Parents' Talk About Letters With Their Young Children

Rebecca Treiman, John Schmidt, and
Kristina Decker
Washington University in St. Louis

Sarah Robins
University of Kansas

Susan C. Levine and Özlem E. Demir
University of Chicago

A literacy-related activity that occurs in children's homes—talk about letters in everyday conversations—was examined using data from 50 children who were visited every 4 months between 14 and 50 months. Parents talked about some letters, including those that are common in English words and the first letter of their children's names, especially often. Parents' focus on the child's initial was especially strong in families of higher socioeconomic status, and the extent to which parents talked about the child's initial during the later sessions of the study was related to the children's kindergarten reading skill. Conversations that included the child's initial were longer than those that did not, and parents presented a variety of information about this letter.

Learning to read is crucial for success in school and life. Consequently, researchers, educators, and policy makers are interested in finding out why some children learn to read more easily than others. Part of the answer may lie in the literacy-related activities that children participate in at home, before formal reading instruction begins. These activities may include being read to by their parents, learning to spell their names, and playing with magnets in the shapes of letters. Children who are reported by their parents to engage in such activities infrequently are on average less successful in learning to read than children who are reported to engage in them often (e.g., Burgess, Hecht, & Lonigan, 2002; Christian, Morrison, & Bryant, 1998). Shared book reading is the most studied aspect of the home literacy environment, but researchers have suggested that the construct of home literacy be expanded to include other activities (e.g., Phillips & Lonigan, 2009). Here, we focus on one potentially important but understudied activity—parents' talk about letters of the alphabet with their young children—and how this varies across families and relates to children's later reading performance.

When considering how children's early experiences at home set the stage for reading, it is important to ask what young readers need to learn. One important skill that must be mastered during the first few years of formal schooling is the ability to sound out individual words from text, that is, to decode. Decoding, in turn, rests on letter knowledge and phonological skills (Lonigan, Burgess, & Anthony, 2000). Among the many activities that are included in questionnaire studies of literacy-related activities in homes, those that seem to be most closely related to children's later decoding skill include parents' engagement with children in activities involving letters of the alphabet and reading and writing words (Evans, Shaw, & Bell, 2000; Hood, Conlon, & Andrews, 2008; Sénéchal & Lefevre, 2002; Skibbe, Bindman, Hindman, Aram, & Morrison, 2013; Sylva et al., 2011). The frequency of shared book reading appears to be more closely linked to vocabulary and listening comprehension than to decoding (Sénéchal & Lefevre, 2002). Thus, when looking at how experiences at home set the stage for early reading and decoding, parent talk about letters is a critical aspect to examine.

Although the studies just cited suggest that parents' talk and teaching about letters is related to

children's decoding skills, these studies have some limitations. Many studies have asked parents whether and how often they engage in various activities. However, parents may inflate their reports of how often they perform socially valued activities to present themselves as good parents. In addition, the detail of the data that can be elicited through questionnaires is limited. Another concern is that most studies have examined the later preschool years, when children are around 4 and 5 years old. Earlier parental input may be important too, but only a few studies have examined literacy-related activities in the homes of toddlers (e.g., Burgess et al., 2002; Neumann, Hood, & Neumann, 2009).

In an attempt to overcome these limitations, one line of research (Robins, Ghosh, Rosales, & Treiman, 2014; Robins & Treiman, 2009; Robins, Treiman, & Rosales, 2014; Robins, Treiman, Rosales, & Otake, 2012) has examined how U.S. parents talk with their children about literacy-related matters by using data from the Child Language Data Exchange System (CHILDES), a computerized repository containing transcripts of communication in spoken language (MacWhinney, 2000). Robins and colleagues found that such talk occurs with children as young as 1–2 years of age. For example, a parent might mention the letters on the license plate of a toy car while playing with the child. The researchers found that parents emphasized some letters of the alphabet over others by using some letter names more frequently (Robins, Treiman, et al., 2014). Moreover, certain aspects of parents' letter talk changed across the toddler and preschool years. For example, the frequency with which parents talked about specific letters appeared to be more closely tied to the frequency of those letters in English words when children were 4 or 5 years old than when they were 1 or 2 years old (Robins, Treiman, et al., 2014). This change may reflect a greater emphasis on spelling words and associating letters with words as children get older. Other aspects of parent letter talk did not appear to change across the preschool and toddler years. Throughout this period, for example, parents often talked about A, B, and C—the first three letters of the sequence and the ones that are often used as a label for the alphabet (Robins, Treiman, et al., 2014). Although these studies provide useful information about a potentially important but understudied literacy-related activity that occurs in homes, use of data from CHILDES has its own limitations. The data collection procedures differed across the studies in CHILDES; for example, an experimenter supplied toys or books in some studies but not others. Some children were studied longitudinally and others were not, information about the literacy outcomes of the children is not available, and information about the family's socioeconomic status (SES) is available only for some families.

In the present study, we analyzed parents' talk about letters using data from a longitudinal study that collected extensive information about children and families. The families in this study, the Chicago Language Development Project, were chosen to be representative of the greater Chicago area in ethnicity and income. The families were visited in their homes approximately every 4 months starting from when the target child was 14 months old. At each visit, the caregiver was videotaped interacting with the child. We examined the amount of letter talk that parents engaged in with their children from the 14-month through the 50-month home visits and the nature of that talk, such as which letters parents most often talked about. Moreover, we asked whether the amount and nature of parent letter talk before children enter kindergarten related to the children's decoding skills at the end of kindergarten. To help determine whether any relations were specific to decoding, we also examined children's kindergarten performance on a standardized test of receptive vocabulary.

A particular focus of the present study was on parents' talk about the first letters of their children's names. Children's names, especially the first letters of the names, play an important role in early literacy development (e.g., Both-de Vries & Bus, 2008, 2010; Levin & Aram, 2005; Levin, Both-de Vries, Aram, & Bus, 2005). When asked to identify visually presented letters, for example, 4- to 6-year-olds tend to perform well on the first letter of their given name (e.g., Treiman & Broderick, 1998; Treiman, Kessler, & Pollo, 2006). Children's good performance on the first letter of their name might reflect, in part, greater exposure to this letter. However, previous studies have not provided the data needed to test this idea. For example, Robins and colleagues (Robins, Ghosh, et al., 2014; Robins, Treiman, et al., 2014) did not include the status of a letter in the child's name in their statistical models of parent letter use because the names of a number of the children in CHILDES are not available. Moreover, even though some early childhood educators have suggested that name-focused activities play an important function in teaching children about letters, reading, and writing (e.g., Kirk & Clark, 2005), no quantitative studies have examined whether parental talk about the letters in their children's

names during the preschool years is related to the children's later decoding skills. We addressed these questions in Study 1, which examined parents' letter use during the 10 home visits, and Study 2, which looked in depth at letter-related conversations.

