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Home Literacy Experiences and Their Relationship to Bilingual Preschoolers' Developing English Literacy Abilities: An Initial Investigation

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Abstract

Purpose—This study investigated the relationship between home literacy experiences and bilingual pre-schoolers' early literacy outcomes.

Method—Forty-three Puerto Rican mother–child dyads recruited from Head Start programs in central Pennsylvania participated in this study of home literacy experiences and emerging English literacy abilities. The dyads were grouped according to whether the children had learned Spanish and English from birth (simultaneously; $n = 28$) or Spanish from birth and English in Head Start (sequentially; $n = 15$). Mothers of simultaneous and sequential learners were compared on the value they placed on literacy, press for achievement, the number of reading materials that were available in the home, and how often they read to their child. The children were compared on their scores on the Test of Early Reading Ability–2 (Reid, Hresko, & Hammill, 1991), which was given during the first and second years of their Head Start program.

Results—Mothers of simultaneous and sequential learners differed with regard to mothers' press for achievement. No differences were found between the two groups with respect to the other measures. When the early literacy abilities of the two groups of children were assessed, all learners had comparable mean emergent reading scores. The mean literacy scores of the entire group of children were significantly lower at Year 2 as compared to Year 1.

Clinical Implications—Although the children experienced literacy activities at home and in Head Start, it appears that children's literacy development would benefit from increased exposure to literacy materials and literacy events during the preschool years.

Keywords

preschoolers; bilingualism; Hispanic; literacy development; home literacy environment

Becoming literate is a multifaceted skill that all children living in the United States must accomplish in order to be successful. The process becomes more complex when the language used in children's homes differs from the oral and written language they encounter in school. The experiences of bilingual Hispanic children who live in economically disadvantaged homes are even more multifaceted (August & Hakuta, 1997; McArthur,

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1993). Statistics suggest that children whose first language is Spanish are at risk for poor literacy outcomes in U.S. schools. Spanish-speaking children, for example, are twice as likely as non-Hispanic Whites to read below age level in English (Snow, Burns & Griffin, 1998), are more likely to drop out of high school than non-Hispanic Whites and Blacks (Federal Interagency Forum on Child and Family Statistics, 2002), and have lower literacy levels as adults than do other cultural groups (President's Advisory Commission on Educational Excellence for Hispanic Americans, 1996). This situation is of great concern because limited literacy has far-reaching consequences that impact not only children's success in U.S. schools, but also their overall well-being and their abilitiy to compete in society (Alexander, 1996; Lyon & Chhabra, 1996). As a result, there is a critical need to improve our understanding of key factors that influence bilingual children's literacy development—a process that begins before children attend school (Bialystok & Herman, 1999; McLane & McNamee, 1990).

Although Spanish speakers make up the largest single language minority in the United States (U.S. Census Bureau, 2001), the Hispanic culture is diverse and represents not only a broad range of socioeconomic classes, but also a range of Hispanic cultures with varied histories, cultural sensibilities, and social dilemmas (Suarez-Orozco & Paez, 2002). Consequently, the study of bilingual Spanish-speaking children in the United States is challenging.

Although Spanish speakers in the United States represent many different dialect regions of Spain and the Americas, the three major groups are Mexican, Cuban, and Puerto Rican (U.S. Census Bureau, 2001). The largest centers of U.S. Spanish speakers are New Mexico/ southern Colorado, the border states from California to Texas, the Florida peninsula, New York City, and other large cities in the Northeast and Midwest (Canfield, 1981; Hammond, 2001).

New York City contains a large contingent of Spanish speakers from many Spanish-speaking countries; the most dominant group is from Puerto Rico. Thousands of Puerto Ricans are found throughout the major cities of the Northeast. Many have moved to upstate New York and other areas of New Jersey and Pennsylvania, where some communities have been established for more than 50 years. Although the millions of Puerto Ricans who live on the U.S. mainland are U.S. citizens, their linguistic and sociocultural experiences are similar to those of many Latino immigrants (Suarez-Orozco & Paez, 2002; Zentella, 2002). Children from this group of Spanish speakers are the focus of the current investigation on home literacy experiences and their relationship to bilingual preschoolers' developing English literacy abilities.

