education than fathers that did not participate (see Cabrera *et al.*, 2004; Tamis-LeMonda *et al.*, 2004, for analysis of selection bias). A subsample of FITS families with available data for fathers at the two-year data collection wave was selected. The sample selection was based on several inclusionary criteria: families identified the focal child as either African-American or Latino, had complete demographic data, and had two-year wave father-child interaction videos and data. For the current study, ten dyads were eliminated because the father and child did not share joint attention to the book for more than 30 seconds during their videotaped interactions, and an additional three dyads were eliminated due to missing the two-year language outcome measure. This resulted in a final sample of sixty-nine father-child dyads.

Fathers were, on average, twenty-eight years old (Range = 17–52; SD = 7.50) and had completed high-school (Mean years of school = 12.36; Range = 6–20; SD = 2.20). Thirty-eight fathers identified as African-American and thirty-one as Latino. During the interactions, fifty dyads spoke all English, fifteen spoke a mix of English and Spanish, and four dyads spoke all Spanish. At the time of the videotaped interaction, children had a mean age of 2;4 (Range = 1;11–3;0; SD = 0.25). Thirty-nine of the children were female.

### *Procedure and measures*

Father-child dyads were videotaped during a 10-minute semi-structured interaction in the home. Fathers were instructed to progress at their own

pace through three bags in order. The first bag contained an Eric Carle book, *The Very Busy Spider*. The second bag contained a toy pizza and telephone. The final bag contained a toy barnyard with animals. All utterances by fathers and children were transcribed verbatim from the videotapes by research assistants trained to transcribe reliably using the CHAT conventions of the Child Language Data Exchange System (CHILDES; MacWhinney, 2000). The unit of transcription was the utterance, bounded by grammatical closure, a pause of more than 2 seconds, or transition in speaker. A second research assistant verified each transcript to ensure accuracy. Discrepancies were resolved through discussion. Transcripts that contained any Spanish were transcribed, verified, and coded by native Spanish speakers. Transcripts were divided using the GEM command in the CLAN program to yield two transcripts for each father–child dyad, one documenting the interaction during book reading (bag 1) and one documenting the interaction during toy play (bags 2 and 3). Automated analyses of the transcripts using the CLAN program were conducted to yield descriptive measures of father and child speech. Analyses excluded any utterances that were verbatim reading of the book’s text, yet the pattern of results found here holds if those utterances are included.

For children, we focused on vocabulary diversity (word types) and mean length of utterance in morphemes (MLU). For fathers, we also included total number of words (tokens), and additional coding was conducted to yield pragmatic measures, including use of *wh*-questions, clarification requests, directives, explanations, and labels. A *wh*-question was any request for information using the words *who*, *what*, *where*, *when*, *why*, or *how* (e.g. “What kind of animal is that?”). Clarification requests included any explicit requests for the child to repeat or revise his/her utterance (e.g. “Huh?”, “Say that again”). Clarification requests and *wh*-questions were coded as mutually exclusive depending on the intention of the speaker. Fathers’ attempts to direct child behavior were coded as directives (e.g. “cut the pizza”). Fathers’ talk that requested or made logical connections between objects, events, concepts, or conclusions was coded as explanations (e.g. “the spider spins her web so she can catch her food”). Utterances in which the name for an object was given were coded as labels (e.g. “that’s a cow”). We chose to examine these specific measures of fathers’ speech because they are found to differ across contexts in samples of mothers (Hoff-Ginsberg, 1991; Yont *et al.*, 2003), and are also associated with vocabulary skill in children of this age (Leech *et al.*, 2013; Tamis-LeMonda *et al.*, 2012). Two research assistants independently coded 15% of the transcripts. Coder agreement was 86% (Cohen’s kappa = .83).

On average, dyads spent under 3 minutes reading the book ( $M = 2.84$ ,  $SD = 1.37$ ). However, dyads ranged from less than 1 minute ( $\min = 0.88$ )

to more than 7 minutes ( $\text{max} = 7.67$ ). Dyads spent more than 7 minutes on average playing with the toys ( $M = 7.23$ ,  $SD = 1.37$ ), and this also varied widely ( $\text{Range} = 2.38\text{--}9.13$ ). For comparison across context, dyads were excluded from analyses if they spent less than 30 seconds engaging with the book. To control for time differences across contexts, measures were calculated as a ratio over time (in minutes) spent on that activity, as shown in Table 1. MLU is already a ratio and thus was not transformed.

