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# Family Reading Behavior and Early Literacy Skills in Preschool Children From Low-Income Backgrounds

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This study investigated the family reading behavior of 233 preschool children from low-income backgrounds who were attending Head Start. Parents completed a survey of their family reading behavior, including Child Reading, Parent Reading Interest, and Parent–Child Reading Interaction, and provided demographic data on their educational level, parent and child age, and family size. Children's receptive vocabulary, story and print concepts, letter knowledge, and general emergent literacy skills were assessed in the fall of their preschool year. Analyses focused on the variation in family reading behavior, the relationship between different dimensions of family reading behavior, and the contribution of family reading behavior to early literacy skills. Results indicated that Parent–Child Reading Interaction and Child Reading Interest were significantly related to children's early literacy skills. In addition, multiple regression analyses indicated that Parent–Child Reading Interaction was a small yet significant predictor of children's receptive vocabulary, story and print concepts, and general emergent literacy skills, above and beyond the influence of demographic variables. Child Reading Interest was a significant, albeit small, predictor of letter knowledge above and beyond these demographic controls. Implications of these results for the early literacy education of children of low-income families are discussed.

The importance of the home literacy environment has been recognized for many years, anchored on the notion that the home is generally the setting in which a child

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first encounters language and literacy, and the setting that provides opportunities to observe, explore, and participate in literacy activities (DeBaryshe, Binder, & Buell, 2000). Research has documented the effects of the home literacy environment on children's early literacy skills in several domains including oral language, letter knowledge, reading ability, and comprehension (e.g., Christian, Morrison, & Bryant, 1998; Cunningham & Stanovich, 1993; Frijters, Barron, & Brunello, 2000; Storch & Whitehurst, 2001; van Steensel, 2006). A great deal of research has focused on shared reading and its links to vocabulary development (Burgess, 2002; Sénéchal, LeFevre, Hudson, & Lawson, 1996; Sénéchal, LeFevre, Thomas, & Daley, 1998; Sénéchal, Thomas, & Monker, 1995). However, meta-analyses by Scarborough and Dobrich (1994) and Bus, van IJzendoorn, and Pellegrini (1995) have demonstrated that the association between shared reading and literacy achievement is modest, suggesting that the conceptualization of the home literacy environment should be treated more broadly (Burgess, Hecht, & Lonigan, 2002; van Steensel, 2006).

Indeed, other aspects of the home literacy environment, such as library visits (e.g., Payne Whitehurst, & Angell, 1994; Sénéchal et al., 1996), print exposure (e.g., Purcell-Gates, 1996), parental literacy beliefs (e.g., DeBaryshe et al., 2000; Weigel, Martin, & Bennett, 2006a, 2006b), and parents' own literacy habits (e.g., Sonnenschein, Brody, & Munsterman, 1996) have also been linked to literacy outcomes. For example, a 2006 study by Farver, Xu, Eppe, and Lonigan demonstrated that parents' direct involvement in and encouragement of literacy-related activities in the home (e.g., reading to child, library visits, teaching letters, rhyming games, and focus on words) was related to their preschool children's oral language ability.

Research has also recently begun to acknowledge the role that children's interest in reading activities plays in their literacy achievement. In their review, Scarborough and Dobrich (1994) found that preschoolers' perceived interest in literacy had an even stronger relationship to children's language and literacy outcomes than did measures of the frequency and quality of shared book reading. Frijters et al. (2000) found that kindergartners' literacy interest played a small but significant role in their letter–name and letter–sound knowledge. Other studies have also reported a link between a child's interest in shared book reading and his or her language and literacy development (Payne et al., 1994; Sénéchal et al., 1996, 1998).

Several researchers have suggested that literacy opportunities, such as the opportunity to interact with printed matter at a young age, may cultivate an interest in reading, specifically through the association of reading with a positive experience (Baker, Scher, & Mackler, 1997; Scarborough & Dobrich, 1994; Snow, 1994). Interestingly, Sonnenschein and Munsterman (2002) found that whereas reading frequency was significantly correlated with phonemic awareness and print orientation in 5-year-olds, the affective quality of the reading interaction predicted children's motivation for reading. Some researchers have described children's mo-

tivation for reading as a mediating factor between the home literacy environment and children's outcomes. For example, Farver et al. (2006) found that parent report of preschoolers' interest in literacy activities was a mediator of the relationship between parental involvement in home literacy activities and children's oral language ability. Positive reading interactions at a young age may also have a long-term impact; by sparking an early interest in reading, positive reading interactions may encourage children to read more, leading to greater reading achievement (Baker, Mackler, Sonnenschein, & Serpell, 2001).

## POVERTY AND ACADEMIC ACHIEVEMENT

Poverty has been shown to be a risk factor in a number of domains of child development, including school achievement (Whitehurst & Fischel, 2000). For example, a review by Duncan and Brooks-Gunn (2000) reported that poor children are twice as likely to repeat a grade and fail to complete high school. In addition, it appears that the stage of development during which family income plays the greatest role is early childhood (Duncan & Brooks-Gunn, 2000). Studies have shown that poverty and socioeconomic status are significantly predictive of early language skills, social competence, and school achievement (McLoyd, 1998).

