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# Parent–Child Book-Reading Styles, Emotional Quality, and Changes in Early Head Start Children’s Cognitive Scores

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## Abstract

**Research Findings:** The objective of this study was to understand how instructional book-reading style and emotional quality of reading interact and relate to cognitive skills in a sample of at-risk infants and toddlers. Participants were 81 parents and their children participating in Early Head Start programs in the rural Midwest. Correlation and multiple regression analyses were used to test the hypothesis that parental book-reading instructional style and emotional quality interact and relate to changes in children’s cognitive scores for culturally and linguistically diverse families. Results included that there were variations in how book-reading qualities interacted and related to changes in child cognitive scores for families whose primary home languages were either English or Spanish.

**Practice or Policy:** The results of this study are discussed in conjunction with findings from a previous study published in this journal that examined concurrent relationships in the same sample of Early Head Start families. Combined, findings of these studies underscore a need to further explore potentially complex patterns of relationships among parental literacy behaviors and child knowledge, concurrently and across time, for culturally and linguistically diverse families. Better understanding these patterns could inform the development and implementation of culturally sensitive intervention approaches designed to support high-quality parent–child book reading.

Helping your child become a reader is the single most important thing that you can do to help the child to succeed in school—and in life.—U.S. Department of Education (2008, para. 2)

To “immunize” kids against illiteracy, break out a book in infancy.—National Public Radio (2014)

Parents provide the earliest contexts for their children’s learning and development through the “curriculum of the home” (Walberg, 1984, p. 400). Learning opportunities provided by parents are one pathway for promoting the skills that children need to be successful in school, including in the domains of cognitive, language, and emergent literacy development (Bradley, Caldwell, & Rock, 1988; Clarke-Stewart, 1973; Foster, Lambert, Abbott-Shinn, McCarty, & Franze, 2005; Hill, 2001; Payne, Whitehurst, & Angell, 1994; Roberts, Jurgens, & Burchinal, 2005; Weigel, Martin, & Bennett, 2006). Reading with young children is widely recognized as an important activity for supporting school readiness. This message not only is prominent in the research community but is disseminated to parents through the media and policy efforts. The preceding quotations illustrate the growing emphasis placed on book sharing and helping children learn to read. The second quotation provided, the title of a National Public Radio story that featured an interview with literacy researcher Susan Neuman, suggests to parents that it is never too early to start this practice.

Though shared book reading is certainly not the only opportunity that children have to gain valuable experiences that support school readiness competencies, this activity is characterized by numerous salient features that make it an especially rich context for learning (e.g., Dickinson & Tabors, 2001). Early experience with books exposes children to text, affording them the opportunity to become familiar with concepts and conventions of print. Shared book reading may help build children's vocabularies by offering exposure to rare or novel words, such as *glacier* and *platypus*, that are not included in typical everyday conversations but that are featured in books. The book-reading context may also provide a unique opportunity to engage in cognitively demanding, complex discussions that parallel the academic demands that will be made on children when they enter formal school settings. In addition, warm, affectionate interactions with adults in the context of shared book reading may promote in children a love of books and motivation to read (Dickinson & Tabors, 2001).

Although reading with children is a widely promoted practice, the extent to which parents and children engage in this activity varies. Families with higher incomes have been found to engage in more frequent book reading than families with lower incomes (Bradley, Corwyn, McAdoo, & Garcia Coll, 2001; Chen, Pisani, White, & Soroui, 2012; O'Donnell, 2008). Variations in how often families read have also been observed across racial/ethnic and cultural groups, with Latino and Black parents reporting engaging in less frequent book reading than White parents (Chen et al., 2012). These variations are important because research has demonstrated that how often parents read with their children is related to the children's language and literacy outcomes, including for infants and toddlers (e.g., Bus, van IJzendoorn, & Pellegrini, 1995; Ninio, 1983; Raikes et al., 2006; Zill & Resnick, 2006).

It is important to note that although the quantity of book reading is significant, research also shows that the quality of book-reading interactions matters (e.g., Bingham, 2007; Haden, Reese, & Fivush, 1996; Leseman & de Jong, 1998, 2001). Parents adopt a wide range of styles and approaches related to the instructional and emotional qualities of their shared book reading, and these choices can have implications for children's experiences and learning.

### Instructional Quality and Book-Reading Style

Parent and child behaviors during book-reading interactions may vary greatly, including in book reading with infants and toddlers. Parent-child book reading may be characterized by parental use of a variety of instructional behaviors, including but not limited to using attention-getting strategies, pointing to pictures, labeling, questioning, and offering additional information (DeLoache & De Mendoza, 1987; Murphy, 1978; see Fletcher & Reese, 2005, for a review). An aspect of instructional quality emphasized in some previous studies has been the use of extratextual talk. Extratextual talk includes conversation that moves beyond the strict reading of the text and takes off in directions of interest to the child and/or parent. The amount of extratextual talk (i.e., quantity) as well as the cognitive demand of that talk (i.e., quality; assessing whether talk moves beyond simple labeling to higher order thinking, including reasoning and making predictions about what is being read; Leseman & de Jong, 1998, 2001) contribute to understanding how parents use talk as a way to provide instructional opportunities during shared reading.

Book-reading styles that emphasize active child participation and elicit cognitively demanding conversation are widely viewed as most beneficial for supporting children's learning (e.g., National Institute for Literacy, 2008). This style of reading has been commonly observed among middle-income, U.S. American parents of European descent (see the discussion in van Kleeck, 2006). The use of less interactive book-reading styles has more commonly been observed among parents who are socioeconomically disadvantaged and parents from some cultural groups (e.g., McNaughton, 1995; Ninio, 1980; van Kleeck, 2006). Interventions designed to increase parents' use of more interactive and cognitively challenging reading strategies (i.e., dialogic reading) have indeed been found to effectively promote preschoolers' and toddlers' language and emergent literacy learning in some populations, including low-income children participating in Head Start (e.g., Whitehurst, Arnold, et al., 1994; Whitehurst, Epstein, et al., 1994; Whitehurst et al., 1999).