Study 1

Method

Participants

We used data from 50 children and their parents. They were drawn from a sample of families in the Chicago, Illinois area who were participating in a longitudinal study of children's language development. Families were recruited via direct mailings to approximately 5,000 families living in targeted zip codes and an advertisement in a free monthly magazine for parents. Interested parents were interviewed about their background characteristics, and 64 families who were representative of the greater Chicago area in ethnicity and income were selected. In all of the families, parents spoke English at home as the primary language. For the present study, we used data from families that remained in the study at the end of the child's kindergarten year and where data were available on a reading measure that was administered to the child at this time. Data from 4 of the 54 families that fit this description were not included because both parents shared the primary caregiving role. The language input to the child was in some sessions divided between the two parents and so was not comparable in some ways to the input from a single parent. In the 50 families that formed the final sample, the primary caregiver was the mother in 49 and the father in 1. The children included 27 boys and 23 girls, 37 of whom were reported to be White, 9 African American, and 4 of two or more races. Five of the children were reported to be Hispanic.

Information about the education level of the primary caregiver and the family's income was collected categorically in a questionnaire that was given at or before the first home visit. Each category for education was assigned a value equivalent to years of education. For example, completion of high school received a value of 12 and completion of an undergraduate degree received a value of 16. The categories for family income, which ranged from less than $15,000 to over $100,000 per year, were transformed into a scale by using the midpoints of the incomes in each category except the

highest, which was coded as $100,000. Table 1 shows the mean values on these scales for the families in the study. Education and income were positively correlated ($r = .40$, $p = .004$). As in several previous studies using data from the Chicago Language Development Project (Gunderson & Levine, 2011; Levine, Suriyakham, Rowe, Huttenlocher, & Gunderson, 2010; Rowe, Raudenbush, & Goldin-Meadow, 2012), we used principal components analysis to combine education and income into a composite measure of SES with a mean of 0 and a standard deviation of 1.0. Families with higher scores on this composite measure had higher incomes and primary caregivers with higher levels of education.

Procedure

Home visits. We analyzed data from home visits that took place when each child was approximately 14, 18, 22, 26, 30, 34, 38, 42, 46, and 50 months of age. The visits, which began in 2002, were conducted by research assistants, each of whom continued with a family over a series of visits. At each visit, the research assistant videotaped the parent–child dyad for a target length of 90 min. Not all sessions exactly met this target due to variation in parents' schedules or experimenter error, but 92% of the visits were within 4 min of it and the mean length was 88.5 min. The goal was to obtain a picture of typical parent–child interactions, and so the research assistant did not bring toys but instead asked parents to interact with their child as they normally would. The activities in which parents and children engaged varied, but typical sessions included activities such as playing with toys and eating. All caregiver speech to the child and all child speech in the videotaped sessions were transcribed; singing was not transcribed. The unit of transcription was the utterance, which was defined as a sequence of words that was preceded and followed by a pause, a change in a conversational turn, or a change in intonation pattern. Transcrip-

Table 1

Information About Families in Study 1

Variable	Mean	SD	Range
Family income	$60,300	$31,023	Less than $15,000–over $100,000
Years of education of primary caregiver	15.7	2.1	Did not complete high school–completed advanced degree

tion reliability was established by having a second individual transcribe 20% of each transcriber's videotapes. Reliability was assessed at the utterance level and was achieved when coders agreed on 95% of transcription decisions.

We counted the number of uses of each letter in each session by each parent, whether the letter form was being pointed out visually (e.g., "All them Gs" when referring to images of the letter G in a television program), discussed as part of a spelling (e.g., "It begins with a P" in a discussion of the word *plank*), or mentioned for its sound (e.g., "/wə/,/wə/, W's for Wendy") or in some other manner. For *A* and *I*, we counted uses that were letter names and excluded those that were the article or the pronoun. Cases in which a letter name was part of a word, such as *TV* and *ABC soup*, were also excluded. For sessions that were not exactly 90 min, we adjusted the number of uses of each letter so that it reflected what it would have been had the session been 90 min, assuming a linear relation between session length and letter talk. We also tabulated the total number of word tokens that parents used in each session, adjusting it in a similar manner. Data on parent talk were not available from 7 of the potential 500 home visits for this study because the visit could not be scheduled in a timely manner or because the parent was not at home during the visit. Five families had one missing visit and one family had two. We describe how missing data were treated when presenting the individual analyses.

Kindergarten tests. During the spring of the children's kindergarten year, when the children were on average 75 months of age (*SD* = 5.3), they were given the Woodcock–Johnson Letter-Word Identification subtest, which requires them to name letters and read words aloud, and the Word Attack subtest, which requires them to pronounce nonsense words (Woodcock, McGrew, & Mather, 2001). We calculated the child's standardized score on the basic reading cluster, which is based on the scores for both the Letter-Word Identification and Word Attack subtests. The Peabody Picture Vocabulary Test (PPVT–III; Dunn & Dunn, 1997) was also given in kindergarten to all but one of the children. This task requires children to point to one of four pictures that corresponds to an orally presented word.

Results

Total Amount of Letter Talk

In our first set of analyses, we examined the amount of letter talk produced by parents, asking whether the total amount of letter talk across the 10 sessions was related to children's kindergarten reading performance. The average number of letter tokens per parent per 90-min session was 8.3 (*SD* = 9.5). Parents varied substantially in their letter use. For example, two parents produced no letter names in any session and one parent averaged 49.3 letters per session. Because parent letter use was positively skewed, subsequent analyses were performed on log transformed data (natural log of number of letter uses + 1).