One of the suggested pathways through which poverty may impact a child's academic achievement is through the quality of the home literacy environment. Indeed, studies looking at the relationship between home environment and school achievement have often focused on household income, parent education level, and minority status. There are documented socioeconomic group differences in children's exposure to the kinds of literacy experiences shown to be important for the development of language and literacy skills. Much of this research has focused on differences in the patterns of book ownership and the frequency and quality of shared-reading interactions (e.g., Adams, 1990; Feitelson & Goldstein, 1986; McCormick & Mason, 1986; Raz & Bryant, 1990; Scarborough & Dobrich, 1994; Teale, 1986).

## VARIABILITY IN HOME LITERACY ENVIRONMENTS

Although the focus of research on the literacy environment in homes of low socioeconomic status is often on the deficits of the literacy environment, research has recently begun to acknowledge the variability within family practices in low-income households (e.g., Aram & Levin, 2001; Farver et al., 2006; Storch & Whitehurst, 2002b). For example, Christian et al. (1998) found that not only was there a group of less educated mothers who scored high on their Family Literacy Environment Scale, but kindergarten children of these less educated mothers outperformed chil-

dren of better educated mothers who engaged in fewer home literacy activities. These results suggest that basic home literacy behaviors such as library visits might impact academic skills in spite of apparent financial or educational deficits. Moreover, measures of the home literacy environment might be more powerful predictors of children's literacy achievement than measures of family socioeconomic status (Christian et al., 1998). In addition, other research involving first graders has shown that a child's motivation for reading, which may play an important role in reading outcomes, is not predicted by income level (Baker & Scher, 2002).

## CURRENT RESEARCH FOCUS

Three key pieces of prior research helped to develop the current study: (a) long-standing research on the significant academic risk factors associated with poverty, (b) recent research on variability in family literacy activities within low-income or minority-status households, and (c) research demonstrating that some aspects of home literacy may be even more important than family income in predicting children's outcomes. This article considers the family reading behavior of children attending Head Start preschool and expands upon previous research by (a) focusing on a large sample of children exclusively from low-income backgrounds; (b) targeting the earliest stages of the influence of family reading behavior by focusing on the preschool period; (c) using a diverse conceptualization of family reading behavior, including shared-reading frequency, onset, and duration; book ownership; child reading interest in, enjoyment of, and motivation for reading; library visits; and parental reading behaviors; and (d) investigating the relationship between family reading behavior and a number of key early literacy and language skills.

In this article, four main questions are addressed: (a) What is the relationship among various types of family reading behavior in this sample of children from low-income backgrounds? (b) What is the relationship between aspects of family reading behavior and children's early literacy skills? (c) How do family demographic variables relate to family reading behavior? and (d) What role does family reading behavior play above and beyond family demographic variables in predicting children's early literacy skills?

## METHOD

### Participants

The sample consisted of 233 children (*M* age = 4 years, 4 months at testing, *SD* = 3.7 months) who attended full-day, full-week preschool classrooms from September through June in Head Start centers in southeastern New York and whose primary caregiver completed the Family Reading Survey (described below). All centers were part of one multicenter Head Start grantee that was partnering in a Head

Start Quality Research Center consortium project. Children attended Head Start during one of three school-year cohorts: 2001–2002, 2002–2003, or 2003–2004. Participating children met the income requirements for this Head Start grantee based on annual family income and household size. By the nature of their participation in Head Start, members of this sample were low-income. Mean income for this sample was $23,132 (median income = $21,000, *SD* = $16,293). Table 1 presents the demographic information for this sample.

## Family Reading Survey

Family reading behavior was assessed through primary caregiver report using an adaptation of the Stony Brook Family Reading Survey (Whitehurst, 1993). In this sample, mothers represented 92% of the primary caregivers, fathers 4%, and

TABLE 1
Demographic Characteristics of the Study Sample

| *Variable* | *n* | *%* |
|---|---|---|
| Child's ethnicity | | |
| Hispanic | 101 | 43 |
| African American | 100 | 43 |
| Bi-/multiracial | 15 | 6 |
| White | 12 | 5 |
| Other | 5 | 2 |
| Child's age | | |
| Less than 48 months | 21 | 9 |
| 48–53 months | 117 | 50 |
| 54–59 months | 95 | 41 |
| Caregiver's educational attainment | | |
| Less than 8th grade | 12 | 5 |
| Some high school | 52 | 22 |
| High school degree | 84 | 36 |
| Some college | 62 | 27 |
| College degree | 17 | 7 |
| Advanced degree | 6 | 3 |
| Caregiver's age | | |
| 18–24 | 49 | 21 |
| 25–34 | 124 | 53 |
| 35–44 | 49 | 21 |
| Older than 44 | 11 | 5 |
| Family size | | |
| 2 | 6 | 3 |
| 3 | 26 | 11 |
| 4 | 62 | 27 |
| 5 | 59 | 25 |
| 6 | 35 | 15 |
| 7 | 25 | 11 |
| 8 or more | 20 | 9 |