RISK FACTORS FOR LITERACY OUTCOMES

Snow et al. (1998) developed a framework for predicting success and failure for reading difficulties in young children that encompassed child-based, school-based, and family-based factors. The study that follows focused on the relationship between children's early literacy abilities and family-based factors that include variables such as a family history of reading difficulties, few opportunities for verbal instruction, speaking a home language other than

English, using a nonstandard dialect at home, low-socioeconomic status (SES), and minimal support for literacy development in the home environment.

Snow et al.'s (1998) framework for the home literacy environment consists of four key components based on the work of Hess and Holloway (1984): the value placed on literacy, the press for achievement, the availability and use of reading materials, and parent–child book reading. Parents demonstrate the value placed on literacy when they read and encourage their children to read. When parents provide reading instruction to their children, respond to their children's interest in reading, or express their expectations for achievement, they show a press for achievement. Literacy activities are more likely to occur in homes that contain children's books and other reading and writing materials (cf. Ortiz, 1986; Snow et al., 1998). An extensive literature suggests a positive relationship between reading to children and language development and literacy abilities (cf. Bus, van IJzendoorn & Pelligrini, 1995; Dickinson, De Temple, Hischler, & Smith, 1992; Ninio, 1983; Senechal, LeFevre, Hudson, & Lawson, 1996; Snow & Ninio, 1986).

Research on the Home Literacy Experiences of Hispanic Children

Although an extensive literature on children's home literacy experiences exists, studies have focused primarily on children from White, middle-class families. Research investigating the home literacy environments of children from families with low SES tends to treat children with this economic background as a homogeneous group. A growing body of evidence, however, suggests that cultural and economic differences exist in the functions of literacy (Heath, 1983; Purcell-Gates, 1996; Teale, 1986), the frequency of literacy events (Federal Interagency Forum on Child and Family Statistics, 2002; Ortiz, 1986), and the styles of literacy interactions (Hammer, 2000; Hammer, Nimmo, Cohen, Clemons, & Achenbach, 2002; Heath, 1983; Phillips, 1983). These differences from the literacy practices of the mainstream culture place Puerto Rican children from low-SES backgrounds at risk for academic failure in programs designed for White, middle-class learners (Heath, 1983; Phillips, 1983; Vernon-Feagans, 1996). Cultural conflicts often occur when shared expectations regarding the school's and parents' responsibilities are not clear (Garcia, 2000).

Despite this concern, relatively few investigations have studied the home literacy practices of Hispanic families and literacy outcomes in school-age children (Garcia, 2000). In an investigation using data from the National Assessment of Educational Progress, Ortiz (1986) found that parents' education and reading frequency were important correlates of lower achievement of Hispanic and Black children. Parents with less than a high school education had fewer literacy materials and fewer types of literacy materials in the home and read less frequently than parents with higher levels of education. Additionally, children of parents with lower levels of education reported having fewer pages to read for school each day and spent less time on their homework than children whose parents had more education. Lopez and Rodriquez (1995) investigated the relationship between parental education and participation and found that parental education was positively related to Mexican American parents' participation in school activities.

Other researchers have focused on the characteristics and frequency of home literacy activities. Delgado-Gaitan (1990) and Teale (1986), for example, found that literacy served a

variety of functions in the homes of low-SES White, Black, and Hispanic families. In an investigation of the book reading behaviors of Puerto Rican mothers and children living in the United States, Hammer et al. (2002) found four different styles, some of which were not common to the White, middle-class culture. As part of a national survey, the Federal Interagency Forum on Child and Family Statistics (2002) documented that 42% of Hispanic families read to their children on a daily basis as compared to 64% of White families. Thus, a small knowledge base concerning Hispanic children's home literacy experiences has developed.

LITERACY DEVELOPMENT IN HISPANIC CHILDREN

Despite the fact that language is intrinsically involved in all aspects of education, relatively little research has been conducted on Hispanic children's literacy development. In particular, the influence of the language learning environment on bilingual children's early literacy development is largely unexplored (Garcia, 2000). The timing of children's exposure to Spanish and English is an especially important variable to consider. Children may acquire one language before another or may acquire two languages more or less simultaneously (Romaine, 1997). It is also important to take into account the amount and type of input in the two languages, the possible dominance of one language over another, the interaction of the two languages, and socio-linguistic factors (Bhatia & Ritchie, 1999).