Some research involving Latino families points to a need to more closely examine how specific instructional behaviors may function within different cultural contexts. Research emphasizes cultural variations in preferred styles of shared book reading and the roles that parents and children assume during this activity (Caspe & Melzi, 2008; Melzi & Caspe, 2005; Rodríguez, Hines, & Montiel, 2009; van Kleeck, 2006) and suggests that the relationship between behaviors during book reading and children's learning outcomes may be different for families from diverse cultural backgrounds (Caspe, 2009). Styles for sharing books (specifically wordless books) described in the literature (Caspe & Melzi, 2008; Melzi & Caspe, 2005) include a story-telling approach and a story-building approach. A story-telling approach involves placing distance between the narrator (typically the parent) and the audience (typically the child); the parent serves as the expert who narrates the story, whereas the child is the novice member of the dyad who listens. A story-building approach, in contrast, is characterized by a high level of back-and-forth dialogue and a question-and-answer format in which the parent and child work together to build, or co-construct, the meaning of the story. This latter style is the dialogic-focused approach described in the preceding paragraph that has been observed to be frequently adopted by middle-income U.S. Americans of European descent. Latino families, however, have been found to commonly prefer the story-telling style, which is conceptualized as being more closely aligned with beliefs and values regarding cross-generational communication and literacy socialization practices traditionally viewed as relevant in Latino culture. Furthermore, in contrast to widespread agreement that back-and-forth dialogue between parents and children during book sharing is generally the most supportive of children's learning, the use of a story-teller style was found to be associated with more positive literacy learning in a sample of Latino Head Start children (Caspe, 2009).

Informed by the aforementioned research literature, we were interested in investigating possible variations in another related, though not identical, characteristic of book-reading style—the degree to which parents engage in straight reading from the text and extratextual talk that moves beyond the text. We wanted to understand whether this feature of book reading might differentially contribute to the book-reading context and relate to learning for children from different linguistic and cultural backgrounds (Cline & Edwards, 2013). Our research was based on the assumption that higher proportions of *text reading* parallel with a *story-telling style* (i.e., the parent, reading the text, serves as the narrator for the child, who is the audience), whereas higher proportions of *extratextual talk* parallel with a *story-builder style* (i.e., the parent uses talk that moves beyond the text of the book to engage the child in co-building or constructing the story). We (Cline & Edwards, 2013) indeed found variations in how the use of text reading and extratextual talk related concurrently to young children's learning for a diverse sample of families, though our research also pointed to the importance of how these instructional behaviors were delivered within the context of the emotional atmosphere, which leads us into the discussion of this second dimension of the book-reading interaction.

## Emotional Quality

A less studied feature of parent-child book reading is the emotional quality of interactions, including the degree to which interactions are characterized by such parental behaviors as (a) warmth, sensitivity, and responsiveness to the child's cues and interests; (b) parents' use of strategies to increase the child's enjoyment of the activity, including reading with expression and excitement; (c) a high level of parental involvement and enjoyment, evidenced by smiling, laughing, and relevant talk; and (d) physical contact with the child. Although not as widely examined as the instructional qualities of book reading, the emotional qualities of this activity have been linked to preschool-age children's language and emergent literacy outcomes (e.g., Bingham, 2007; Leseman & de Jong, 1998, 2001; Sonnenschein & Munsterman, 2002). We recognized a need to further examine this dimension of parent-child book reading in samples of infants and toddlers when we designed our studies presented in Cline and Edwards (2013) and here.

Relevant to examining the emotional quality of parent-child book reading, Bus, van IJzendoorn, and colleagues (Bus, Belsky, van IJzendoorn, & Crnic, 1997; Bus & van IJzendoorn, 1988, 1992, 1995, 1997) utilized an attachment framework (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969) to examine links between the quality of the parent-child relationship, as indicated by attachment status, and the frequency and quality of parent-child book reading. Bus, van IJzendoorn, and colleagues theorized that because of their past experiences, children who had a secure attachment relationship with a parent would show more willingness to explore unfamiliar facets of their environment, such as book text that had representational meaning, and to trust their caregiver as a teacher in comparison to their counterparts without a secure attachment relationship with a parent. They also theorized that parents of securely attached children would be more effective and engaging instructors for their children during shared reading. Consistent with their hypotheses, they found in several studies that secure attachment status related to more frequent and higher quality book-reading interactions (Bus et al., 1997; Bus & van IJzendoorn, 1988, 1992, 1995, 1997), emphasizing the importance of the parent-child relationship and emotional considerations for understanding parent-child book-reading interactions. Their application of attachment theory to parent-child book reading provided the theoretical basis for our research presented in Cline and Edwards (2013) and the current study, which focuses on both instructional and emotional dimensions of book sharing.

### Interactions Between Instructional and Emotional Qualities

We (Cline & Edwards, 2013) hypothesized that the emotional quality of book reading would moderate the relationship between instructional behaviors and children's learning, and we completed an investigation of concurrent, interacting relationships among book-reading styles and emotional qualities demonstrated during parent-child book reading and Early Head Start (EHS) children's cognitive and receptive and expressive language skills. Study findings included the fact that the patterns of results differed for two primary home language subgroups involved in the study. In summary, when book sharing was observed as being high in emotional quality (i.e., high parental warmth, sensitivity, and attunement), general patterns of findings were observed: For families whose primary home language was English, book sharing that included a higher proportion of *extratextual talk* (i.e., talk that moves beyond the reading of the text of the book) was concurrently related to more advanced child knowledge as measured by the Bayley Scales of Infant Development (BSID; Bayley, 1993) and the Preschool Language Scale (Zimmerman, Steiner, & Pond, 2002a, 2002b). In contrast, for families whose primary home language was Spanish, book sharing that included a higher proportion of *direct text reading* was related to more advanced child knowledge. Patterns of findings were different at lower levels of emotional quality, emphasizing the importance of considering how instructional book-reading style and emotional quality potentially interact in predicting children's knowledge. The results raise the question of how such associations play out over time. Do different patterns of book-sharing styles differentially relate to *changes* in children's knowledge during infancy and toddlerhood?