grandparents 4%. Informed consent was obtained from the primary caregiver (herein referred to as *parent*) for his or her participation in the Family Reading Survey. Ten multiple choice questions that focused on the literacy environment in the home were asked of parents via telephone in the fall (October/November) of the Head Start preschool year. The questions provided data on the following aspects of the home literacy environment: (a) frequency of shared reading with the child, (b) child's age at which the parent began reading to the child, (c) duration of shared-reading episodes with the child, (d) number of picture books in the home for the child, (e) frequency with which the child asks to be read to, (f) how much the child enjoys being read to, (g) frequency with which the child looks at books alone, (h) frequency of visits to the library with the child, (i) duration of parent reading for own pleasure, and (j) the parent's own enjoyment of reading.

Parents also provided information on demographic variables, including the highest level of education they completed, their date of birth, and the number of people living in the home.

## Literacy Measures

Informed consent was obtained from parents for their child's participation in the classroom assessments. Consent rates averaged greater than 95% in each participating classroom. Enrollment for study participation occurred from September through mid-October in each of the three study years. All participating children were administered the tests described below at the beginning (October/November) of the Head Start academic year. Testing was conducted by Westat assessors and trained laboratory staff. Child assessments were conducted individually over two 20- to 30-min sessions, and testing of all children was completed within a 4-week period.

Participating children were assessed for their readiness for learning to read with the Get Ready to Read! screen (RTR; National Center for Learning Disabilities, 2000). This instrument focuses on three core domains of readiness for reading instruction: print knowledge (e.g., differentiating print from pictures, naming letters, identifying letter sounds), emergent writing skills (e.g., identifying best print exemplars), and linguistic awareness (e.g., rhyming, segmenting words, deletion of sounds). The RTR consists of 20 items, each involving an array of four response choices, with the child required to respond by pointing to his or her chosen answer. Cronbach's alpha for the RTR is .78. According to the developers, scores of 0 to 6 represent very weak early literacy skills, 6 to 9 weak skills, 9 to 12 average skills, 12 to 16 strong skills, and 16 to 20 very strong skills (National Center for Learning Disabilities, 2004).

The Peabody Picture Vocabulary Test–III (PPVT–III; Dunn & Dunn, 1997) was used to assess receptive vocabulary skills. Each child was presented with an array

of four pictures and was instructed to point to the target that most closely reflected a word said aloud by the assessor. The internal consistency reliability coefficient for the PPVT–III is .95.

Letter knowledge was assessed using two tasks. The first was a letter-naming task developed for Family and Child Experiences Survey (FACES) (Administration on Children, Youth, and Families, 2003) and for use in the Head Start Quality Research Center projects. Children are shown all 26 uppercase letters of the alphabet, divided into three groups of 8, 9, and 9 letters, arranged in approximate order of difficulty. The child is asked to identify all of the letters he or she can name (i.e., "Here are some letters of the alphabet. Point to all the letters that you know and tell me the name of each one."). The second part of this task is a recognition task, in which the child is given the opportunity to find the letters that were not identified by name (i.e., if a child did not identify the letter *B* by name, he or she is asked "Can you find the letter *B*?"). For the purpose of this study's data scoring, a child was given 1 point for each letter named and 1 point for each additional letter recognized, for a possible total of 26 points.

Children were also assessed on the Letter–Word Identification subtest of the Woodcock Johnson–Revised Tests of Achievement (WJ–R; Woodcock & Johnson, 1989). Letter–Word Identification is a task that involves, in the initial items, symbolic learning, or the ability to match a rebus with an actual picture of an object. Later items involve identifying isolated letters and then words. The internal consistency reliability coefficient is .92.

The content of these two measures of letter knowledge overlapped and was confirmed by the high, significant correlation between children's raw scores on these measures ($r = .88$). As a result, a single letter knowledge factor was created that accounted for 94% of the variance in the data, with each measure loading .97 on this factor. A letter knowledge factor score was calculated for each child and was used in the subsequent regression analyses.

Finally, children's story and print concepts were assessed using another measure developed for FACES (Administration on Children, Youth, and Families, 2003) and for use in each of the Head Start Quality Research Center projects. This measure was an adaptation of earlier prereading assessments developed by Clay (1979), Teale (1988, 1990), and Mason and Stewart (1989). For this assessment, the child is handed a children's storybook, *Where's My Teddy?* (Alborough, 1992), upside down and backwards. The assessor asks the child a series of questions designed to test the child's knowledge of books. The nine questions comprise three domains: book knowledge (i.e., front of the book, opening the book, where one beings to read, and information related to the title and author of the book), print conventions (i.e., questions about the left-to-right and up-and-down conventions of reading), and story comprehension (i.e., questions about the character's feelings and the plot).