Because the amount of exposure to English that is required to be successful in U.S. schools is not known, sequential (SE) and simultaneous (SI) language learners were considered separate groups in this investigation. Learners of two first languages, Spanish and English, were considered SI learners. These children had continuous exposure to two languages and lived in homes where they were expected to follow directions; answer questions; and interact with peers, family, and the community in both Spanish and English. On the other hand, children raised in Spanish-speaking homes who were not expected to follow directions, speak, or interact with their community in English until they attended Head Start at age 3 years were considered SE learners, with Spanish as the first language. The SE learners were exposed to English through the television, trips to the grocery store, and other excursions into the English-speaking community. They were not, however, placed in situations where communication in English was required, expected, or encouraged until they attended Head Start.

PURPOSE OF THE INVESTIGATION

Because language and culture are inextricably linked (Zentella, 2002) and reflected in the child-rearing practices of parents (cf. Rogoff, 1990; Schieffelin & Ochs, 1983; Schwartz, 1981), differences may exist in the parenting practices of families who speak only Spanish in the home and families who speak both Spanish and English at home. In addition, differences may exist in the English literacy development of children who are SE and SI learners of Spanish and English.

Because language input and support for literacy in the preschool years are predictive of success in school in low-income English-speaking children (Tabors & Snow, 2001), the current investigation used the Snow et al. (1998) model of the home literacy environment as

a starting point to determine if relationships occurred between home literacy experiences and children's English literacy abilities. This model acknowledges the relationship between language status and literacy outcomes, although with monolingual children. Furthermore, the degree of similarity between home and school literacy events predicts success in school-based literacy (Pellegrini, 2001). Because these children will attend monolingual English-speaking schools, it is important to study the home literacy events that constitute the foundation for more sophisticated literacy skills. Observing home literacy experiences and the language associated with them provides crucial information that may illuminate strengths in the children's home and school environments. Identifying home experiences that lead to more success in literacy acquisition will enable educators to tap into and build on a child's home culture (Beykont, 2002; Gonzalez et al., 1995).

Although many children in many parts of the world have been successfully taught to read in a language they do not know reasonably well, children's reading success is placed at some degree of risk when children are taught to read in a language in which they do not have a strong foundation (Snow et al., 1998). As an entry point to understanding multiple paths to literacy acquisition that may be available to young bilingual children, the current investigation observed the influences on literacy development that occurred in the home and how they varied with regard to a child's systematic exposure to two languages.

The primary purpose of this preliminary investigation was to determine (a) if differences existed in the home literacy experiences and the early reading abilities of Head Start children of Puerto Rican descent who were SE and SI learners of Spanish and English and (b) if relationships occurred between home literacy experiences and children's English literacy abilities.

METHOD

Participants

Forty-three Puerto Rican mother–child dyads attending Head Start programs in two urban areas in central Pennsylvania participated in the study. The mothers and children were from Puerto Rican neighborhoods that were established in the 1950s when migrant workers from Puerto Rico moved to the area. The mothers and children also participated in a larger longitudinal study of language and English literacy development in bilingual children. The primary aim of the larger study was to investigate the language and literacy development of bilingual children and to identify characteristics of children's oral language and home environment that serve as risk and protective factors for children's literacy outcomes. At the time of this report, participants were in their second year of Head Start and planned to complete the larger study at the end of their kindergarten year. The current investigation focused on data collected on the home literacy environment and children's emerging literacy abilities.

Based on information mothers provided at the beginning of the study, children were divided into two language status groups. Children who were spoken to in Spanish and English by family members prior to 3 years of age were considered SI language learners (n = 28). Children who were spoken to in Spanish before the age of 3 by family members and later

spoken to in English by Head Start teachers (or other significant members of their environment) were considered SE learners (n = 15) (Hornberger, 1989; McLaughlin, 1984; Miccio, Hammer, & Toribio, 2002). SE learners who were reared in the United States mainland were likely to have had some exposure to English before their attendance in Head Start through television and interactions with individuals in their larger community (Kohnert, Bates, & Hernandez, 1999); however, these children's first exposure to the expectation of communicating in English, following directions in English, and answering questions in English occurred when they entered Head Start.