The current study extends this previous work by addressing the following research questions for a diverse sample of EHS families:

1. How do parents' instructional book-reading styles change over an 8-month period?
2. To what degree do parents' instructional book-reading styles and emotional quality during parent-child book reading interact to predict changes in the infants' and toddlers' knowledge over this time period for families who speak English and Spanish as their primary home languages?

Specifically, this study examines how *changes* over time in instructional book-reading styles interact with emotional quality observed at *baseline*. Using an attachment framework (Ainsworth

et al., 1978; Bowlby, 1969) and Bus, van IJzendoorn, and colleagues' application of this theory in their work on book reading described previously as theoretical lenses, this study focuses on emotional quality at baseline. The parent-child relationship and emotional experiences during this earlier reading are conceptualized as being foundational and as serving as essential contextual features for subsequent book-reading experiences. As a note, whereas the previous study also included receptive and expressive language skills as criterion variables, this study is focused exclusively on changes in cognitive skills. This is because some children were assessed using the Spanish versions of the language assessments at the first assessment visit and the English versions of the language assessments at the subsequent assessment visit, which did not allow for the calculation of change scores.

## Methods

The current study is part of a larger longitudinal investigation (the Getting Ready project) examining the effects of an intervention to promote parental engagement and school readiness among families and children between the ages of birth to 5 in the rural Midwest living in poor socioeconomic conditions and at risk for academic, socioeconomic, and behavioral difficulties. The current study is not focused on the effects of the intervention, and data from participants in both the intervention and control conditions of the study are included. This study involves a secondary coding of observations of parent-child interactions collected from a subsample of participants (those who provided data at baseline and the 8-month post-baseline data collection point) representing both conditions of the study and an analysis of observational and child assessment data. As a note, the intervention was not designed to specifically influence the book-reading measures of the current study, and the results presented in this article do not measure intervention effects. For more information about the Getting Ready intervention and its efficacy, see Sheridan, Marvin, Knoche, and Edwards (2008), Sheridan, Knoche, Edwards, Bovaird, and Kupzyk (2010), Sheridan, Knoche, Kupzyk, Edwards, and Marvin (2011), and Knoche et al. (2012).

### *EHS Programs*

Participants in this study received EHS services from one of two different community agencies in four rural counties in Nebraska. EHS is a federally funded, community-based intervention program for low-income families with children younger than the age of 3 and pregnant women; it is designed to support the development of children and promote healthy family functioning. Refer to Cline and Edwards (2013) for an additional description of the EHS programs that served the project participants.

### *Participants*

This study utilizes data collected from the 81 parents and children who received home-based EHS services and participated in the larger study for a minimum duration of 8 months. See Table 1 for a summary of demographic characteristics of the children and parents at baseline. Note that because there is an interest in potential variations between primary home language subgroups related to the research questions, demographic and other information is provided for the full sample as well as the two primary home language subgroups (i.e., English, Spanish).

### *Procedures*

As part of the larger Getting Ready study, English-speaking or bilingual English-/Spanish-speaking trained and reliable data collectors administered all child assessments, conducted interviews, and facilitated parent-child interaction sessions that included book reading with English- or Spanish-speaking families. Data collected at baseline, the time of families' initial enrollment in the Getting



**Table 1.** Child and Parent Demographic Characteristics at Baseline.

Characteristic	Full Sample (N = 81)	Home Language	
		English (n = 59)	Spanish (n = 22)
Child mean age in months	13	13	13
Range	2–27	3–24	2–27
Child gender (%)			
Male	53	51	59
Female	47	49	41
Child race/ethnicity (%)			
White/non-Latino	62	87	0
Hispanic/Latino	34	11	100
Other	4	2	0
Child identified disability (%)	16	15	18
Parent mean age in years	25	24	26
Range	14–49	14–49	19–35
Parent relationship to the child (%)			
Mother	95	93	100
Father	4	6	0
Grandmother	1	1	0
Parent race/ethnicity (%)			
White/non-Latino	67	91	0
Hispanic/Latino	32	7	100
Other	1	2	0
Parent level of education (%)			
Less than a high school diploma	43	33	71
High school diploma/GED	27	33	10
Training beyond high school	30	34	19
Marital status (%)			
Married/with partner	37	43	81
Single/not with partner	63	57	19
Parent age at child birth (%)			
18 or younger	21	25	10
Receiving public assistance—yes (%)	96	96	95
Employment status (%)			
Not employed or in school	45	53	23
Cumulative risk <sup>a</sup> (%)			
One risk factor	18	15	24
Two risk factors	40	37	48
Three risk factors	25	27	19
Four risk factors	11	14	5
Five risk factors	6	7	5

GED = general equivalency diploma.

a. Risk factors include less than a high school education, single-parent household, 18 or younger at age of child birth, receiving public assistance, not employed or in school.

Ready project, and approximately 8 months post-baseline were used for the current study. Arrangements were made to complete the assessments at a location convenient for the family, including the children's centers or the families' homes. Parents completed a questionnaire to collect demographic and other information; children were administered cognitive and language assessments; and parents and children were videotaped engaging in a series of semistructured tasks, including book reading.