## RESULTS

### Family Reading Survey Analyses

Table 2 presents the 10 Family Reading Survey (hereafter, *Survey*) items and the frequency with which parents endorsed particular responses. Note the tremendous variation in parent responses to the items on the Survey; variation was particularly notable on questions about duration of shared reading with the child, duration of parent's own daily reading, and book ownership.

TABLE 2
Parent Responses to the Family Reading Survey

| *Survey Item* | *%* |
|---|---|
| Frequency of parent reading with child | |
| Hardly ever | 0.43 |
| 1–2 times per month | 10.73 |
| 1–2 times per week | 34.76 |
| Almost daily | 54.08 |
| Age when parent first read to child | |
| After age 2 | 13.30 |
| 1.5–2 years | 11.59 |
| 1–1.5 years | 13.30 |
| 6 months to 1 year | 22.75 |
| Before 6 months | 39.06 |
| Number of minutes parent read to child yesterday | |
| 0 min | 25.32 |
| 1–10 min | 26.61 |
| 11–20 min | 25.32 |
| More than 20 min | 22.75 |
| Number of books in home for child's use | |
| 0–2 | 2.58 |
| 3–10 | 21.46 |
| 11–20 | 26.61 |
| 21–40 | 21.46 |
| More than 40 | 27.90 |
| How often child asks to be read to | |
| Hardly ever | 6.44 |
| 1–2 times per month | 4.72 |
| 1–2 times per week | 23.18 |
| Almost daily | 65.67 |
| How much child enjoys being read to | |
| A little | 5.58 |
| Pretty much | 14.16 |
| Very much | 21.03 |
| Loves it | 59.23 |

*(continued)*

TABLE 2 (*Continued*)

| *Survey Item* | *%* |
|---|---|
| How often child looks at books by himself or herself | |
| Hardly ever | 3.00 |
| 1–2 times per month | 1.72 |
| 1–2 times per week | 13.73 |
| Almost daily | 81.55 |
| How often parent takes child to library | |
| Hardly ever | 42.49 |
| 1–2 times per month | 38.63 |
| 1–2 times per week | 18.03 |
| Almost daily | 0.86 |
| Number of minutes parent reads per day | |
| Hardly any | 17.17 |
| 2–15 min | 21.03 |
| 16–30 min | 22.75 |
| 31–60 min | 17.60 |
| More than 1 hr | 21.46 |
| How much parent enjoys reading | |
| Not at all | 4.72 |
| Some | 18.88 |
| Moderately | 27.90 |
| Very much | 48.50 |

To answer the first research question, a correlation matrix detailing the relationship between the 10 Survey items was developed (see Table 3). The average intraitem correlation was .22. The 10 Survey items were divided into three conceptually meaningful dimensions to allow for investigation of the relationship between different aspects of family reading behavior and the role of these family reading behavior dimensions in predicting children's literacy skills. The multidimensionality of the data was confirmed through factor analysis, wherein three factors were extracted, posting eigenvalues greater than 1. The Child Reading Interest dimension included three Survey items: how often the child asks to be read to, how often the child looks at books by himself or herself, and how much the child appears to enjoy being read to. The Parent Reading Interest dimension included two Survey items: daily duration of parent reading for pleasure (i.e., reading on his or her own, not with the child), and how much the parent enjoys reading for pleasure. The Parent–Child Reading Interaction dimension contained five Survey items: the child's age at which the parent began reading to the child, the frequency with which the parent reads to the child, the duration of reading sessions with the child, the frequency of visits to the library, and the number of books in the home for the child's use.

TABLE 3
Correlations Between Home Literacy Survey Items

| *Survey Item* | *1* | *2* | *3* | *4* | *5* | *6* | *7* | *8* | *9* | *10* |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Frequency of parent reading with child | — | .17* | .34*** | .35*** | .35*** | .35*** | .27*** | .21** | .16* | .10 |
| 2. Age when parent first read to child | | — | .17* | .23*** | .17* | .20** | .14* | .09 | .31*** | .16* |
| 3. Number of minutes parent read to child yesterday | | | — | .27*** | .20** | .23*** | .13 | .24*** | .14* | .14* |
| 4. Number of books in home for child's use | | | | — | .22** | .26*** | .24*** | .25*** | .34*** | .17* |
| 5. How often child asks to be read to | | | | | — | .53*** | .35*** | .21** | .08 | .12 |
| 6. How much child enjoys being read to | | | | | | — | .35*** | .17** | .09 | .16* |
| 7. How often child looks at books by himself or herself | | | | | | | — | .12 | .16* | .11 |
| 8. How often parent takes child to library | | | | | | | | — | .19** | .19** |
| 9. Number of minutes parent reads per day | | | | | | | | | — | .36*** |
| 10. How much parent enjoys reading | | | | | | | | | | — |

*$p < .05$. **$p < .01$. ***$p < .001$.