Also at child age 2;0, mothers completed the American English Words and Sentences short-form of the Macarthur-Bates Communicative Developmental Inventories (MCDI; (Fenson, Pethick, Renda, Cox, Dale & Reznick, 2000). The Words and Sentences short-form consists of 100 vocabulary words for parents to indicate whether their child produces the word. Children in the current study averaged 59 words ( $\text{Range}: 14\text{--}100$ ;  $SD: 19.37$ ). MCDI scores were positively associated with children's use of vocabulary measured as word types during the entire father-child interaction ( $r = 0.33$ ;  $p < .01$ ).

## RESULTS

Because of the nature of the sample, we first examined potential differences in speech measures based on ethnicity and language spoken. On average, African-American fathers ( $n = 38$ ) produced more clarification requests than Latino ( $n = 31$ ) fathers ( $M_{AA} = 0.23$ ;  $M_L = 0.15$ ;  $t = 2.41$ ,  $p = .02$ ), whereas Latino fathers produced more *wh*-questions ( $M_L = 2.52$ ;  $M_{AA} = 1.71$ ;  $t = -0.30$ ,  $p = .003$ ) and directives ( $M_L = 6.75$ ;  $M_{AA} = 5.31$ ;  $t = -2.01$ ,  $p = .05$ ) than African-American fathers. There were no differences in any of the father speech measures between dyads who only spoke English during the interaction ( $n = 50$ ) and those who spoke either all Spanish or a mix of the two languages ( $n = 19$ ). African-American children and children who spoke only English produced greater MLUs and word types, on average, as compared to their Latino peers or those who spoke any or all Spanish, respectively. Children's MCDI scores did not differ based on ethnicity or language. In the following analyses we combine the whole sample, yet we report results of separate analyses when the African-American or Latino dyads followed a different pattern than the combined sample.

Descriptive statistics of fathers' and children's talk in each context are presented in Table 1. Paired *t*-tests were conducted to compare both fathers' and children's speech across the book reading and toy play contexts. On average, fathers produced significantly more word types, questions, *wh*-questions, and labels (per minute) during book reading than during toy play. However, fathers' MLU was significantly greater during toy play than book reading, and fathers produced more directives and

TABLE 1. *Descriptive statistics and paired t-tests comparing fathers' and children's speech (per minute) across contexts (n = 69)*

	Book reading			Toy play			<i>t</i>
	Mean	SD	Range	Mean	SD	Range	
<i>Father</i>							
MLU	3.14	0.59	1.93–5.42	3.47	0.50	2.00–4.54	−5.528*** <sup>†</sup>
Word types	25.83	14.20	4.37–102.11	17.25	5.14	4.65–31.78	4.74*** <sup>†</sup>
Word tokens	71.10	44.13	6.75–329.47	62.06	23.57	7.55–120.00	1.65
Total	7.62	4.47	0.61–29.47	4.11	2.30	0.25–14.20	6.59*** <sup>†</sup>
questions							
<i>wh</i> -questions	4.46	3.44	0.00–18.95	1.28	0.90	0.00–4.62	7.81*** <sup>†</sup>
Clarification	0.24	0.42	0.00–2.00	0.22	0.31	0.00–1.78	0.36
requests							
Directives	4.82	5.38	0.00–30.57	6.51	3.12	0.92–17.79	−2.78**
Explanations	0.74	0.82	0.00–3.28	1.20	1.05	0.00–4.61	−3.13*** <sup>†</sup>
Labels	6.67	3.69	1.13–15.79	1.41	1.12	0.00–5.26	12.47*** <sup>†</sup>
<i>Child</i>							
MLU	1.68	0.55	1.00–3.20	1.73	0.58	0.00–2.81	−0.86
Word types	9.78	6.12	0.38–36.84	4.61	3.00	0.00–13.01	7.70*** <sup>†</sup>

NOTES: \*\*  $p < .01$ , \*\*\*  $p < .001$ , <sup>†</sup> significant after Bonferroni correction.

explanations (per minute) during toy play than during book reading. Children produced more word types per minute during book reading than toy play. Due to the number of comparisons run, a Bonferroni alpha correction was applied to account for possible Type I error (yielding a minimum significance level of  $p < .005$ ). As noted in Table 1, only the comparison of directives across contexts was no longer significant with the stricter test. Finally, African-American and Latino fathers displayed the same pattern of talk across the two contexts, with one exception. African-American fathers did not differ across contexts in use of explanations, whereas Latino fathers produced more during toy play than book reading ( $t_{\text{Latino}} = -4.15$ ,  $p < .001$ ).