To determine whether the amount of parent letter talk changed as children grew older, we carried out a repeated measures analysis of variance (ANOVA) using data from the 44 families that had data from all 10 sessions. We found a significant effect of session, $F(6.2, 265.2) = 2.47$, $p = .023$; the Greenhouse–Geisser correction was used because of a lack of sphericity. This effect occurred because parents were increasingly likely to talk about letters as children grew older. This was true even though, according to another ANOVA, the number of words that a parent spoke that were not letter names did not vary as a function of session ($p = .75$). The percentage of all parent word tokens that were letter names was 0.18 during Sessions 1–5, increasing to 0.26 during Sessions 6–10.

A regression analysis on the data from these same 44 families showed that the composite measure of SES that was described earlier contributed significantly to the prediction of children's kindergarten reading scores ($\beta = .30$, $p = .045$). When the total amount of parent letter use across the 10 sessions was added in a second step, this variable did not make a significant additional contribution.

Nature of Letter Talk

Although the results so far show that the amount of parental letter talk increased across the toddler and preschool years, they do not show whether the letters that parents talked about changed. The analyses reported in this section were designed to determine whether talk about letters with certain characteristics became increasingly common as children get older. We also asked whether parental talk about letters with certain characteristics was related to the family's SES and the child's kindergarten reading and vocabulary.

We used mixed model analyses to examine the characteristics of letters and children that were associated with letter use because such analyses are well suited to examining both types of characteristics simultaneously. For example, one letter-related

factor is the frequency of the letter in English words and one child-related factor is the child's age at the home visit. Another factor of interest is a joint function of the letter and the child: whether the letter is the first letter of the child's given name. By including all factors in the same analysis, we can determine whether each factor was associated with parent letter use after the influences of other factors were statistically controlled. For example, use of the first letter of the child's name would be expected to occur at high rates in the parents of Ann and Arthur, whose names begin with a letter that is common in English words, and at low rates in the parents of Quinn and Zoe, whose names begin with uncommon letters. Using mixed model analyses, we can control for such differences. A further advantage of this statistical approach is that we use the child's actual age at each home visit rather than the target age, accounting for the fact that home visits did not always occur on the exact day that a child reached the target age. Also, rather than omitting data from the 12% of families who missed one or two sessions, as in the analyses of the amount of letter talk reported above, or rather than imputing data, we omitted from the mixed model analyses just data from sessions that were missed by a particular family (1.4% of all sessions). The analyses were conducted using R version 3.0.2 (R Core Team, 2013), using the package lme4 (Bates, Maechler, Bolker, & Walker, 2013) to perform the mixed model analyses and the package lmerTest (Kuznetsova, Brockhoff, & Christensen, 2014) to calculate p values based on Satterthwate's approximation. We centered continuous dependent variables prior to analysis, and the models included by-participant random intercepts.

Table 2 shows the mean and standard deviation of each fixed factor in our mixed model analyses. One factor was whether the letter was A, B, or C: three letters that parents tend to use often according to earlier research (Robins, Ghosh, et al., 2014; Robins, Treiman, et al., 2014). We also included the frequency of the letter in written materials that are designed for young children, specifically, the number of occurrences of the letter across the 6,231 words that appear in a survey of written materials in English for kindergarten and first-grade children (Zeno, Ivens, Millard, & Duvvuri, 1995). Because letter frequency as calculated in this manner was moderately skewed, we used a square root transformation in all analyses. We coded a letter as the child's initial if it was the first letter of the name that the parent most often called the child, either the full name or a nickname. We did not code

letters for their occurrence later in children's first names or their last names because studies of children's ability to identify visually presented letters show small or no effects of the child's name in these cases (Treiman & Broderick, 1998). Also, some of the children in the study were called by several versions of a name, such as Jay and Jason; the versions typically differed in some of the later letters but not the first one. Other factors were the child's age at the time of a home visit and the child's kindergarten reading score. Inclusion of this latter factor, which was treated as a continuous variable, allowed us to ask whether parent talk about letters during the toddler and preschool years differed for children who became better and poorer readers in kindergarten. This analytic strategy is similar to that used in other studies aiming to identify early predictors of later life outcomes, such as studies asking whether social behavior differs in infants who are later diagnosed as autistic and those who are not (Werner, Dawson, Osterling, & Dinno, 2000). A final factor was the composite measure of family SES.

We used a step-up strategy for model building (see West, Welch, & Galecki, 2007). We first built a model that included the first three variables shown in Table 2, which are characteristics of the letter that was uttered (log-likelihood = −5,971.0, $df = 6$). In a second model, we added child age and its interaction with each letter-related variable (log-likelihood = −5,936.3, $df = 10$). This second model accounted for significantly more variance than the first model by a likelihood ratio test, $\chi^2(4) = 69.33$, $p < .001$. In a third step, we added SES and its

Table 2

Variables Included in Mixed-Model Analyses of Parent Letter Use in Study 1

Variable	M	SD	Range
ABC (whether letter is A, B, or C)	0.12	0.32	0, 1
Letter frequency in children's book corpus (square root transformed)	295.12	153.26	28.16 to 591.58
Initial (whether letter is first letter of child's given name)	0.14	0.19	0, 1
Age (years)	2.68	0.96	1.13 to 4.37
Kindergarten reading (standard score)	114.90	17.06	77 to 160
SES	0.00	1.00	−2.64 to 1.41

Note. SES refers to composite score on measure of socioeconomic status.

interactions with each term in the second model (log-likelihood = −5,907.7, df = 18). The amount of variance accounted for by the model again increased significantly, $\chi^2(8) = 57.17$, $p < .001$. A fourth model added the child's kindergarten reading score and its interactions with each term in the third model (log-likelihood = −5,878.9, df = 34). Again, there was a significant increase in the amount of variance that was explained, $\chi^2(16) = 57.72$, $p < .001$. We simplified this fourth model by excluding the interactions of ABC that involved age, kindergarten reading, and SES and the interactions of letter frequency that involved kindergarten reading and SES. These interactions were not significant, and removing them did not significantly weaken the model, $\chi^2(15) = 16.72$, $p = .34$. The results of the fixed effects are interpreted according to this more parsimonious fifth model (log-likelihood = −5,887.2, df = 19). Table 3 provides information about the fixed effects in this final model.

The main effect of ABC in the final model shows that parents were more likely to say A, B, and C than expected on the basis of other factors. Of the letter names that parents produced, 17% were either A, B, or C. The ABC variable did not interact significantly with any other variables in the model. That is, the priority for A, B, and C remained constant over the 14- to 50-month period, and it did not vary with the future reading ability of the child.

