Fathers' language input during shared book activities: Links to children's kindergarten achievement

Claire E. Baker *, Lynne Vernon-Feagans, The Family Life Project Investigators

University of North Carolina at Chapel Hill, United States

A B S T R A C T

The present study used data from the Family Life Project (FLP) to examine predictive relations between fathers' and mothers' language input during a wordless picture book task in the home just before kindergarten entry and children's letter–word identification, picture vocabulary, and applied problems scores at the end of kindergarten. Fathers' and mothers' language input was defined as the number of different words and mean length of utterance and was measured using Systematic Analysis of Language Transcripts (SALT). Hierarchical regression analyses with demographic controls revealed that mothers' mean length of utterance predicted children's applied problems scores. More importantly, fathers' mean length of utterance predicted children's vocabulary and applied problems scores above and beyond mothers' language. Findings highlight the unique contribution of fathers to children's early academic achievement. Implications for future research, practice, and policy are discussed.

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Maternal language input has been positively and consistently linked to children's developmental outcomes (Hoff, 2003, 2006). In fact, Hart and Risley's (1995) seminal work linked maternal language input to children's vocabulary development, which in turn predicted more advanced emergent literacy skills. Although numerous studies support the salience of maternal language input to children's academic-related outcomes, few studies have included both mothers and fathers (Bornstein, Haynes, & Painter, 1998; Lamb, 2004; Pancsofar & Vernon-Feagans, 2006; Pleck, 2010; Tamis-LeMonda, Baumwell, & Cabrera, 2013). In addition, most extant research on parenting has focused on urban or middle class families, with much less emphasis on families living in rural poverty. Thus, a deeper understanding of the associations between fathers' and mothers' language input and children's early academic achievement is needed, especially among children who experience risks due to contextual factors.

Emergent literacy is a gradual process that begins at birth and continues until children can formally read and write (Lonigan & Whitehurst, 1998). A key component of emergent literacy is the interdependence of several parts, namely, language, speaking, listening, reading, and writing (Lonigan & Wasik, 2004). Many children acquire their earliest language and literacy skills during shared book activities in the home. It is postulated that mothers who provide appropriate scaffolding and work within their child's zone of proximal development during joint book activities can enhance children's academic achievement in a variety of domains (Vygotsky, 1987). Although less research

has included fathers, there is growing evidence that fathers' participation in shared book activities can support children's reading and math skills in preschool and kindergarten (Baker, 2013; Duursma, Pan, & Raikes, 2008; Pancsofar, Vernon-Feagans, & Family Life Project Investigators, 2010). The primary goal of this study was to understand whether and how fathers' and mothers' language input during a shared book activity in the home just before kindergarten entry was related to children's academic achievement at the end of the kindergarten year. Two specific research questions were examined after controlling for demographics. First, what are the predictive relations between mothers' language input at 60 months of age (i.e., just before kindergarten entry) and children's kindergarten achievement (i.e., letter–word identification, picture vocabulary, and applied problems)? Second, does fathers' language input predict children's kindergarten achievement above and beyond mothers' language input?

Theoretical and empirical foundations

Ecological theory framed this study and guided the selection of demographic factors that were included as controls in our analyses (Bronfenbrenner & Morris, 1998). Ecological theory posits that home environments represent the most salient and enduring context for child development. Within the family context, processes related to early parenting can impede or enhance children's academic development and preparation for school. Particularly important are the proximal processes (e.g., shared book activities between parent and child) that drive differences in children's emergent literacy and academic achievement. Empirical research has shown that parent language input that is focused on shared learning activities can enhance children's language, literacy, and academic skills (Hoff, 2003; Vernon-Feagans,

* Corresponding author at: Applied Developmental Science, Child Development and Family Studies, University of North Carolina at Chapel-Hill, 119 Peabody Hall CB#3500, Chapel Hill, NC 27599. Tel.: +1 919 843 5099 (office_1), +1 919 966 5962 (office_2).
E-mail address: Claire.baker@unc.edu (C.E. Baker).

2008). Thus, ecological theory and prior language and literacy research provide a valuable context for examining fathers' and mothers' language input in relation to children's kindergarten achievement.

Parent language input and child development

Cognitive stimulation during adult–child joint attention activities has been linked to children's language and literacy development (Baker, Cameron, Rimm-Kaufman, & Grissmer, 2012; Hoff, 2003; Snow, 1972; Snow, Burns, & Griffin, 1998). Much of the previous research has focused on mothers because they are the primary caregivers in most children's lives. Particularly important in these studies has been maternal language diversity (often operationalized as number of different words) and maternal language complexity (often operationalized as mean length of utterance). For example, Hoff (2003) examined maternal language input (i.e., number of different words and mean length of utterance) in relation to 2-year-olds' vocabulary development. She found that children from higher income families had mothers who used longer mean length utterances, which fully explained differences in vocabulary development between high-income and mid-income children. Similarly, Rowe et al. (2004) found that a composite measure of primary caregiver language that included lexical diversity and syntactic complexity predicted children's later vocabulary development. In a more recent study, Huttenlocher, Waterfall, Vasilyeva, Vevea, and Hedges (2010) found that both maternal language diversity (vocabulary) and syntactic clausal diversity (complexity) predicted children's later language development.