The videotaped semistructured parent-child interaction tasks were adapted from the procedures of the National Institute of Child Health and Human Development Early Child Care Research Network (2002). A blanket was laid on the floor, and parents were asked to sit on it with their child in view of the camera. Parents received verbal directions and materials for each task; one of the tasks, and the focus of this study, was parent-child book reading. For this task, parents and children were provided with two to four books. The books selected for the study included a combination of board books and fictional story books, including, for example, *My Colors/Mis Colo-*

res by Rebecca Emberly; *Brown Bear, Brown Bear* (*Oso Pardo, Oso Pardo*) by Bill Martin, Jr., and Eric Carle; and *The Grouchy Ladybug* (*La Mariquita Malhumorada*) by Eric Carle. The researchers carefully selected books that were considered developmentally appropriate for the ages of the children involved in the study and that were top sellers, which suggested that the pictures and text would appeal to families with young children. Some books were bilingual (Spanish-English), and other books were available in separate English and Spanish versions. The books that parent-child dyads received were dependent on the child's age and primary home language of the family. Parents were instructed to read with their children and told that they could read one or more of the books. The researchers did not specify in which language parents should talk to their children during the book-reading interactions, but we noticed that some parents who spoke Spanish as their primary home language used exclusively Spanish when reading to their children, whereas others used a combination of Spanish and English in their exchanges. The book-reading tasks lasted approximately 5 min, with the time being monitored by the research assistant.

### Measures

Three components of the current study are relevant for this article: coding of book-reading instructional style and emotional quality, assessment of children's cognitive skills, and demographic information reported by the parent. The processes for computing scores reflecting change in book-reading instructional style and in children's cognitive skills are also described here.

#### Observational Measures

Book-reading instructional style and emotional quality of book reading were coded from videotaped observations. Trained research assistants first transcribed all parent speech during the book-reading activity. Each of the parents' utterances was typed verbatim. An utterance was defined as a verbal statement or vocalization; it could be a full sentence, a phrase, a single word, or a non-word sound (e.g., "Mmm-hmmm") that carried social meaning and filled a conversational turn. After the first draft of a transcript was completed, a second research assistant watched the videotape and checked — and if necessary edited — the transcript to develop the final version to be used for coding. Although all transcripts were checked, approximately 10% of the transcripts ( $n = 16$ ) were also independently transcribed by another research assistant to obtain an agreement score. A mean agreement score of 95% was obtained for transcription of intelligible words (range = 89%–99% per sampled transcript).

**Book talk scores and reliability.** In order to produce a measure of book-reading instructional style aligning with the research focus and questions, transcripts were coded and a book talk score was calculated to reflect the degree to which parents used two general categories of talk: direct text reading and extratextual talk. As explained in our introduction, our research is based on the assumption that higher proportions of direct text reading parallel with a story-telling style (i.e., the parent, reading the text, serves as the narrator for the child, who is the audience), whereas higher proportions of extratextual talk parallel with a story-builder style (i.e., the parent uses talk that moves beyond the text of the book to engage the child in co-building or constructing the story).

Parents' talk during book reading was coded using procedures adapted from DeBaryshe (1995). Each parent utterance was coded as one of the following: (a) questions/requests (i.e., questions, requests for the child to complete a book-related action/gesture), (b) feedback (i.e., praise, correction), (c) book-related conversation/commentary (i.e., comments on book content, including text and pictures, that were not clearly in response to the child's utterances and that required no response from the child), (d) reading (i.e., direct reading and close paraphrasing), or (e) other utterances that were not relevant to the content of book and were not used in subsequent analyses of instructional quality (e.g., telling the child to come back to the blanket). It is worth noting that although dialogue coded as "other" was not used in calculating book talk scores (our measure of book-reading instructional style), some of these interactions (e.g., talk intended to manage the



child's behavior) were captured in and influenced the coding of emotional quality. In order to assess interrater reliability, two independent coders coded one third of the transcripts. Cohen's  $\kappa = .91$ , indicating adequate interrater reliability.

The frequency of questions/requests, feedback, book-related conversation/commentary, and reading utterances was used to determine the book talk scores used in the analyses. The numbers of questions/requests, feedback, and book-related conversation/commentary utterances were combined to determine the total number of book-relevant extratextual talk utterances. To determine the proportion of all book-relevant utterances categorized as extratextual talk (vs. direct text reading), we divided the total number of book-relevant extratextual talk utterances by the total number of book-relevant utterances (i.e., book-relevant extratextual talk + direct text reading) and then multiplied by 100. These scores, labeled *book talk scores*, illustrate the degree to which parents engaged in direct text reading and in extratextual talk along a continuum. Lower scores indicate more direct text reading, whereas higher scores indicate more extratextual talk. For example, a score of 50 on this measure indicates that the parent's utterances were equally split between direct text reading and engaging in extratextual talk that moves beyond the text, a score of 0 indicates that the parent was only engaging in direct text reading, and a score of 100 indicates that the parent was only engaging in extratextual talk.

In order to compute a change in book talk score to be used in subsequent analyses, we subtracted the baseline book talk score from the 8-month post-baseline book talk score. A score of 0 indicates no change in the proportions of talk that were extratextual talk versus direct text reading. Positive scores thus indicate relative increases in the use of extratextual talk, whereas negative scores indicate relative increases in direct text reading.

*Emotional quality and reliability.* The videotaped book-reading interactions were coded for emotional quality using items modified from Sonnenschein and Munsterman (2002) and the Parent/Caregiver Involvement Scale (Farran, Kasari, Comfort, & Jay, 1986). These items included (a) reading expression, (b) reader sensitivity to child's engagement, (c) child enjoyment and involvement (Sonnenschein & Munsterman, 2002), (d) parent's enjoyment of child, (e) parent's acceptance of child, (f) amount of positive statements/regard, and (g) amount of negative statements/regard (Parent/Caregiver Involvement Scale; Farran et al., 1986). In order to assess reliability, two independent coders coded one third of all videotaped observations; intraclass correlations for individual items ranged from .78 to .91 (average = .87), indicating adequate interrater reliability.