The final model in Table 3 also shows a main effect of letter frequency. Controlling for other factors, parents were more likely to talk about letters that are frequent in printed materials for children than about letters that are less common. The interaction between letter frequency and age was statistically significant, with the effect of letter frequency increasing as children got older. When we analyzed the results for individual sessions, using a version of the final model that omitted the effects involving child age, we found that Session 4 (26 months) was the first to show a statistically significant effect of letter frequency. The effect was consistently significant starting at Session 7 (38 months).

The final model showed a significant main effect of child's initial, such that parents were more likely to say the first letter of the child's name than expected on the basis of other factors. Of the letter names said by parents, 9% were the first letter of the child's name. The significant interaction of child's initial and age reflects the fact that during the age range covered by our study, parents were increasingly likely to say the child's initial as

Table 3

Predictors in Final Mixed-Model Analysis of Parent Letter Use in Study 1

Effect	Coefficient	SE	p
ABC	5.86×10^{-2}	1.05×10^{-2}	< .001
Letter frequency	1.32×10^{-4}	2.20×10^{-5}	< .001
Child's initial	1.24×10^{-1}	1.81×10^{-2}	< .001
Age	1.89×10^{-2}	3.68×10^{-3}	< .001
Kindergarten reading	-5.87×10^{-6}	1.18×10^{-3}	.996
SES	2.36×10^{-2}	2.08×10^{-2}	.263
Letter Frequency × Age	6.51×10^{-5}	2.28×10^{-5}	.004
Child's Initial × Age	4.55×10^{-2}	1.82×10^{-2}	.012
Child's Initial × Kindergarten Reading	1.53×10^{-3}	1.09×10^{-3}	.158
Child's Initial × SES	7.31×10^{-2}	1.92×10^{-2}	< .001
Age × Kindergarten Reading	5.89×10^{-4}	2.21×10^{-4}	.008
Age × SES	2.25×10^{-2}	3.84×10^{-3}	< .001
Kindergarten Reading × SES	-3.77×10^{-4}	1.02×10^{-3}	.713
Child's Initial × Age × Kindergarten Reading	2.72×10^{-3}	1.08×10^{-3}	.012
Child's Initial × Kindergarten Reading × SES	1.99×10^{-3}	9.34×10^{-4}	.033
Age × Kindergarten Reading × SES	1.02×10^{-3}	1.88×10^{-4}	< .001

Note. SES refers to composite score on measure of socioeconomic status.

compared to other letters as children got older. The focus on the child's initial was particularly strong in parents of children who went on to become good readers, as shown by the significant three-way interaction involving child's initial, age, and kindergarten reading.

We carried out several follow-up analyses to help understand the important three-way interaction involving child's initial, age, and kindergarten reading. Analyzing the results for individual sessions, we found that Session 6 (34 months) was the first to show a significant interaction between child's initial and kindergarten reading that reflected more use of the child's initial in parents of children who went on to become good readers than in children who went on to become less good readers. When we examined the pooled data from before this point, namely, from Sessions 1 to 5 (14–30 months), using a model that omitted the

variable of child age, we found a significant effect of child's initial such that parents used this letter more often than expected on the basis of other factors. However, child's initial did not interact with kindergarten reading score. Of the letter names that parents used during the first five sessions, 5% were the child's initial among parents of children who went on to score above the median on the kindergarten reading test and 8% were the child's initial among parents of children who went on to score below the median. That is, parents of children who became good readers in kindergarten did not show a stronger focus on the child's initial during Sessions 1–5 than parents of children who became poorer readers in kindergarten. In the pooled data from Sessions 6–10 (34–50 months), there was a significant interaction between child's initial and kindergarten reading such that whether a letter was the first letter of the child's name was more strongly associated with parental letter use for parents of children who scored above the median on the kindergarten reading test than parents of children who scored below the median. During this period, 13% of the letter names produced by parents of children who became good readers were the child's initial, as compared to 7% of the letter names produced by parents of children who became less good readers.

Another follow-up analysis was conducted to determine whether parental focus on the child's initial was related to kindergarten vocabulary performance as measured by the PPVT. When we replaced the kindergarten decoding variable with the standard score on the PPVT, the interaction between child's initial, age, and vocabulary was not significant ($p = .44$). Thus, although a parent's tendency to talk more about their child's initial than anticipated on the basis of other variables when the child was around 3 and 4 years old was related to the child's decoding skills in kindergarten, even after controlling for other factors, it did not appear to be related to the children's vocabulary in kindergarten.

Returning to the results reported in Table 3, there was no significant effect of SES. Over the entire 14- to 50-month period, lower SES parents were no less likely to talk about letters than higher SES parents. However, there was a significant two-way interaction between child's initial and SES. This interaction reflects the fact that, of the letters produced by parents, the proportion that were the first letter of the child's name was larger in parents who were above the median in SES, 10%, than in parents who were below the median in SES, 6%.

The focus on the child's initial was especially strong in higher SES parents whose children became good readers, as shown by the three-way interaction involving child's initial, kindergarten reading, and SES.

The results in Table 3 reveal a significant main effect of age. As also shown by the ANOVAs reported in the section on the amount of parent letter talk, parents were increasingly likely to talk about letters as their children got older. The significant two-way interaction between age and kindergarten reading arose because the increase in letter talk with age was greater in parents of children who became good readers than in parents of children who became poor readers. Moreover, as shown by the two-way interaction between age and SES, the increase in letter talk as children got older was greater in higher SES parents than lower SES parents. When we examined letter talk in parents of children who were above and below the median in kindergarten reading skill and above and below the median in SES, the only group for which there was no increase in parent letter talk from the first five sessions to the last five sessions was the group of parents of children who were low in both kindergarten reading and SES. This led to a significant three-way interaction involving age, kindergarten reading, and SES.

Higher SES parents tended to talk more than lower SES parents overall, with a correlation of .48 between word tokens in a session and the composite measure of SES. However, the interaction involving age and SES and the interaction involving age, SES, and kindergarten reading appear to reflect more than just differences in amount of talk, for these interactions remained significant when we added to the final model the number of parent word tokens in the session (square root transformed in order to make its distribution more normal).