We next examined associations between father and child speech measures within each context. As shown in Table 2, during the book reading interaction, fathers who talked more, used more diverse vocabulary, asked more questions, and produced more labels while reading with their child, had children who produced more word types in that same context. Fathers' MLU was also positively related to their children's MLU. After Bonferroni correction (which yielded a minimum significance level of  $p < .002$ ), the relations between fathers' and children's MLU and between fathers' labeling and child word types, during book reading, were no longer significant (see Table 2). During toy play, fathers who produced longer MLUs had children who also produced longer MLUs, and fathers'



TABLE 2. *Correlations between fathers' and children's speech and MCDI score*

	<i>Child</i>		
	MLU	Types	MCDI
<i>Father</i>			
Reading			
MLU	0.29*	0.08	0.22
Word types	0.08	0.59*** †	0.03
Word tokens	0.14	0.59*** †	0.09
Total questions	0.04	0.44*** †	0.30*
<i>wh</i> -questions	0.02	0.43*** †	0.31** #
Clarification requests	0.10	0.10	0.06
Directives	-0.16	0.16	-0.12
Explanations	0.06	-0.01	-0.10
Labels	-0.08	0.32**	-0.11
Toy play			
MLU	0.32** #	0.21	0.30*
Word types	0.17	0.27*	-0.01
Word tokens	0.01	0.21	-0.12
Total questions	-0.10	-0.04	-0.04
<i>wh</i> -questions	-0.11	0.12	0.01
Clarification requests	0.14	0.19	0.08
Directives	-0.17	-0.00	-0.19
Explanations	-0.09	-0.20	-0.22
Labels	-0.34** #	-0.23	-0.27*

NOTES: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ , † significant after Bonferroni correction, # marginally significant after Bonferroni correction.

production of word types was positively correlated with children's word types. Fathers' use of labeling during toy play was negatively associated with children's MLU. The majority of these associations held across ethnic groups with one exception. The relation between fathers' MLU and child MLU during toy play seemed to be driven by the Latino dyads ( $r = 0.41$ ,  $p = .02$ ), and was positive but not significant in the African-American sample ( $r = 0.22$ ,  $p = .19$ ).

Finally, we examined whether qualities of fathers' speech during book reading or toy play were associated with children's productive vocabulary measured outside of the interaction using the MCDI (Table 2). During the book reading interaction, the number of questions fathers asked, and particularly the number of *wh*-questions, was positively correlated with children's MCDI scores. During toy play, fathers' MLU was positively related to children's MCDI scores, and fathers' production of labels was negatively related to MCDI scores, yet these relations during toy play were no longer significant with the strict Bonferroni correction (see Table 2). Findings were similar for African-American and Latino dyads separately. However, the relation between fathers' MLU and child MCDI

score during toy play was not significant for African-American dyads ( $r = 0.15$ ,  $p = .36$ ), yet it was significant for the Latino dyads ( $r = 0.40$ ,  $p = .02$ ).

## DISCUSSION

The current study adds to the previous literature by showing that low-income fathers' child-directed speech differs across book reading and toy play contexts, and that unique characteristics of father speech within each context are associated with children's language skills. Thus, different contexts elicit specific qualities of speech from fathers that may promote toddlers' language learning in different ways.

We found that fathers talked more, used more diverse vocabulary, provided more labels, and asked more questions during book reading than toy play. While reading, fathers' utterances often focused around labels for pictures in the book, either providing a label or eliciting one from the child. In turn, children often repeated the label provided or responded to an elicitation with a label (see Table 3 for examples of book reading interactions). It has been suggested that book reading both directly and indirectly scaffolds children's speech through providing concepts to talk about and eliciting the use of a wider vocabulary by the child and the parent, which in turn may promote the child's language development (Hoff, 2010). In their analysis of communicative intents across contexts, Yont and colleagues (2003) found that mothers more often use language as a conversational tool during book reading by focusing their talk on the book and the ideas it presents. However, during toy play mothers more often use language as an instrumental tool, negotiating the environment and their child's behavior. We find support for this argument, as the fathers in our study also produced more directives and explanations during toy play than during book reading (see Table 4 for examples of toy play interactions). Importantly, however, we also found that fathers exhibited greater syntactic complexity in their speech during toy play than during book reading, and that this quality of the input during toy play might be beneficial for children's language learning, as it was associated with the children's speech complexity during the interaction and their general vocabulary skill. This finding is in contrast to previous research (Hoff-Ginsberg, 1991), in which mothers produced more complex utterances during book reading than toy play. It is possible that fathers' greater use of explanations during toy play resulted in them also producing more complex utterances, as this type of language is found to be particularly rich (Demir, Rowe, Heller, Goldin-Meadow & Levine, 2015).