An emotional quality composite score was computed using the seven emotional quality items. This score was intended to provide an indicator of the general emotional atmosphere of the reading interaction. Coding was adjusted to keep all items on the same 1–5 scale (i.e., 1 = *low emotional quality*, 5 = *high emotional quality*). The mean of the seven items was used as a score of emotional quality; Cronbach's alpha for the composite score was .76, indicating adequate internal consistency.

### *Cognitive Skills*

The BSID-II (Bayley, 1993) Mental Scale was used to assess children's cognitive skills. The BSID-II is an individually administered test designed to assess the developmental status of infants and children ages 1–42 months. The BSID-II covers multiple domains of development and includes test items that relate to language, emergent literacy, early mathematics ability, social development, and motor skills. Raw scores on the Mental Scale were converted to age-normed Mental Development Index scores for the interpretation of children's performance. The mean (standard deviation) for the standardization sample is 100 (15).

A change in cognitive scores variable was computed to reflect the change in standardized cognitive scores (measured using the BSID-II) between the baseline assessment and the follow-up assessment. Although the data collection protocol involved assessing children at baseline and 8 months after baseline, there was variation in the actual number of months that elapsed between the two assessments ( $M = 10$  months,  $SD = 2$  months, range = 4–18 months). Given this variation, it seemed most appropriate to recode all change scores to be on a scale reflecting how much chil-

dren would be expected to change over 8 months. We figured the average change in cognitive score per month for each child by first computing the change in cognitive scores between the two assessment periods, divided by the number of months that had elapsed between the two assessment periods. This number was then multiplied by 8 to compute the change in standardized cognitive score scaled to 8 months.

### *Demographic Characteristics*

Demographic characteristics considered as part of the current study included child gender, child age, family's level of cumulative risk (see Table 1 for an explanation of risk factors), and primary home language. These data were collected from parents via interviews with trained research assistants. The language in which families requested to be assessed was considered their primary home language.

### *Data Analyses*

Descriptive analyses (i.e., mean, range, standard deviation) were completed for baseline and change score measures. Statistics were examined for the full sample as well as the two primary home language subgroups.

We examined intercorrelations between baseline emotional quality and changes in parents' book talk scores over the 8-month period and changes in children's cognitive scores across the same time frame. Analyses included correlations for the full sample as well as the two primary home language subgroups. We then used multiple regression analysis to address the research question regarding the degree to which parents' change in book talk and baseline emotional quality during parent-child book reading interacts to predict changes in children's cognitive skills for families who speak English and Spanish as their primary home languages. The predictor of interest in the model was the three-way interaction among change in book talk, baseline emotional quality, and family primary home language (English or Spanish).

## **Results**

### *Descriptive Statistics*

Descriptive statistics for baseline book talk scores, emotional quality scores, and child cognitive scores are presented in Table 2. Note that with the exception of baseline emotional quality scores, these scores were not included as variables in the regression model for this study. However, they are presented here to aid in the interpretation of findings because these baseline scores were used in calculating the change scores that were included as variables in the regression model. Additional information on baseline findings is available in Cline and Edwards (2013). In summary, on

**Table 2.** Descriptive Statistics for Measures at Baseline.

Variable	N	M	SD	Range	
				Min	Max
Baseline book talk scores					
Full sample	81	67	27	4	100
Home language: English	59	63	28	4	99
Home language: Spanish	22	76	21	14	100
Baseline emotional quality scores					
Full sample	81	3.4	0.7	1.6	4.6
Home language: English	59	3.5	0.7	1.9	4.6
Home language: Spanish	22	3.3	0.7	1.6	4.6
Baseline cognitive scores					
Full sample	77	91.96	12.70	50	114
Home language: English	57	90.25	13.34	50	112
Home language: Spanish	20	96.85	12.70	82	114

**Table 3.** Descriptive Statistics for Change Score Measures.

Variable	N	M	SD	Range	
				Min	Max
Change in book talk scores					
Full sample	81	2	32	-89	94
Home language: English	59	2	35	-89	94
Home language: Spanish	22	3	21	-35	55
Cognitive score change					
Full sample	73	-2.95	12.70	-34	20
Home language: English	56	-2.60	12.12	-34	20
Home language: Spanish	17	-4.14	12.63	-26	15

average, more than half of families' book talk at baseline was extratextual talk, with families who spoke Spanish as their primary home language having a higher proportion of talk that was extratextual talk ( $M = 76\%$ ) than those who spoke English as their primary home language ( $M = 63\%$ ) at baseline. However, it is important to note that there was a wide range of scores for both primary home language subgroups. Emotional quality scores at baseline were similar for both primary home language subgroups ( $M = 3.5$  for the English subgroup and  $M = 3.3$  for the Spanish subgroup on a scale that ranged from 1 to 5). Descriptive statistics showed that children in the study were below the national norming sample mean of 100 on the cognitive measure, with children whose primary home language was English having lower scores ( $M = 90.25$ ) than their primarily Spanish home language counterparts ( $M = 96.85$ ).

Descriptive statistics for changes in book talk scores (included as a predictor in the regression model) and changes in cognitive scores (included as the criterion variable in the regression model) are presented in Table 3. The mean change in book talk scores for the full sample was a 2% increase, meaning that families only slightly increased the proportion of their book-reading talk that was extratextual talk. The means for the two language subgroups were similar (a 2% increase for the primarily English-speaking home language subgroup and a 3% increase for the primarily Spanish-speaking home language subgroup). However, the range of how book talk changed to include different proportions of text reading and extratextual talk was much wider for the primarily English-speaking home language subgroup ( $SD = 35$ ; range = decreasing by 89% to increasing by 94%) than for the primarily Spanish-speaking home language subgroup ( $SD = 21$ ; range = decreasing by 35% to increasing by 55%). This means that some parents' talk (those with negative scores on the measure) was becoming much more focused on direct text reading, whereas other parents' talk (those with positive scores on the measure) was becoming much more focused on extratextual talk, with the range of changes much more pronounced among the subgroup of families who spoke English as their primary home language. On average, children's standardized cognitive scores decreased over the course of the 8-month study, with this trend applying to children from both the English primary home language ( $M = -2.60$ ) and Spanish primary home language ( $M = -4.14$ ) subgroups.