The children participating in the present study were enrolled in their first year of Head Start (mean age = 3;8 [years;months]). All were typically developing, had passed a hearing screening, lived in a family that qualified financially for Head Start services, and were eligible to attend Head Start for 2 years. Judgment of typical development was based on parent and teacher report of no concerns about the children's development and a passing score on the Denver Developmental Screening Test–II (DDST–II; Frankenburg & Dodds, 1992).

The mothers were of Puerto Rican descent and spoke a Puerto Rican dialect of Spanish. Nearly all of the mothers of the SE learners were born in Puerto Rico (see Table 1). Sixty-seven percent had no more than a high school education and less than half were working outside of the home. The sociodemographic picture presented by the mothers of SI learners was comparable with one exception: Only half of the mothers of SI learners were born in Puerto Rico. Seventy-one percent had no more than a high school education and half were working outside of the home. No differences existed between the two groups with regard to maternal age, $t(41) = 1.24$, $p = .22$, and years of education, $t(41) = -1.38$, $p = .17$. Slightly more than three fourths of the fathers of SE learners and 42% of the fathers of SI learners saw their children every day.

Language Use in the Home

More than 90% of the mothers of the SE learners and 26% of the mothers of the SI learners reported that the adults in their home spoke Spanish or spoke more Spanish than English in the home (see Table 2). Thirty-eight percent of the mothers of SI learners reported a significant use of English between adults; no mother of an SE learner did so. This difference in home language use was significant, $t(34) = -4.0$, $p = .0001$, $d = 1.2$, with mothers of the SE learners using more Spanish than English and mothers of the SI learners using more English than Spanish when talking to other adults in the home.

Home language use with children also differed between mothers of SE and SI learners. Mothers of SE learners were much more likely to report that they only spoke Spanish with their children; they were only slightly more likely to report that they spoke the same amount of Spanish and English (see Table 2). In contrast, mothers of SI learners were much more likely to report that they only spoke English or that they spoke more English than Spanish with their children. The difference in language use was significant, $t(34) = -3.1$, $p = .005$, $d = .96$.

Procedures

The mothers and children were enrolled in the parent study, an investigation of the precursors to literacy in bilingual preschoolers, during the winter of the children's first year in Head Start. As part of the larger investigation, trained individuals from the families' community conducted home visits with the mothers. During the visits, the home visitors administered a “Home Activities Questionnaire” in the language of the mothers' choosing. When administering the questionnaire, the home visitors told the mothers that they would ask a series of questions about activities that mothers and children might do at home. In addition, the home visitors explained that the mothers and children were not expected to do all of the activities. To account for varying levels of maternal reading abilities, the home visitors read the questions to the mothers and recorded the mothers' responses on the questionnaire.

Additionally, the Test of Early Reading Ability–2 (TERA–2; Reid, Hresko, & Hammill, 1991) was administered two times to all children by trained research assistants from the children's community. The test was initially given to the children during the sixth month of their first year in Head Start (Year 1) and again during the second month of their second year (Year 2). The TERA–2 assesses early literacy abilities including knowledge of environmental print, concepts about print, and letter knowledge. Children's developing literacy skills were tested in English because the aim of the current research was to examine the effects of different modes of bilingual language acquisition on emerging English literacy.

Instruments

Home Activities Questionnaire—The “Home Activities Questionnaire” contained 71 items that addressed the frequency of (a) children's literacy activities (e.g., “reading” a book, coloring, pretending to write), (b) mother–child literacy activities (e.g., looking at books together, teaching the child the alphabet, telling stories to the child), and (c) mothers' literacy activities (e.g., reading a book, reading the Bible, paying bills). Mothers were provided with the following response options: 5–7 days a week, 2–4 days a week, 1 day per week, 2–3 days a month, 1 time a month, several times a year, and rarely or never. In addition, items were used to collect data on the presence of literacy materials in the homes, the mothers' enjoyment and their children's enjoyment of reading, and the mothers' goals for their children's education.