As expected, features of fathers' and children's speech within each context were associated. It was the exact features of fathers' child-directed speech which differed across contexts that were related to children's general

TABLE 3. *Examples of father-child book reading interactions*

Example 1		Example 2	
Father:	this is a goat. (points to picture of goat)	Father:	what's that? (points to picture of sun)
Child:	this a goat.	Father:	the sun?
Father:	mmhm. (turns page)	Father:	it's morning time huh? (turns page)
Father:	you know what this is? (points to picture of pig)	Child:	a spider! (points to picture of spider)
Child:	yeah. (nods head)	Father:	oh man.
Father:	that's a pig.	Child:	xxx spider.
Child:	it a pig. (points to picture of pig)	Father:	yes.
Father:	say oink oink.	Father:	what's he doing?
Child:	it say oink oink.	Child:	xxx.
Father:	mmhm. (turns page)		...
Father:	what's that? (points to picture of dog)	Father:	see that big horsie? (points to picture of horse)
Child:	a Max. (points to picture of dog)	Child:	horsie. (smiles and points to picture of horse)
Father:	a Max [laughs]?	Father:	big horsie. (turns page)
Father:	that's right.	Child:	xxx.
Father:	it's a dog.	Father:	that's a goat. (points to goat)
Child:	it a dog.		

vocabulary skill measured outside the interaction (and by mothers). For example, fathers asked more questions (and in particular *wh*-questions) during book reading than toy play, and fathers' use of *wh*-questions during book reading was positively related to children's productive vocabulary on the MCDI. This is in line with our previous research with a subset of the sample showing that fathers' conversational-eliciting utterances across contexts are associated with children's productive vocabulary (e.g. Leech *et al.*, 2013). During toy play, fathers' speech was more complex than during book reading, and the complexity of fathers' speech in this context was positively related to children's general vocabulary production on the MCDI. A similar relation has been shown between the complexity in mothers' child-directed speech and children's vocabulary development across early childhood (Hoff & Naigles, 2002). It is possible that these previous findings in other studies (e.g. Hoff & Naigles, 2002; Leech *et al.*, 2013) may blur specific context effects in combining all of the input and child language measures across contexts. Our current findings suggest that the specific tasks father-child dyads are engaged in influence the type of child-directed speech that the father

TABLE 4. *Examples of father-child toy play interactions*

Example 3		Example 4	
Father:	put it in the pan.	Father:	you put the cow in the stall.
Father:	can you put it back together?	Father:	put him in here.
Child:	o. (putting slices in the pan)	(points to stall)	
Father:	do you want me to help you?	Child:	okay.
Child:	okay.	(puts cow toy in barn)	
Father:	like this.	Child:	no.
Father:	sit it in here like this.	(puts cow toy in tractor)	
	(puts pizza slice into pan)	Father:	no.
Father:	then put this one.	(shakes head)	
Father:	okay.	Father:	the cow can't go drive a tractor.
Father:	get another one.	(takes cow and puts it in barn)	
	(points to slice)	Father:	there you go.
Child:	o.	Father:	alright.
	(picks up slice)	Father:	where does the horsie go?
Father:	set it right here.	Child:	right there.
	(points to empty spot in pan)	(taps horse on top of barn)	
Father:	turn it around.	Father:	the horse is gonna have to go in
Child:	o.	the stall too.	
	(puts pizza slice in pan)	Child:	in this stall.
		(puts horse toy in stall, closes door)	
		Father:	close it up.
		Father:	that's right.

produces as well as the child's language contributions and potentially language development. This is clear from the previous studies on context differences in maternal child-directed speech as well (e.g. Hoff-Ginsberg, 1991; Yont *et al.*, 2003), and has implications for interventions designed to promote and elicit specific qualities of child-directed speech.

All of our participants were low-income minority fathers, and our findings, overall, were very similar for the African-American fathers and Latino fathers in this sample, with one exception worthy of discussion. During toy play, the relation between the complexity of fathers' speech and children's language skill in this context was driven by the Latino dyads, and was not significant for the subset of African-American fathers. There was no difference in MLU for the Latino fathers versus the African-American fathers, so the difference is not related to the variation in MLU in the input and must be due to some other factor. Children, on the other hand, did differ in MLU (African-American children produced greater MLUs than their Latino peers), so it is possible that differences within the children's speech were driving the different patterns seen across the two ethnic groups.