### Correlational Analyses

Correlations between (a) change in book talk and baseline emotional quality and (b) change in cognitive scores for the full sample and two primary home language subgroups are presented in Table 4. None of the correlations were statistically significant, though the correlation between baseline emotional quality and change in cognitive scores approached statistical significance for families who spoke Spanish as their primary home language ( $r = .41, p = .10$ ). A positive correlation suggests that for these families, having high emotional quality at baseline was associated with more positive change in cognitive scores for children over eight months.

**Table 4.** Intercorrelations Between Predictor and Outcome Variables.

Variable	Change in Cognitive Scores
Change in book talk	
Full sample	-.03
Home language: English	-.05
Home language: Spanish	.09
Baseline emotional quality	
Full sample	.15
Home language: English	.08
Home language: Spanish	.41 <sup>†</sup>

<sup>†</sup>  $p \leq .1$

### Regression Analyses

We tested regression models corresponding with the study goals as planned. Results from the regression model including the three-way interaction among change in book talk scores, baseline emotional quality, and primary home language as a predictor of change in children's cognitive scores are presented in Table 5. The model included child gender, child age, and family level of cumulative risk as control variables. The amount of variance accounted for by the model approached significance ( $R^2 = .24$ ,  $F(10, 62) = 1.97$ ,  $p = .052$ ). The three-way interaction was a statistically significant predictor in the model ( $p < .05$ ).

Graphs designed to aid in the interpretation of the three-way interaction among baseline emotional quality, changes in book talk (i.e., changes in the proportion of talk that was direct text reading and that was extratextual), and family primary home language in predicting changes in cognitive scores over the 8 months of the study are presented in Figure 1.

As shown in the figure, these patterns were observed for families whose primary home language was English: When baseline emotional quality was low, parents whose book reading became more focused on direct text reading had children with better cognitive score trajectories. However, when baseline emotional quality was high, parents whose book reading became more focused on extratextual talk had children with better cognitive score trajectories.

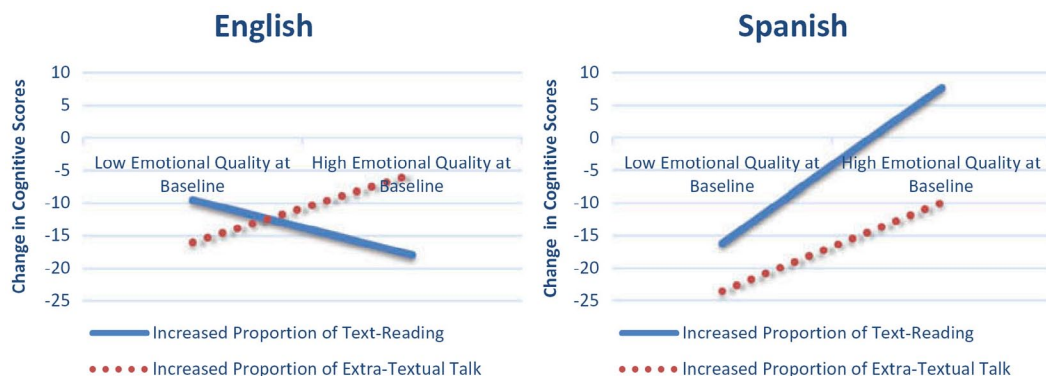
These patterns were observed for families whose primary home language was Spanish: Regardless of the level of baseline emotional quality, parents whose book reading became more focused on direct text reading had children with better cognitive score trajectories than children whose parents' reading became more focused on extratextual talk. However, this pattern was more pronounced at higher levels of baseline emotional quality.

**Table 5.** Regression Model Predicting Cognitive Score Change.

Variable	B	SE B	$\beta$	t
Constant	-4.37	4.06		-1.08
Family cumulative risk	2.08	1.40	0.19	1.49
Child age	-0.43	0.26	-0.22	-1.68 <sup>†</sup>
Child gender	-3.24	2.78	-0.13	-1.17
Home language	-1.42	3.19	-0.05	-0.44
Emotional quality	-1.32	2.76	-0.08	-0.48
Change in book talk	0.00	0.05	0.01	0.08
Emotional Quality $\times$ Home Language	10.45	4.77	0.32	2.19*
Change in Book Talk $\times$ Home Language	-0.09	0.18	-0.08	-0.50
Change in Book Talk $\times$ Emotional Quality	0.19	0.07	0.40	2.70*
Change in Book Talk $\times$ Emotional Quality $\times$ Home Language	-0.45	0.18	-0.48	-2.50*

$R^2 = .24$ ,  $F(10, 62) = 1.97$ ,  $p = .052$

<sup>†</sup>  $p \leq .1$ ; \*  $p < .05$



**Figure 1.** Representation of the two-way interaction of emotional quality at baseline and changes in book talk relating to changes in cognitive scores for the home language subgroups. These plots were generated using procedures described by Tabachnick and Fidell (2001, pp. 152–153). We computed change in cognitive scores for each group by solving the regression model equation at chosen levels of baseline emotional quality and changes in book talk scores for the two home language subgroups; specifically, these levels were 1 SD below the mean and 1 SD above the mean. Book talk scores that were 1 SD below the mean are labeled increased proportion of text reading, and book scores that were 1 SD above the mean are labeled increased proportion of extratextual talk.