One experimental context that has been widely used to measure maternal language input has been the shared book-reading situation (Ninio & Bruner, 1978). Researchers have consistently demonstrated that mother–child book-reading interactions enhance children's vocabularies (Ninio, 1983; Raikes et al., 2006; Sénéchal, 2006; Sénéchal & LeFevre, 2002; Sénéchal, LeFevre, Hudson, & Lawson, 1996), expose children to print and literacy conventions, and stimulate metalinguistic awareness (Dickinson, de Temple, Hirschler, & Smith, 1992; Snow & Ninio, 1986). Similarly, during parent–child picture book tasks parents ask a high percentage of questions, adjust their teaching strategies to the skill level of their children, and produce more abstract utterances and questions as their children become more proficient in participating in the activities (Anderson-Yockel & Haynes, 1994; Ninio & Bruner, 1978; Pellegrini, Perlmutter, Galda, & Brody, 1990; van Kleeck, Gillam, Hamilton, & McGrath, 1997). It is hypothesized that these kinds of activities expose children to the decontextualized language that will be presented in early childhood classrooms (Snow et al., 1998). Thus, the potential importance of the wordless picture book task for understanding children's ability to respond to the academic demands of kindergarten should not be underestimated.

Given the data pointing to the importance of shared book activities for children's learning and development, it is somewhat surprising that almost all of the aforementioned studies focused exclusively on mothers. Although the focus on fathers has been meager, recent research has shown that fathers' participation in home learning activities (e.g., shared book reading, telling stories, and singing songs) is positively associated with children's literacy and math-related skills (Baker, 2014; Duursma et al., 2008; Pancsofar & Vernon-Feagans, 2006; Tamis-LeMonda et al., 2013). For example, one small-scale study of father language input in middle-income families found that fathers who used more diverse vocabulary (i.e., number of different words) with their young children during a triadic play situation with the mother had children with better expressive language skills at 36 months of age. Further, father language input predicted child language outcomes even after controlling for parent education, the quality of childcare, and maternal diversity of vocabulary (Pancsofar & Vernon-Feagans, 2006). Similarly, in a large-scale study of low-income rural families, Pancsofar et al. (2010) found that fathers' language input during shared book activities in the home at 6-months was positively related to

infants' communication skills at 15 months and toddlers' expressive vocabulary at 36 months. Their findings were evident even after controlling for mothers' language input.

Several studies with fathers point to the significance of early childhood when examining father–child home learning activities and highlight the importance of considering fathers' race, income, and education. For example, one longitudinal study of preschool children found that father–child book reading was associated with language development only among children whose fathers had at least a high school education (Duursma et al., 2008). A more recent nationally representative study showed that African American and Caucasian fathers who engaged in more frequent shared book reading, telling stories, and singing songs across the toddlerhood period had children with more advanced reading and math scores in preschool and these relations were influenced by race. Specifically, children of African American fathers scored just as well as children of Caucasian fathers on preschool reading tests, but lower on preschool math tests (Baker, 2013). These findings turn our attention to the contribution of demographic characteristics to parenting and child development.

Demographic characteristics and child development

It is well established that demographic characteristics are significantly related to parenting and child development (Baker & Rimm-Kaufman, 2014; McLoyd, 1998; Shonkoff & Phillips, 2000). Scholars have consistently argued that well educated parents with more financial capital are better equipped to engage their children in intellectually stimulating activities, which can foster cognitive growth and development (Lareau & Weininger, 2003). For example, Davis-Kean (2005) found that family income and parent education positively influenced parenting practices, which in turn predicted children's academic achievement. Although there is less research on parental age, older parents tend to be more educated since they've had more time to finish their education prior to childbearing (Mollborn & Dennis, 2012; Mollborn & Lovegrove, 2011). In addition, greater life experience coupled with more years of formal education often translates into more optimal parenting and child achievement (Baker & Iruka, 2013). Consequently, the present study controlled for seven demographic characteristics including: Family income, maternal education, paternal education, maternal age, paternal age, and child race. Further, because the Family Life Project (FLP) data were collected from two states we also controlled for children's state of residence (i.e., NC and PA).

The present study

The present study used data from the Family Life Project (FLP) to examine whether and how fathers' and mothers' language input was related to children's kindergarten achievement. Empirical research supports the salience of parents' number of different words and mean length of utterance to children's learning outcomes (Hoff, 2003; Huttenlocher et al., 2010; Vernon-Feagans, 2008). Therefore, parent language input was operationalized as the number of different words and mean length of utterance measured during a wordless picture book task in the home. We hypothesized that mothers' language input would positively predict children's kindergarten achievement. Further, based on findings from prior FLP research (e.g., Pancsofar et al., 2010) we hypothesized that fathers' language input would predict children's kindergarten achievement above and beyond mothers' language input.

Method

Participants and design

The FLP was designed to study families who lived in two of the four major geographical regions in the Eastern U.S. with the highest rural child poverty rates (Dill, 1999). Specifically, three counties in Eastern