Discussion

The results of Study 1 shed light on an important but little studied literacy-related activity that occurs in homes—parent talk about letters of the alphabet—in a representative sample of U.S. children. We found, in line with previous studies (Robins et al., 2012; Robins, Treiman, et al., 2014), that U.S. parents sometimes talk with their children about letters even when their children are quite young. This conversational topic became more common over the age range that we studied, 14–50 months.

Our results further show that parents talk about some letters of the alphabet more often than others. This means that children have more opportunities

to learn about some letters than others. Parents mentioned A, B, and C more often than expected on the basis of other factors, probably because these letters are at the beginning of the alphabet and because they are often used as a label for it. The emphasis on A, B, and C did not change significantly across the 14- to 50-month period. Parents also talked more with their children about letters that are common in English words than about those that are less common. This effect became stronger as children got older. This change may occur as parents increasingly associate letters with words and spell words aloud. Our findings pertaining to A, B, and C and to letter frequency agree with those obtained by Robins, Treiman, et al. (2014) using the CHILDES database. We also found that parents' emphasis on A, B, and C and on letters that are frequent in the language did not differ significantly as a function of SES. This result confirms the findings that Robins, Ghosh, et al. (2014) obtained in a comparison of higher and lower SES families from CHILDES and extends them to a broader age range.

A new finding was that parents were more likely to talk about the first letter of their child's name than expected on the basis of other factors. Moreover, within the age range that we studied, the focus on the child's initial became stronger as children grew older. Previous findings suggest that the child's first name plays a special role in children's literacy development (Both-de Vries & Bus, 2008, 2010; Levin & Aram, 2005; Levin et al., 2005). The present study is the first to show a special role for the first letter of children's names in parents' speech to young children.

Another new finding is that parental focus on the first letter of the child's name was stronger in higher SES families than in lower SES families. One potential explanation for this finding is that higher SES parents are more concerned with teaching their children to write their names than are lower SES parents. However, some studies suggest that it is lower SES parents who are more likely to endorse didactic, performance-oriented instruction of specific literacy skills with young children (Lynch, Anderson, Anderson, & Shapiro, 2006; Stipek, Milburn, Clements, & Daniels, 1992). Another possible explanation for the SES difference that we observed in parents' use of the first letter of the child's name stems from results suggesting that, compared to lower SES parents, higher SES parents more often use speech to elicit conversation with their children and less often use speech to direct their children's behavior (Hoff, Laursen, & Tardif, 2002). According

to this interpretation, higher SES parents may bring up the first letter of the child's name because this letter is of special interest to the child and therefore likely to spur conversation.

Differences in the amount of input that children receive about different letters may help to explain why children perform better on some letters than on others when asked to name visually presented letters, write letters to dictation, and perform similar tasks. For example, the fact that children perform better on these tasks with the first letter of their name than with other letters (e.g., Treiman & Broderick, 1998; Treiman et al., 2006) may reflect, in part, children's greater exposure to this letter at home. Amount of exposure to a word is an important determinant of vocabulary learning in general (Schwartz & Terrell, 1983), and it is likely to be an important determinant of letter name learning as well.

The results of Study 1 shed light not only on parental letter talk and how it changes across the toddler and preschool years but also on whether the amount and nature of such talk is related to children's beginning reading performance. The total amount of parent letter talk pooled across the 10 sessions of our study did not show a significant relation to kindergarten decoding performance. However, we found several indications that one particular aspect of parent letter talk—a tendency to talk more about the first letter of the child's name than about other letters—was associated with better reading outcomes even after other factors were controlled. Most notably, children whose parents talked disproportionately about the first letter of their child's name during Sessions 6 through 10, when children were between 34 and 50 months old, tended to be better decoders as 6-year-olds than other children. This effect was specific to decoding; these children did not have significantly larger receptive vocabularies. Parental emphasis on the first letter of the child's name was especially strong in children who were good readers as 6-year-olds and who also came from higher SES families.

The results involving parents' letter talk may be compared with previously published results involving parents' number talk from the Chicago Language Development Project. Levine et al. (2010) reported a significant relation between the total amount of parent number talk between 14 and 30 months and children's number knowledge at 46 months. In the present study, the relation between total amount of parent letter talk between 14 and 50 months and children's decoding skill in kindergarten was not significant. However, some

types of parent letter talk at some ages were associated with kindergarten decoding performance. Likewise, Gunderson and Levine (2011) found that some types of parent talk about numbers showed a stronger relation to children's later number knowledge than did others.

Given the relation between parents' talk about the first letter of the child's name during the later sessions of the study and kindergarten reading performance, it is important to learn more about what parents are doing when they talk about the first letter of the child's name. In Study 2, therefore, we looked in detail at how and when parents talked about the first letter of their child's name. We examined the contexts in which conversations involving the child's initial occurred, and we also examined whether the conversations were initiated by parents or by children. If conversations involving the first letter of the child's name serve a teaching function, as we hypothesized, they might be especially likely to be initiated by parents. We expected that children might find such conversations particularly engaging, given how important their own names are to them. Thus, we hypothesized that conversations in which parents mentioned the child's initial would last longer than conversations in which parents mentioned only other letters. Study 2 also examined the information that parents conveyed when they used the first letter of the child's name. Did these utterances indicate that the letter in question was in the child's name (e.g., "Your name starts with J"), what we call simple name matching? Or did the utterances convey additional information about the letter (e.g., "Jar and John both start with J"), what we call complex letter activity? We hypothesized that complex letter activity would be common with older preschoolers. Because of the detailed coding that was required for Study 2, it was limited to the 30-, 42-, and 50-month visits.

Study 2

Method

Participants

The analyses of letter-related conversations involved 49 of the 50 parent–child dyads included in Study 1; 1 dyad had no letter-related conversations during the visits that were selected for inclusion in Study 2. The analyses of the nature of parents' utterances that involved the first letter of the child's name were based on the results of those

28 parents who produced such utterances during the selected visits.