## Summary and Concluding Discussion

Our previous study (Cline & Edwards, 2013) served to describe concurrent, interacting relationships between instructional and emotional qualities of book reading and children's learning for a sample of linguistically and culturally diverse families receiving EHS services in the rural Midwest. The findings of the current study, focused on the same diverse sample of infants and toddlers and their parents, meaningfully extend this line of research by describing how book-reading qualities change and interact as they relate to changes in cognitive skills over an 8-month period of involvement in EHS. The results of this current study, when interpreted in conjunction with the results from our first study focused on concurrent relationships, provide a more complete understanding of book-reading qualities and child cognitive skills for this sample of families and suggest a need for additional research on these topics.

It is important to consider the demographic characteristics of the sample involved in this study when interpreting the findings. All families were being served by EHS, and 82% were experiencing cumulative risk (two or more identified risk factors; see Table 1). On average, children demonstrated slight decreases in their standardized cognitive scores over the course of the 8 months of the study, though there was variation in the direction and degree of change scores within the sample. Achievement gaps in early childhood related to family socioeconomic status are well documented (e.g., Duncan & Magnuson, 2011), and a major goal of interventions such as EHS is reducing and closing these gaps. We want to note that descriptive statistics for this study are informative for understanding our study sample, but they do not allow for an evaluation of how services may have impacted the developmental trajectories of the at-risk children involved in this study.

In general, these studies suggest that focusing exclusively on parent talk and instructional behaviors of book sharing without considering the emotional atmosphere of the reading context may provide an incomplete picture of links between book reading and young children's knowledge and skills. For the families participating in our studies, the ways in which parents talked with their children during book reading related differentially to the children's learning depending on the emotional atmosphere shared with parents during reading. This pattern was observed concurrently and over time. There are practical implications of this line of research because understanding the role of early emotional and relationship-focused factors as a context for the introduction of new instructional behaviors, including talk during book reading, could inform the design of interventions that target at-risk families demonstrating ranges in social-emotional functioning.



Another key point of our results is that there is a need to further consider how family cultural characteristics may be potentially important when examining book reading and children's learning. In our studies, families' primary home language (i.e., English or Spanish) was used as a proxy for more global cultural variations among families. As discussed in the introductory material of this article, an assumption of our studies was that higher proportions of extratextual talk parallel more with a story-builder (i.e., co-structor) style, whereas higher proportions of direct text reading parallel with a story-telling style. Given Caspe's (2009) finding that the adoption of a story-telling style, reported to be commonly viewed as relevant in Latino culture, was related to children's most optimal literacy learning in a sample of Latino Head Start families, it could be expected that more emphasis on direct reading of text might relate to more positive outcomes for the primarily Spanish-speaking participants in our study than for the primarily English-speaking participants. Findings of our studies were generally consistent with what would be expected based on this assumption. Under conditions in which parents were at their emotional best, book reading that emphasized the use of extratextual talk related to more optimal learning scores for families who spoke English as their primary home language, whereas book reading that emphasized direct text reading related to more optimal learning scores for families who spoke Spanish as their primary home language.

It is worth noting that in this study, the regression model that included the two-way interaction between change in book talk and baseline emotional quality (without the three-way interaction among change in book talk, baseline emotional quality, and primary home language) predicting change in cognitive scores did not account for a statistically significant amount of variance. Nor was the two-way interaction a statistically significant predictor in the model. (This was also the case in our first study that examined concurrent relationships among the variables.) Thus, when the two primary home language subgroups were treated as a single group, the interacting relationship between book talk and emotional quality as related to cognitive scores was muted; there was no significant interaction effect for the two-way interaction because the different patterns for the two primary language subgroups effectively cancelled each other out. This finding further underscores the importance of considering cultural characteristics and possible variations in relationships between parenting behaviors and children's learning when studying diverse samples of families.

It is necessary to add a note about an apparent anomaly in our baseline data. If straight reading of the text corresponds with a story-telling approach and is more culturally relevant to Spanish-speaking families, it would be expected that these families would use a higher proportion of direct text reading. However, the descriptive statistics demonstrated that at baseline the mean score on the book talk measure was actually somewhat higher for families who spoke Spanish as their primary home language than for families who spoke English as their primary home language (76% and 63%, respectively), meaning that on average, families who spoke Spanish as their primary home language were actually engaging in higher proportions of extratextual talk than families who spoke English as their primary home language. We can only speculate about the reason for this observation. One possible explanation is that parents' talk was influenced by previous or current intervention efforts. All families participating in the study were receiving EHS services at the time of their participation in the study. Consistent with typical literacy recommendations, these families, including families who spoke Spanish as their primary home language, were likely receiving encouragement from their programs to engage in conversations with their children, perhaps including in the context of book sharing. Some parents may have been attempting to integrate these recommendations into their book reading. Note that if these parents were adopting a book-reading approach that was not perceived as particularly culturally relevant and comfortable, this could have influenced how effectively they used the style and their children's experiences of the activity.

On a related note, our observations suggest a need to further explore potential differences in the ways in which primarily English- and Spanish-speaking parents may use extratextual talk. Exploration of the qualitative characteristics of our study transcripts suggests that there were within-group variations in the ways in which parents from the two primary home language subgroups used extratextual talk in their book-reading interactions with their children. We did notice that some,



though not all, families who spoke Spanish as their primary home language relied on the frequent and repetitive use of the word *mira* ("look") to draw their children's attention to the book without necessarily adding additional information through these verbalizations. To help illustrate, we provide excerpts of parent talk during book reading, one from a transcript of a family who spoke Spanish as its primary home language and one from a transcript of a family who spoke English as its primary home language, in Figure 2. As shown in the excerpts, both parents were engaging in extratextual talk, yet the complexity and qualitative characteristics of the two parents' extratextual talk varied greatly. In these segments, the parent who spoke Spanish frequently used the word *mira* ("look") to draw her child's attention to the book, whereas the parent who spoke English did this type of behavior some, but she primarily used extratextual talk to help make connections that moved beyond the book. We want to underscore that the excerpts are not intended to represent the primary home language subgroups; however, we suggest that further exploring potential between-group variations in qualities of extratextual talk is an important step in understanding patterns of findings for families with different primary home languages. If some parents primarily use extratextual talk to redirect attention to the book, whereas others use it to add complexity to the book sharing, variations in how extratextual talk relates to learning would be expected.