To examine the psychometric properties of the three family reading behavior dimensions, principal components analyses were conducted with the items comprising each dimension. The analyses for each dimension revealed one eigenvalue greater than 1. The item loadings ranged from .46 to .82. The principal components loadings for the Child Reading Interest dimension, the Parent Reading Interest dimension, and the Parent–Child Reading Interaction dimension, and the variance accounted for by each dimension, are presented in Table 4. Principal component scores for these dimensions were used in the subsequent analyses.

Correlations between the three dimensions were also computed to determine the relationship between these different aspects of family reading behavior. The correlations between the three dimensions were as follows: Child Reading Interest and Parent Reading Interest ($r$ = .18), Child Reading Interest and Parent–Child Reading Interaction ($r$ = .46), and Parent Reading Interest and Parent–Child Reading Interaction ($r$ = .36). Although all of these correlations were significant ($p <$ .05), the correlation between Parent Reading Interest and Child Reading Interest was significantly weaker than the other two.

## Relationship Between Family Reading Behavior and Early Literacy Skills

*Literacy skills of this sample.* Mean scores for the sample on each of five literacy measures are presented in Table 5. Evaluation of the two standardized measures (PPVT–III and WJ–R Letter–Word Identification) demonstrated that

TABLE 4
Principal Components Analyses of the Family Reading Survey

| *Item* | *Loading* |
|---|---|
| Child Reading Interest | |
| 1. How often child asks to be read to | .82 |
| 2. How much child enjoys being read to | .82 |
| 3. How often child looks at books by himself or herself | .69 |
| Variance explained: 60.72% | |
| Parent Reading Interest | |
| 4. Number of minutes parent reads per day | .82 |
| 5. How much parent enjoys reading | .82 |
| Variance explained: 67.82% | |
| Parent–Child Reading Interaction | |
| 6. Frequency of parent reading with child | .70 |
| 7. Age when parent first read to child | .46 |
| 8. Number of minutes parent read to child yesterday | .67 |
| 9. Number of books in home for child's use | .70 |
| 10. How often parent takes child to library | .55 |
| Variance explained: 39.00% | |

TABLE 5
Means and Standard Deviations for Early Literacy Measures

| *Measure* | *M* | *Median* | *SD* | *Min* | *Max* |
|---|---|---|---|---|---|
| Get Ready to Read! screen | 8.54 | 8.00 | 3.40 | 0 | 19 |
| PPVT–III | 85.07 | 87.00 | 14.63 | 40 | 118 |
| Letters known | 6.52 | 4.00 | 7.56 | 0 | 26 |
| WJ–R Letter–Word Identification | 94.09 | 93.00 | 8.71 | 70 | 119 |
| Story and print concepts | 2.57 | 2.00 | 1.68 | 0 | 8 |

*Note:* Standard scores are presented where available, for the PPVT–III and WJ–R Letter–Word Identification. For the following assessments, raw scores are presented (ranges for raw scores in parentheses): Get Ready to Read! screen (0-–20), Letters Known (0–26), Story and Print Concepts (0–9). PPVT–III = Peabody Picture Vocabulary Test–III; WJ–R = Woodcock–Johnson Revised Tests of Achievement.

this sample of Head Start children was performing below the national mean and approximately 1 *SD* below the mean on the PPVT–III. These children, however, appeared to be representative of Head Start children across the country, showing similar scores to the 2,800 children in the national cohort of FACES 2000 (Administration on Children, Youth, and Families, 2003): PPVT–III (FACES $M = 85.3$, this sample $M = 85.07$) and WJ–R Letter–Word Identification (FACES $M = 92.4$; this sample $M = 94.09$).

*Correlations between family reading behavior dimensions and literacy skills.* To address the second research question, correlations between the three family reading behavior dimensions and the five measures of early literacy ability were calculated (see Table 6). Note the significant relationships between both Child Reading Interest and Parent–Child Reading Interaction and each of the liter-

TABLE 6
Correlations Between Family Reading Behavior Factors and Literacy Skills

| *Variable* | *Child Reading Interest* | *Parent Reading Interest* | *Parent–Child Reading Interaction* |
|---|---|---|---|
| Get Ready to Read! screen | .17* | .11 | .21** |
| PPVT–III | .23** | .19** | .39*** |
| Letters known | .20** | .12 | .18** |
| WJ–R Letter–Word Identification | .16* | .12 | .18* |
| Story and print concepts | .17* | .11 | .28*** |

*Note:* PPVT–III = Peabody Picture Vocabulary Test–III; WJ–R = Woodcock–Johnson Revised Tests of Achievement.

*$p < .05$. **$p < .01$. ***$p < .001$.

acy measures. By contrast, Parent Reading Interest showed little relationship with children's literacy skills, with the exception of receptive vocabulary.