Procedure

We examined all conversations in which letters were mentioned during the 30-, 42-, and 50-month sessions. We determined from the video and audio records whether each conversation occurred while the parent and child were looking at or reading a book or other written material, looking at or playing with toys, producing a written or drawn product (on paper or in some other manner), or engaging in some other activity, such as eating dinner. We refer to these conversational contexts as text, toy play, production, and other, respectively. We did not separate production into writing and drawing because the two activities were sometimes intermixed. We considered that a new conversation began when the context changed, as when a parent and child transitioned from reading a book to eating dinner, or when the focus of the conversation changed from, for example, playing with a toy to discussing a program that was being shown on television. We divided the conversations in which the parent mentioned a letter into those in which the parent said the first letter of the child's name at least once, either directly (e.g., "J is for John") or indirectly (e.g., "That's the letter that your name starts with"), and those in which the parent did not say the first letter of the child's name. We measured the duration of each letter-related conversation in number of conversational turns, that is, the number of times that the speaker changed; number of utterances by parents and children combined; and length in minutes. For each conversation, we also coded whether it was initiated by the parent or the child. The few cases in which both began speaking simultaneously were excluded from the analyses involving initiation. Reliability of the coding was assessed by having a second individual code the data from three children at each age level. The coders agreed 96% of the time on the coding of whether an utterance involved talk about letters, 86% of the time on the coding of the utterance context, and 96% of the time on the coding of conversation start and stop points.

We divided the utterances in which parents used the first letter of the child's name into three categories according to the information that parents conveyed about the letter. Simple name matching utterances were those such as "J is for John" or "J is the first letter of your name" that conveyed only that the letter in question was the first letter of the

child's name and that did not provide other information about the letter or the name. Complex letter activity utterances were those in which the parent spelled the child's name or another word (e.g., "That's J O H N"; "J A R"), matched the letter to a word other than or in addition to the child's name ("J is for jar"), or discussed the sound of a letter ("It says 'juh'"). A third category consisted of all other utterances, such as "Where's the J?" or "J."

Results

The majority of letter-related conversations in which the parent mentioned the child's initial, 81%, were initiated by the parent. The percentage of letter-related conversations that were initiated by the parent for conversations in which the parent did not mention the child's initial was lower, 66%. A mixed model analysis of parent initiation that included the variables of child's initial use (parent used child's initial in the conversation vs. parent did not use child's initial), child age, and SES found a significant effect of child's initial use ($p = .008$) and no other significant effects.

Table 4 provides information about the contexts of conversations in which parents directly or indirectly mentioned the child's initial and the contexts of conversations where letters were mentioned, but not the child's initial. The interaction between conversational context and whether the letter was the child's initial was significant by a chi-square test, $\chi^2(3) = 53.34$, $p < .001$. As the results in Table 4 show, conversations in which a parent uttered the child's initial were more likely to occur in production contexts (46%) than conversations in which a parent uttered other letters (26%). A little less than half of the utterances with the child's initial in production contexts (43%, or 20% of all initial utterances) involved the parent encouraging the child to write the child's first name. The other utterances of the child's initial in production context involved

other activities, such as the production of individual letters or other words. In the 42-month session, for example, one parent asked a child to write several letters. One of the requested letters was the child's initial—"Go make your best M to show Erica"—perhaps because the parent thought that the child had a good chance of success with this letter.

Table 5 provides information about the duration of conversations in which parents mentioned the child's initial and conversations in which parents mentioned only other letters. The results suggest that the conversations in which parents mentioned the child's initial were longer than those in which they did not. This impression was confirmed by mixed model analyses that included the fixed factors of child's initial use, child age, SES, and conversational context. The duration measures were log transformed to make the distributions more normal. For all three measures of conversation length, we found a significant effect of child's initial use after controlling for the other factors ($p < .001$).

Table 6 shows, for each session, the number of parent utterances that directly or indirectly used the first letter of the child's name that fell into the simple name matching, complex letter activity, and other categories. The association between category and age group was statistically significant, $\chi^2(4) = 19.27$, $p < .001$. The proportion of parent utterances that included the child's initial that fell into the simple name matching category was larger at 30 months than at 42 and 50 months. In contrast, the proportion of utterances in the complex letter activity category was larger for older children than for younger ones.

Discussion

The results of Study 1 suggest that parents' focus on the first letter of a child's name when the child is around 3 and 4 years of age is positively related

Table 4

Number of Parent Utterances Including Direct or Indirect Use of Child's Initial and Other Letters as a Function of Conversational Context, Pooling Across 30-, 42-, and 50-Month Sessions

Conversational context	Child's initial	Other letter
Text	30	549
Toy play	100	988
Production	118	566
Other	9	99

Table 5

Mean (and standard deviation) Across Participants for Various Measures of Duration for Conversations in Which Parent Explicitly or Implicitly Mentioned Child's Initial and Conversations in Which Parent Did Not Mention Child's Initial, Pooling Across 30-, 42-, and 50-Month Sessions

Measure	Child's initial included	Child's initial not included
Number of turns	18.25 (42.19)	5.40 (5.16)
Number of utterances	34.49 (64.86)	11.56 (9.30)
Length in minutes	1.11 (2.03)	0.42 (0.42)

Table 6

Number of Parent Utterances That Included Direct or Indirect Use of Child's Initial in Various Categories

Category	30 months	42 months	50 months
Simple name matching	11	4	9
Complex letter activity	12	36	54
Other	37	48	46

to the child's reading skills at the end of kindergarten, even after controlling for other factors. In Study 2, we looked in depth at parent talk about the first letter of the child's name, asking whether such talk has special properties that may make it particularly fruitful for literacy learning.

We found that conversations in which parents talked about the first letter of the child's name were typically initiated by parents rather than children. Almost half of these conversations occurred when parents and children were engaged in the production of writing: either the production of the name itself or the production of individual letters or other words. Conversations in which parents touched on the first letter of the child's name on average lasted longer than those in which parents talked only about other letters, with more participation on the part of the child. These differences may reflect children's motivation to talk about the first letter of their name, a word that is important and interesting to them (Nuttin, 1985). When parents used the first letter of the child's name, they provided information not only that this letter was at the beginning of the child's name but also, particularly with children of 42 and 50 months, information about other matters. These included letters in the child's name beyond the first letter, the sound of the first letter of the name, and other words that contained this letter. Simple name matching was less common with older children than with younger ones, as Robins, Treiman, et al. (2014) also observed.

Overall, the results of Study 2 suggest that parents who often talked about the first letter of the child's name presented a range of information about letters and words in a way that was particularly engaging for the child. The present study is correlational and descriptive rather than experimental, and we cannot draw conclusions about causation. However, it is possible that the special characteristics of parent talk about the first letter of the child's name may help to explain the association that we found in Study 1 between such talk and literacy outcomes.