Finally, the current study has a few limitations worth mentioning. First, we do not have comparable measures from mothers. Thus, we were not

able to directly compare both parents in their speech across contexts. Second, all of the dyads engaged in book reading first, as in other similar studies (e.g. Hoff-Ginsberg, 1991; Lewis & Gregory, 1987; Rondal, 1980; Yont *et al.*, 2003), so it is possible that warm-up or order effects are driving some of the differences we see. Third, under the Bonferroni correction a few significant relations were no longer significant. This correction is particularly conservative, however. Similar research could be conducted with larger samples to determine the robustness of our findings. Further, observed interactions, as were utilized in the current study, might feel artificial for some parents and influence their speech, and such observational effects may differ across parent gender, socioeconomic status, ethnicity, or even language. We were unable to address such concerns in the current analysis. Despite these limitations, the current findings add to the existing research on the role of fathers' linguistic input in children's language development. Previous research highlights book reading as a context that elicits particularly rich language from mothers, and accordingly parents are often encouraged to read to their children frequently. The current findings support that claim as it concerns fathers' speech, and suggest that fathers and mothers approach book reading and toy play interactions with their toddlers in similar ways. However, unique characteristics of fathers' child-directed speech during toy play, specifically the increased syntactic complexity of that speech, may also foster children's language development.

## REFERENCES

- Baker, C. E. (2013). Fathers' and mothers' home literacy involvement and children's cognitive and social emotional development: implications for family literacy programs. *Applied Developmental Sciences* 17, 184–97.
- Baker, C. E., Vernon-Feagans, L. & The Family Life Project Investigators (2015). Fathers' language input during shared book activities: links to children's kindergarten achievement. *Journal of Applied Developmental Psychology* 36, 53–9.
- Beals, D. E. (2001). Eating and reading: links between family conversations with preschoolers and later language and literacy. In D. K. Dickinson & P. O. Tabors (eds), *Beginning literacy with language: young children learning at home and school*, 75–92. Baltimore, MD: Paul Brookes.
- Boller, K., Bradley, R., Cabrera, N., Raikes, H. H., Pan, B., Shears, J. & Roggman, L. (2006). The Early Head Start father studies: design, data collection, and summary of father presence in the lives of infants and toddlers. *Parenting* 6, 117–43.
- Cabrera, N. J., Ryan, R. M., Shannon, J. D., Brooks-Gunn, J., Vogel, C., Raikes, H., ... Cohen, R. (2004). Low-income fathers' involvement in their toddlers' lives: biological fathers from the Early Head Start Research and Evaluation Study. *Fathering* 2, 5–30.
- Cabrera, N. J., Shannon, J. D. & Tamis-LeMonda, C. S. (2007). Fathers' influence on their children's cognitive and emotional development: from toddlers to pre-K. *Applied Developmental Science* 11, 208–13.
- Carlson, M. J. & Magnuson, K. A. (2011). Low-Income fathers' influence on children. *Annals of the American Academy* 635, 95–116.