## Relationship Between Family Reading Behavior and Family Demographic Variables

Our third research question concerned the relationship between aspects of family reading behavior and family demographic variables. Though this sample was, by definition, a low-income sample, the sample varied in other key demographic characteristics as shown in Table 1. The relationship between the three facets of family reading behavior and key family demographic variables was investigated. The key family demographic variables were (a) parent education, (b) parent's age, (c) child's age (at time of the fall literacy assessments), and (d) family size (number of people in the home). Correlations are presented in Table 7. Note that parent education and parent's age were significantly correlated with multiple family reading behavior dimensions, whereas child's age and family size generally failed to show a significant relationship with these dimensions. Overall, parent education showed the strongest relationship with family reading behavior. Higher levels of parent education were associated with greater parent interest in reading, greater child interest in reading, and greater parent–child reading interactions. Older parents showed greater interest in reading and greater levels of parent–child interaction.

## Contribution of Family Reading Behavior and Family Demographics to Prediction of Early Literacy Skills

The final research question was that of the contribution of family reading behavior to children's early literacy skills above and beyond family demographic variables. This question is key to a fuller understanding of influences on children's early literacy skills. Multiple regression analyses, with forward stepwise selection, were conducted with literacy scores as dependent variables and the four family demo-

TABLE 7
Correlations Between Family Reading Behavior Factors and Family Demographic Characteristics

| *Variable* | *Child Reading Interest* | *Parent Reading Interest* | *Parent–Child Reading Interaction* |
|---|---|---|---|
| Parent education | .28*** | .32*** | .35*** |
| Parent's age | .08 | .17** | .15* |
| Child's age | .03 | .04 | –.01 |
| Family size | –.03 | .14* | –.04 |

*$p < .05$. **$p < .01$. ***$p < .001$.

graphic variables and three family reading behavior dimensions as predictor variables. The four family demographic effects acted as controls and were "forced" into the regression model; that is, they were entered as Step 0 in the regression and always included in every model. The three dimensions of family reading behavior were then entered stepwise into the model. Table 8 presents the regression results. Only the family reading behavior dimensions that were included in the final models are presented in Table 8. For each of the four literacy measures, an aspect of family reading behavior significantly contributed to the prediction of literacy scores above and beyond the contributions of the family demographic controls.

*RTR.* Of the family controls, parent education ($\beta = .18$, $p < .05$) and child's age ($\beta = .19$, $p < .01$) played significant roles in predicting scores on this general measure of early literacy skills. In addition, Parent–Child Reading Interaction also contributed significantly to the explained variance on this measure ($\beta = .14$, $p < .05$).

*PPVT–III.* On the PPVT–III, parent education ($\beta = .24$, $p < .001$) was the lone family control that played a significant predictive role for this oral language measure. However, it was not unexpected that child's age failed to play a significant role in the prediction of PPVT–III scores, as this measure was already standardized for age. Of the family reading behavior dimensions, Parent–Child Reading Interaction also contributed significantly to the explained variance in children's scores on this measure ($\beta = .30$, $p < .001$).

*Letter knowledge.* For this combined measure of letter knowledge, child's age ($\beta = .25$, $p < .001$) was the single family control that played a significant predictive role. Of the family reading behavior dimensions, Child Reading Interest also contributed significantly to the explained variance in children's letter knowledge scores ($\beta = .15$, $p < .05$).

*Story and print concepts.* For story and print concepts, several family controls were significant predictors, including parent education ($\beta = .16$, $p < .05$), child's age ($\beta = .24$, $p < .001$), and family size ($\beta = .13$, $p < .05$). In addition, Parent–Child Reading Interaction also contributed significantly to the explained variance in story and print concepts ($\beta = .24$, $p < .001$).

## DISCUSSION

This report examined the family reading behavior of a large sample of parents and preschool children from low-income backgrounds. Three different dimensions of family reading behavior were explored: Child Reading Interest, Parent Reading In-

TABLE 8
Summary of Multiple Regression Analyses for Literacy Measures

| | *Get Ready to Read!* | | *PPVT–III* | | *Letter Knowledge* | | *Story and Print Concepts* | |
|---|---|---|---|---|---|---|---|---|
| *Literacy Measure* | *B (SE B)* | β | *B (SE B)* | β | *B (SE B)* | β | *B (SE B)* | β |
| Family demographic controls | | | | | | | | |
| Parent education | 0.56 (.22) | .18* | 3.22 (.86) | .24*** | 0.10 (.06) | .11 | 0.25 (.10) | .16* |
| Parent's age | 0.03 (.03) | .06 | 0.00 (.11) | .00 | 0.00 (.01) | .03 | –0.00 (.01) | –.02 |
| Child's age | 0.18 (.06) | .19** | –0.40 (.24) | –.10 | 0.08 (.02) | .25*** | 0.11 (.03) | .24*** |
| Family size | –0.11 (.13) | –.05 | 0.52 (.53) | .06 | –0.04 (.04) | –.07 | 0.13 (.06) | .13* |
| Family reading behavior dimensions | | | | | | | | |
| Child Reading Interest | — | | — | | 0.14 (.07) | .15* | — | |
| Parent Reading Interest | — | | — | | — | | — | |
| Parent–Child Reading Interaction | 0.48 (.24) | .14* | 4.46 (.94) | .30*** | — | | 0.40 (.11) | .24*** |

*$p < .05$. **$p < .01$. ***$p < .001$.

terest, and Parent–Child Reading Interaction. Analyses indicated that although moderately related, these dimensions measured unique aspects of family reading behavior that were differentially related to children's early literacy skills. Moreover, Child Reading Interest and Parent–Child Reading Interaction were significant predictors of children's performance on various measures of early literacy above and beyond the influence of family demographic variables such as parent education and age, family size, and child age. These findings are discussed below.