General Discussion

Long before children are formally taught to read and write, their parents sometimes talk with them about letters of the alphabet while engaging in everyday activities. The results of previous studies suggest that parents' engagement with their children in activities involving letters of the alphabet and in reading and writing words correlates with children's later reading skills. With a few exceptions, however (Robins, Ghosh, et al., 2014; Robins & Treiman, 2009; Robins, Treiman, et al., 2014), previous studies relied on questionnaires and focused on older preschoolers. Here we directly observed and coded parental speech using data from a recent longitudinal study of a representative sample of children in the Chicago area. We examined the amount and nature of parents' talk about letters, asking how it changes across the toddler and preschool years, how it relates to family SES, and how it relates to children's later decoding skills.

Our results show that parents sometimes mention letters in conversations with their children even before the children are 2 years old. This aspect of the home literacy environment can be missed in questionnaires that focus on explicit teaching. For example, a mother might consider that she is playing with her child rather than teaching him when she tickles her child while using her finger to form letters on the child's back. She might therefore respond, as a number of adults do, that teaching about letters does not occur with children of this age (Burgess, 2006).

Our results show that the amount of letter talk that parents engage in with their children increases across the toddler and preschool years and that talk about certain kinds of letters changes at different rates than others. Talk about letters that are common in English words showed a substantial increase as children grow older, as also reported by Robins, Treiman, et al. (2014). A new finding was that parents were increasingly likely to talk about the first letter of the child's name over the 14- to 50-month period.

We observed differences in parent letter talk not only as a function of child age but also as a function of family SES. Notably, higher SES parents were more likely than lower SES parents to focus their letter talk on the first letter of the child's name. At first glance, this finding appears to disagree with the report of Robins, Ghosh, et al. (2014) that lower SES parents are more likely than higher SES parents to associate letters with children's names, as in "J is for Jason." However, we found in

Study 2 that parents' talk about the first letter of the child's name was by no means limited to simple name matching of this sort. This was especially true for parents of older children and for higher SES parents.

The total amount of parent letter talk over the 14- to 50-month period did not bear a statistically significant relation to children's kindergarten reading performance. However, a focus on the first letter of the child's name during the latter part of this period did. Specifically, children of parents who talked more about the first letter of the child's name when children were around 3 and 4 years of age (Sessions 5–10 of the study) tended to be better readers at the end of kindergarten than other children. This result was found after controlling for differences in the amount of talk about the first letter of the first name that would be expected on the basis of other characteristics of the letter, such as its frequency in English words.

Why did parents' talk about the first letter of their children's names when children were 3 and 4 years of age relate to the children's decoding performance in kindergarten? The results of Study 2 show that only about 20% of the utterances of the first letter of the child's first names occurred when parents were encouraging children to write their names. Thus, it does not appear to be just the act of learning to write the name that accounts for the link with later literacy development. One contributor may be young children's interest in talking about and learning about the first letter of their own names. The results of Study 2 suggest that when parents initiate conversations that touch on the first letter of their children's names, the children are particularly motivated to continue the conversations. Such conversations last longer than other letter-related conversations, extending children's opportunities to learn. Also, parents who talk about the first letter of the child's name provide information not only that this letter is at the beginning of the name but also—especially with 3- and 4-year-olds—other information about the letter, the child's name, and words other than the name. Thus, the conversations give children a variety of learning opportunities.

Our results show the value of going beyond questionnaire data in studying the early home environment and how it sets the stage for later academic performance. Naturalistic studies of parents and their interactions with their young children that include detailed coding and longitudinal follow-up measures can provide rich and valuable information about what parents of successful learners do.

The results of such studies can suggest avenues for intervention that might boost the learning of all children.

References

Bates, D., Maechler, M., Bolker, B., & Walker, S. (2013). *lme4: Linear mixed-effects models using Eigen and S4*. Retrieved from http://cran.r-project.org/package=lme4

Both-de Vries, A. C., & Bus, A. G. (2008). Name writing: A first step to phonetic writing? *Literacy Teaching and Learning*, 12, 37–55.

Both-de Vries, A. C., & Bus, A. G. (2010). The proper name as starting point for basic reading skills. *Reading and Writing*, 23, 173–187. doi:10.1007/s11145-008-9158-2

Burgess, S. R. (2006). The development of phonological sensitivity. In D. K. Dickinson & S. B. Neumann (Eds.), *Handbook of early literacy research* (Vol. 2, pp. 90–100). New York, NY: Guilford.

Burgess, S. R., Hecht, S. A., & Lonigan, C. J. (2002). Relations of the home literacy environment (HLE) to the development of reading-related abilities: A one-year longitudinal study. *Reading Research Quarterly*, 37, 408–426. doi:10.1598/RRQ.37.4.4

Christian, K., Morrison, F. J., & Bryant, F. B. (1998). Predicting kindergarten academic skills: Interactions among child care, maternal education, and family literacy environments. *Early Childhood Research Quarterly*, 13, 501–521. doi:10.1016/S0885-2006(99)80054-4

Dunn, L. M., & Dunn, L. M. (1997). *Peabody Picture Vocabulary Test* (3rd ed.). Circle Pines, MN: American Guidance Service.

Evans, M. A., Shaw, D., & Bell, M. (2000). Home literacy activities and their influence on early literacy skills. *Canadian Journal of Experimental Psychology/Revue Canadienne de Psychologie Expérimentale*, 54, 65–75. doi:10.1037/h0087330

Gunderson, E. A., & Levine, S. C. (2011). Some types of parent number talk count more than others: Relations between parents' input and children's cardinal-number knowledge. *Developmental Science*, 14, 1021–1032. doi:10.1111/j.1467-7687.2011.01050.x

Hoff, E., Laursen, B., & Tardif, T. (2002). Socioeconomic status and parenting. In M. H. Bornstein (Ed.), *Handbook of parenting: Biology and ecology of parenting* (Vol. 2, pp. 231–252). Mahwah, NJ: Erlbaum.