Related to this discussion is the fact that a generally important consideration in unpacking the findings of the study is considering the sensitivity of the book talk measure in differentiating the quality of talk in the diverse sample, which included not only families with different primary home languages but also a relatively wide range of ages of infants and toddlers (i.e., 2–27 months of age at baseline). Based on our study goals, theoretical conceptualizations of book-reading style, and participant demographics, we determined that the most appropriate way to measure book talk would be to contrast direct text reading with all other forms of book-relevant extratextual talk combined.

Excerpt 1. Mother who spoke Spanish as her Primary Home Language.

<i>Spanish original</i>	<i>English translation</i>
<b>Mira</b>	<b>Look.</b>
<b>Mira la rana</b>	<b>Look at the frog.</b>
<b>Mira la rana</b>	<b>Look at the frog.</b>
<i>Rana verde, rana verde, ¿Qué ves ahí?</i>	<i>Green frog, green frog, what do you see?</i>
<i>Veo un gato morado que me mira a mí.</i>	<i>I see a purple cat looking at me.</i>
<i>Gato morado, gato morado, ¿Qué ves ahí?</i>	<i>Purple cat, purple cat, what do you see?</i>
<i>Veo un perro blanco que me mira a mí.</i>	<i>I see a white dog looking at me.</i>
<i>Perro blanco, perro blanco, ¿Qué ves ahí?</i>	<i>White dog, white dog, what do you see?</i>
<i>Veo una oveja negra que me mira a mí.</i>	<i>I see a black sheep, looking at me.</i>
<b>Mira</b>	<b>Look.</b>

Excerpt 2. Mother who spoke English as her Primary Home Language.

*I see a purple cat looking at me.*  
**A purple cat.**  
**Look** [pointing at the cat in the book].  
**Purple cat and purple Ryan** [pointing to the child's shirt which is purple].  
**You have purple.**  
**See you match** [holding the book up against the child's shirt].  
**Match.**  
**See look.**  
**Your shirt's purple and [so is] the cat's purple.**

**Figure 2.** Excerpts of parent dialogue during parent–child book reading. The children of the mother who spoke Spanish and of the mother who spoke English were 17 and 14 months of age, respectively. Both families were reading the book *Brown Bear, Brown Bear* (*Oso Pardo, Oso Pardo*) by Bill Martin, Jr., and Eric Carle. Extratextual talk is in bolded font, whereas text reading is in italics. Translations of book text from Spanish to English in the first excerpt reflect how the text appears in the English versions of the book rather than a literal translation.

DeBaryshe (1995), the developer of the procedures and coding scheme we adapted for our measure of book talk, similarly used the measure to differentiate between “strictly text-focused and highly participatory” styles (p. 7). We selected this measure to help ensure applicability across developmental stages, as the specific types of extratextual talk used are expected to potentially vary with child age and developmental level, but measuring book talk this way would still allow us to differentiate between parents who primarily focused on the text versus those who moved beyond it. However, a limitation is that by using a composite of all book-related extratextual talk, we lost sensitivity to varying qualitative characteristics of talk within this category. Therefore, we could have missed more fine-tuned within- and between-group differences in the ways in which parents read with and adjusted their talk for their infants and their toddlers. The content of this discussion suggests a need to extend our preliminary research by conducting additional studies that possibly utilize more fine-tuned measures of qualities of book-reading talk with larger samples of children representing particular ages and primary home language groups to provide more definitive information.

A limitation of this study is its narrow focus. Although book sharing is recognized as an important context for young children’s learning, it is of course not the only one. By focusing exclusively on book sharing, this study is limited to examining a context that may have little significance for some of the study participants. Also, this study focused only on a single learning measure, changes in cognitive scores, though other measures, including changes in language skills, are relevant and important, and theoretically, would be expected to be even more clearly and directly related. Furthermore, despite a widespread recognition that parent and child behaviors are bidirectional, this study focused on parental behaviors relating to learning. Future research should include take into account the complex relationship history of the parent and child and incorporate how children may elicit particular instructional and emotional responses from their parents.

An additional limitation is that the grouping of families by primary home language (English or Spanish) for this study might have overestimated the degree of within-group homogeneity. Although we considered primary home language to be a better proxy for culture than race/ethnicity because it would better reflect acculturation, we appreciate the potential for great diversity within both of these groups. Future research should more closely examine factors (e.g., country of origin, number of years in the United States, level of education) that may be related to cultural differences in values, beliefs, and practices.

We also want to note that although the three-way interaction among change in book talk, baseline emotional quality, and primary home language was a significant predictor of change in cognitive scores in the regression model, the regression model actually only approached statistical significance ( $p = .052$ ). This may have been influenced by the relatively small sample size. Also, regression analyses conducted with small sample sizes may be more influenced by outliers. Combined, these factors warrant a need to interpret the results with an appropriate level of caution. Future research should examine whether these patterns of results are replicated in a larger sample of families.

Future work in this line of research should examine not only how observed behaviors during book sharing relate to children’s learning but also how parenting beliefs and values, which are potentially influenced by cultural background, predict patterns of links between parent behaviors and child learning. This research would not only advance understanding in the area of book reading and literacy research but also have important practical implications. Findings could inform the design of literacy interventions that support high-quality interactions between parents and children and that are culturally sensitive and relevant. Although the limitations of this study warrant caution in interpretations, this study is an important contribution to the growing research literature that suggests possible nuances in how parenting behaviors may differentially function in diverse cultural contexts.

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