### Parent–Child Reading Interaction

Results demonstrated a significant relationship between Parent–Child Reading Interaction (frequency and duration of shared reading, library visits, book ownership, and child's age when shared reading began) and early literacy skills. Not only did this dimension of family reading behavior show significant correlations with all five literacy assessments, but results of multiple regression analyses also revealed that Parent–Child Reading Interaction played a significant role in predicting early literacy skills above and beyond the influence of family demographic variables. In particular, Parent–Child Reading Interaction was a significant predictor of the RTR, the PPVT–III, and story and print concepts, even in the presence of the significant roles played by parent education and child's age. Prior research is consistent with our finding that Parent–Child Reading Interaction holds particular impact for the PPVT–III and story and print concepts. The PPVT–III (a measure of receptive vocabulary) and story and print concepts (which focuses on book knowledge, print conventions, and story comprehension) are both measuring skills that are heavily influenced by shared bookreading experience.

### Child Reading Interest

The inclusion of Survey items targeting Child Reading Interest presented the opportunity to explore both the relationship between this dimension and other aspects of family reading behavior, and the role of Child Reading Interest in literacy outcomes. Results demonstrated a significant correlation between Child Reading Interest (child's request for shared reading, enjoyment of shared reading, and motivation for reading) and Parent–Child Reading Interaction. That these two dimensions of family reading behavior were related both supports some existing research (e.g., Crain-Thoreson & Dale, 1992; Whitehurst & Lonigan, 2001) and contradicts other research. For instance, Baker and Scher (2002) found that children's motivation for reading was not associated with the frequency of storybook reading or library visits. Similarly, Frijters et al. (2000) found that children's literacy interest was independent of home literacy activities. However, specific aspects of these two studies may help shed light on the different outcomes obtained. In the Baker and Scher study, there was very little variance in parent reports of their children's liter-

acy interest; additionally, storybook reading occurred regularly in the homes in their sample. Our sample showed a wider range of responses to the questions on both children's interest, motivation, and enjoyment, as well as the frequency and duration of shared reading, which may account for our significant correlations between these two aspects of family reading behavior. In the Frijters et al. study, child motivation was assessed through child report, whereas parent report was used in our study. Frijters et al. suggested that parent report on children's literacy interest may be biased or inaccurate. Although this is a possibility, the Baker and Scher study, which used both parent and child report, supported a link between parent reports of child interest in learning to read and children's self-reports of motivation. Likewise, Dickinson and DeTemple (1998) argued that parents are reliable sources of information about their children's literacy development.

Bivariate correlations revealed significant relationships between Child Reading Interest and all five literacy measures. Moreover, multiple regression results demonstrated that Child Reading Interest played a significant predictive role in children's letter knowledge above and beyond the influence of family control variables. This finding is consistent with other research showing a link between child reading interest and letter knowledge (e.g., Frijters et al., 2000). In addition, it is interesting that whereas Parent–Child Reading Interaction played a significant predictive role in literacy skills associated with shared-reading experience, Child Reading Interest played a significant role in letter knowledge, a literacy skill that has been associated with explicit teaching. Teaching activities focusing on letters, in particular, have been shown to influence knowledge of letter names and the letter–sound correspondence (e.g., Evans, Shaw, & Bell, 2000; Sénéchal & LeFevre, 2002; Sénéchal et al., 1998). Although this study did not assess parental teaching of letters, it is possible that a child's interest in reading is associated with interest in and receptivity to other explicit literacy teaching activities.

The fact that Child Reading Interest did not play a significant role in the regression analyses for the PPVT–III, story and print concepts, and the RTR, despite the significant correlations with these measures, might be explained by the greater role played by Parent–Child Reading Interaction. The Parent–Child Reading Interaction dimension demonstrated even larger bivariate correlations with these three literacy measures and was also the first, and only, family reading behavior dimension entered into the forward stepwise multiple regression models.

### The Role of Family Demographic Variables

As expected, family demographic variables played a role in predicting children's early literacy skills. Parent education played the largest role, acting as a significant predictor of children's receptive vocabulary, story and print concepts, and general emergent literacy skills. Parent education was also strongly correlated with all

three dimensions of family reading behavior. That is, parents who completed higher levels of education showed greater levels of interest in reading, had children who showed greater levels of interest in reading, and had higher levels of shared-reading interaction with their child.