Hood, M., Conlon, E., & Andrews, G. (2008). Preschool home literacy practices and children's literacy development: A longitudinal analysis. *Journal of Educational Psychology*, 100, 252–271. doi:10.1037/0022-0663.100.2.252

Kirk, E. W., & Clark, P. (2005). Beginning with names: Using children's names to facilitate early literacy learning. *Childhood Education*, 81, 139–144. doi:10.1080/00094056.2005.10522257

Kuznetsova, A., Brockhoff, P. B., & Christensen, R. H. B. (2014). *lmerTest: Tests for random and fixed effects for linear mixed effect models (lmer objects of lme4 package)*. Retrieved from http://cran.r-project.org/package=lmerTest

Levin, I., & Aram, D. (2005). Children's names contribute to early literacy: A linguistic and a social perspective. In D. Ravid & H. B.-Z. Shyldkrot (Eds.), *Perspectives on language and language development* (pp. 219–239). New York, NY: Springer.

Levin, I., Both-de Vries, A., Aram, D., & Bus, A. (2005). Writing starts with own name writing: From scribbling to conventional spelling in Israeli and Dutch children. *Appied Psycholinguistics*, *26*, 463–477. doi:10.1017/S0142716405050253

Levine, S. C., Suriyakham, L. W., Rowe, M. L., Huttenlocher, J., & Gunderson, E. A. (2010). What counts in the development of young children's number knowledge? *Developmental Psychology*, *46*, 1309–1319. doi:10.1037/a0022101

Lonigan, C. J., Burgess, S. R., & Anthony, J. L. (2000). Development of emergent literacy and early reading skills in preschool children: Evidence from a latent-variable longitudinal study. *Developmental Psychology*, *36*, 596–613. doi:10.1037//OOI2-1649.36.5.596

Lynch, J., Anderson, J., Anderson, A., & Shapiro, J. (2006). Parents' beliefs about young children's literacy development and parents' literacy behaviors. *Reading Psychology*, *27*, 1–20. doi:10.1080/02702710500468708

MacWhinney, B. (2000). *The CHILDES Project: Tools for analyzing talk* (3rd ed.). Mahwah, NJ: Erlbaum.

Neumann, M. M., Hood, M., & Neumann, D. L. (2009). The scaffolding of emergent literacy skills in the home environment: A case study. *Early Childhood Education Journal*, *36*, 313–319. doi:10.1007/s10643-008-0291-y

Nuttin, J. M. (1985). Narcissism beyond Gestalt and awareness: The name letter effect. *European Journal of Social Psychology*, *15*, 353–361. doi:10.1002/ejsp.2420150309

Phillips, B. M., & Lonigan, C. J. (2009). Variations in the home literacy environment of preschool children: A cluster analytic approach. *Scientific Studies of Reading*, *13*, 146–174. doi:10.1080/10888430902769533

R Core Team. (2013). *R: A language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing. Retrieved from http://www.r-project.org/

Robins, S., Ghosh, D., Rosales, N., & Treiman, R. (2014). Letter knowledge in parent–child conversations: Differences between families differing in socio-economic status. *Frontiers in Psychology*, *5*, 632. doi:10.3389/fpsyg.2014.00632

Robins, S., & Treiman, R. (2009). Talking about writing: What we can learn from conversations between parents and their young children. *Applied Psycholinguistics*, *30*, 463–484. doi:10.1017/S0142716409090237

Robins, S., Treiman, R., & Rosales, N. (2014). Letter knowledge in parent–child conversations. *Reading and Writing*, *27*, 407–429. doi:10.1007/s11145-013-9450-7

Robins, S., Treiman, R., Rosales, N., & Otake, S. (2012). Parent–child conversations about letters and pictures. *Reading and Writing*, *25*, 2039–2059. doi:10.1007/s11145-011-9344-5

Rowe, M. L., Raudenbush, S. W., & Goldin-Meadow, S. (2012). The pace of vocabulary growth helps predict later vocabulary skill. *Child Development*, *83*, 508–525. doi:10.1111/j.1467-8624.2011.01710.x

Schwartz, R. G., & Terrell, B. Y. (1983). The role of input frequency in lexical acquisition. *Journal of Child Language*, *10*, 57–64. doi:10.1017/S0305000900005134

Sénéchal, M., & Lefevre, J.-A. (2002). Parental involvement in the development of children's reading skill: A five-year longitudinal study. *Child Development*, *73*, 445–460. doi:10.1111/1467-8624.00417

Skibbe, L. E., Bindman, S. W., Hindman, A. H., Aram, D., & Morrison, F. J. (2013). Longitudinal relations between parental writing support and preschoolers' language and literacy skills. *Reading Research Quarterly*, *48*, 387–401. doi:10.1002/rrq.55

Stipek, D., Milburn, S., Clements, D., & Daniels, D. H. (1992). Parents' beliefs about appropriate education for young children. *Journal of Applied Developmental Psychology*, *13*, 293–310. doi:10.1016/0193-3973(92)90034-F

Sylva, K., Chan, L. L. S., Melhuish, E., Sammons, P., Siraj-Blatchford, I., & Taggart, B. (2011). Emergent literacy environments: Home and preschool influences on children's literacy development. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of early literacy research* (Vol. 3, pp. 97–117). New York, NY: Guilford.

Treiman, R., & Broderick, V. (1998). What's in a name: Children's knowledge about the letters in their own names. *Journal of Experimental Child Psychology*, *70*, 97–116. doi:10.1006/jecp.1998.2448

Treiman, R., Kessler, B., & Pollo, T. C. (2006). Learning about the letter name subset of the vocabulary: Evidence from US and Brazilian preschoolers. *Applied Psycholinguistics*, *27*, 211–227. doi:10.1017/S0142716406060255

Werner, E., Dawson, G., Osterling, J., & Dinno, N. (2000). Brief report: Recognition of autism spectrum disorder before one year of age: A retrospective study based on home videotapes. *Journal of Autism and Developmental Disorders*, *30*, 157–162. doi:10.1023/A:1005463707029

West, B. T., Welch, K. B., & Galecki, A. T. (2007). *Linear mixed models: A practical guide using statistical software*. Boca Raton, FL: Chapman and Hall/CRC.

Woodcock, R. W., McGrew, K. S., & Mather, N. (2001). *Woodcock–Johnson Tests of Achievement*. Itasca, IL: Riverside.

Zeno, S. M., Ivens, S. H., Millard, R. T., & Duvvuri, R. (1995). *The educator's word frequency guide*. Brewster, NY: Touchstone Applied Science.