- Davidson, R. G. & Snow, C. E. (1996). Five-year-olds' interactions with fathers versus mothers. *First Language* **16**, 223–42.
- Demir, O. E., Rowe, M., Heller, G., Goldin-Meadow, S. & Levine, S. C. (2015). Vocabulary, syntax, and narrative development in typically developing children and children with early unilateral brain injury: early parental talk about the *there-and-then* matters. *Developmental Psychology* **51**, 161–75.
- Dickinson, D. K. & Tabors, P. O. (2001). *Beginning literacy with language: young children learning at home and school*. Baltimore, MD: Paul Brookes.
- Fenson, L., Pethick, S., Renda, C., Cox, J. L., Dale, P. S. & Reznick, J. S. (2000). Short-form versions of the MacArthur Communicative Development Inventories. *Applied Psycholinguistics* **21**, 95–115.
- Gleason, J. B. (1975). Fathers and other strangers: men's speech to young children. In D. P. Data (ed.), *Developmental psycholinguistics: theory and application* (pp. 289–97). Washington, DC: Georgetown University Press.
- Hart, B. & Risley, T. R. (1995). *Meaningful differences in the everyday experience of young American children*. Baltimore, MD: Brookes Publishing.
- Hladik, E. G. & Edwards, H. T. (1984). A comparative analysis of mother–father speech in the naturalistic home environment. *Journal of Psycholinguistic Research* **13**, 321–32.
- Hoff, E. (2010). Context effects on young children's language use: the influence of conversational setting and partner. *First Language*, **30** 461–72.
- Hoff, E. & Naigles, L. (2002). How children use input to acquire a lexicon. *Child Development* **73**, 418–33.
- Hoff-Ginsberg, E. (1991). Mother–child conversation in different social classes and communicative settings. *Child Development* **62**, 782–96.
- Hofferth, S. L. & Sandberg, J. F. (2001). How American children spend their time. *Journal of Marriage and Family* **63**, 295–308.
- Jones, C. P. & Adamson, L. B. (1987). Language use in mother–child and mother–child–sibling interactions. *Child Development* **58**, 356–66.
- Leaper, C., Anderson, K. J. & Sanders, P. (1998). Moderators of gender effects on parents' talk to their children: a meta-analysis. *Developmental Psychology* **34**, 3–27.
- Leech, K. A., Salo, V. S., Rowe, M. L. & Cabrera, N. J. (2013). Father input and child vocabulary development: the importance of wh-questions and clarification requests. *Seminars in Speech and Language* **34**, 249–259.
- Lewis, C. & Gregory, S. (1987). Parents' talk to their infants: the importance of context. *First Language* **7**, 201–16.
- MacWhinney, B. (2000). *The CHILDES project: tools for analyzing talk*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Malin, J. L., Cabrera, N. J. & Rowe, M. L. (2014). Low-income minority mothers' and fathers' reading and children's interest: longitudinal contributions to children's receptive vocabulary skills. *Early Childhood Research Quarterly* **29**, 425–32.
- Masur, E. & Gleason, J. B. (1980). Parent–child interaction and the acquisition of lexical information during play. *Developmental Psychology* **16**, 404–9.
- McLaughlin, B., White, D., McDevitt, T. & Raskin, R. (1983). Mothers' and fathers' speech to their young children: similar or different? *Journal of Child Language* **10**, 245–52.
- Ninio, A. (1983). Joint book reading as a multiple vocabulary acquisition device. *Developmental Psychology* **19**, 445–51.
- Pancsofar, N. & Vernon-Feagans, L. (2006). Mother and father language input to young children: contributions to later language development. *Journal of Applied Developmental Psychology* **27**, 571–87.
- Pancsofar, N., Vernon-Feagans, L. & The Family Life Project Investigators (2010). Fathers' early contributions to children's language development in families from low-income rural communities. *Early Childhood Research Quarterly* **25**, 450–63.
- Rogoff, B. (1990). *Apprenticeship in thinking: cognitive development in social context*. New York, NY: Oxford University Press.

- Rondal, J. A. (1980). Fathers' and mothers' speech in early language development. *Journal of Child Language* **7**, 353–69.
- Rowe, M. L., Coker, D. & Pan, B. A. (2004). A comparison of fathers' and mothers' talk to toddlers in low-income families. *Social Development* **13**, 278–91.
- Rowe, M. L., Raudenbush, S. W. & Goldin-Meadow, S. (2012). The pace of vocabulary growth helps predict later vocabulary skill. *Child Development* **83**, 508–25.
- Tamis-LeMonda, C. S., Baumwell, L. & Cristofaro, T. (2012). Parent–child conversations during play. *First Language* **32**, 413–38.
- Tamis-LeMonda, C. S., Shannon, J. D., Cabrera, N. J. & Lamb, M. E. (2004). Fathers and mothers at play with their 2- and 3-year-olds: contributions to language and cognitive development. *Child Development* **75**, 1806–20.
- Tomasello, M., Conti-Ramsden, G. & Ewert, B. (1990). Young children's conversations with their mothers and fathers: differences in breakdown and repair. *Journal of Child Language* **17**, 115–30.
- Vygotsky, L. S. (1978). *Mind in society: the development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Walker, K. & Armstrong, L. (1995). Do mothers and fathers interact differently with their child or is it the situation which matters? *Child: Care, Health and Development* **21**, 161–81.
- Weizman, Z. O. & Snow, C. E. (2001). Lexical input as related to children's vocabulary acquisition: effects of sophisticated exposure and support for meaning. *Developmental Psychology* **37**, 265–79.
- Yont, K. M., Snow, C. E. & Vernon-Feagans, L. (2003). The role of context in mother–child interactions: an analysis of communicative intents expressed during toy play and book reading with 12-month-olds. *Journal of Pragmatics* **35**, 435–54.