Child's age played a significant predictive role for all three literacy measures that were not already standardized for age: story and print concepts, letter knowledge, and the RTR. This is an interesting finding, as all children in this sample were at the same educational level (4-year-old Head Start preschool classrooms), and the standard deviation in age was less than 4 months. Thus, even the minor variations in age contributed significantly to children's performance on several measures of early literacy ability, with older children outperforming their younger peers. Unlike parent education, child's age was not significantly related to any of the family reading behavior dimensions, suggesting that, in this sample, the age of the child did not relate to either the child's interest in reading or to the level of parent–child reading interactions.

## Variation in Family Reading Behavior

Examining the family reading behavior of a large group of children from similarly low socioeconomic backgrounds demonstrated two important findings. First, results indicated that not only is there tremendous variation in the reading behavior of families of low socioeconomic status, but also important literacy activities are taking place in these homes. In contrast, the percentage of families from the lower end of the family reading behavior spectrum (endorsing infrequent shared reading, low book ownership, infrequent library visits, etc.) reminds us that there is a sizeable group of children who come to their first preschool experience without ample exposure to literacy activities.

Second, these results also provide a picture of the reading behavior of families with children attending Head Start, based upon the responses of more than 200 families. This is important information from a policy standpoint, as it can provide early childhood educators who work with Head Start or similar low-income populations with an understanding of the typical experiences these children bring to their first school setting. These results go beyond simply number of books in the home or shared-reading frequency to give us insight into the motivation and interest these children have for reading. Optimistically, results show that on average these children reportedly are motivated to be read to, enjoy being read to, and often take the initiative to look at books by themselves. Early childhood educators can capitalize on this interest children bring to school to begin to teach new vocabulary, print conventions, story concepts, and letter knowledge, all skills that have been shown to be critical to later reading achievement (Storch & Whitehurst, 2002a; Whitehurst & Lonigan, 1998).

## Limitations

Three main limitations to this study need mention. The first concerns variable selection. Despite covering a wide variety of family reading influences, our survey did not include all potentially important home literacy activities. For example, we did not include assessment of engagement in activities focused on teaching letters or letter–sound correspondences, playing with words and rhyming, discussing environmental print, or joint writing. Moreover, it is important to recognize that in addition to books, other key literacy materials may include letter magnets, crayons/pencils, and computer games. Further research is needed to examine the relationship between these different aspects of the home literacy environment. In addition, this study did not include all possible family demographic controls. For instance, other research has utilized a measure of child IQ as a control variable in predicting academic achievement. Taking these limitations into account, our regression models were not designed to capture all of the variance in children's literacy skills but merely parcel out the relative contributions of family reading behavior. However, the contributions of the family reading behavior dimensions were modest, thus suggesting that other important factors are operating to help shape children's literacy skills. One potentially key factor is the quality of the school environment. As the data in this study were pretest data, taken during the earliest months of the preschool year, quality of the preschool environment was less likely to have played a role, though children's prior educational experiences certainly may have.

The second limitation is our use of a self-report measure of family reading behavior. For a sample of this size, self-report surveys via the telephone were the most efficient way to gather information. Without observation, we cannot confirm that parents and children do what they report. Information collected via self-report may be influenced by the social desirability of particular responses. However, the tremendous variability of responses to the Survey and the large number of parents endorsing responses that might be considered undesirable (e.g., approximately one-fourth of the total sample reported that they had not read to their children at all the previous day) suggest that the effects of social desirability, if present, were playing a fairly limited role.

A third limitation relates to the lack of observation of family reading behavior. Recent research focused on the quality of parent–child interaction during shared reading has shown that parents vary considerably in the ways in which they share books with their children, and differences in the affective quality of the interaction and the type of utterances parents make influence children's reading skills and motivation (Baker et al., 2001; Leseman & de Jong, 1998; Sonnenschein & Munsterman, 2002). Moreover, the type of reading materials used in shared-reading activities (e.g., storybooks vs. basic skills books) has also been shown to be important in children's motivation for reading (Baker & Scher, 2002). It would be worth-

while for future research to examine whether quality of specific literacy interactions covaries with quantity of shared-reading interactions and the level of child interest in reading.

### Summary

In summary, these results demonstrate that aspects of family reading behavior, specifically Child Reading Interest and Parent–Child Reading Interaction, play a significant role in predicting children's early literacy performance above and beyond the influence of family demographic variables. Moreover, this study demonstrates the variability in family reading behavior within a sample of families from low-income backgrounds. These findings hold implications for early childhood educators who work with preschool populations from low-income families. The variation in family reading behaviors and the associated variation in the skills children bring with them to preschool is critically important background knowledge for teachers. Recognition of such variation may impact the approach taken to teaching literacy skills in the classroom, suggesting that a one-size-fits-all approach may not be optimal. Moreover, further research is needed to determine how family literacy programs and intensive classroom interventions can help to decrease the gap between children from low-income backgrounds and their middle- and upper class peers.

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