Following Snow et al.'s (1998) model, scales containing several items from the questionnaire were created. The behaviors used to define each scale are shown in Table 3. A factor analysis was performed for each scale to determine if the items were related to each other. Cronbach's alpha (1951) was used to assess the scales' internal consistency (i.e., the extent to which items purporting to measure the same construct are correlated with one another).

Value placed on literacy was a 14-item scale that assessed how often mothers engaged in various literacy activities. A typical item asked, “How often do you look at books a week?” Mothers' responses were scored on a 7-point scale with *1* = “rarely or never,” *2* = “several

times a year,” *3* = “1 time per month,” *4* = “2–3 times per month,” *5* = “1 day per week,” *6* = “2–4 days per week,” and *7* = “5–7 days per week.” Cronbach's alpha was .72.

The mothers' press for achievement scale included items that involved the frequency with which mothers took their children to the library and taught their children early academic skills (e.g., teaching the alphabet, letter sounds, and coloring or writing activities). A question that addressed the mothers' educational goals for the children was initially included in the scale; however, the reliability coefficient for the scale was low when this item was included. Therefore, this item was omitted. With this item eliminated, Cronbach's alpha for the press for achievement scale was .75.

A scale of the availability of reading materials combined items that involved the number of books that were appropriate for adults and for children. Initially, the scale included items about the presence of a dictionary, encyclopedia, cookbook, and computer in the home, as well the number of toys with letters and numbers on them that the children had in the home. Once again, the initial reliability between the items was low and the items were omitted. Cronbach's alpha for the final version of the scale was .65.

In addition to the three scales, reading with children was examined by determining the frequency with which mothers read to their children. Items that reflected how frequently significant individuals read to the children were initially combined to form a scale; however, the scale reliability coefficient (i.e., Cronbach's alpha) revealed limited relationships between the items. Because the mothers reported reading to the children at least two times as frequently as other family members, it was decided that the frequency with which mothers read to the children would have the most impact on children's early literacy development. Therefore, this was the only item used to represent “book reading with children.”

Test of Early Reading Ability–2—This standardized test assesses children's knowledge of early English literacy concepts. Specifically, it tests children's understanding of contextual meaning and early literacy conventions and knowledge of the alphabet, letters, letter–sound correspondences, and concepts of print and environmental print. This test was selected because the test has high internal consistency and test–retest reliability (coefficients approach or exceed .90).

Statistical Analyses

Mann-Whitney tests were performed to determine if there were significant mean differences between the mothers of SE and SI learners with regard to their home literacy practices and their children's performances on the TERA–2. The tests for significance were performed using Stata Statistical Software, Release 7.0 (StataCorp, 2001), which converts the U statistic to *z* scores; therefore, *z* scores are reported in the Results section. Additionally, Spearman correlation coefficients were calculated to determine if there were significant relationships among the four factors and among the four factors and the children's performance on the TERA–2.

RESULTS

Children's Home Literacy Experiences

Value placed on literacy—The value placed on literacy by mothers of SI learners was comparable to that placed by mothers of SE learners, $z = -0.145$, $p = .88$ (see Table 4). In general, the mothers in both groups engaged in adult literacy activities infrequently (i.e., slightly more than once a month on average).

Press for achievement—The mothers of SI learners engaged in activities that supported their children's early academic development, including teaching children early concepts and literacy skills and taking their children to the library, more often than the mothers of SE learners, $z = -1.99$, $p = .05$. On average, the mothers of SI learners engaged in these behaviors on a weekly basis, and the mothers of SE learners engaged in these behaviors approximately two to three times per month.

Availability of reading materials—No differences were found in the availability of literacy materials in the homes of SI and SE learners, $z = -0.74$, p = .45. Both groups of mothers reported having fewer than 10 adult and children's books in their homes on average.

Reading with children—Mothers of the SI learners read to their children an average of 2–4 days a week; mothers of SE learners read to their children approximately once a week. This difference, however, was not significant, $z = -1.76$, $p = .08$.

Performance on the TERA–2

Comparisons were made between the literacy scores of the entire group of children during their first year (Time 1) and second year (Time 2) in Head Start. A significant difference was observed between the children's literacy abilities at Times 1 and 2, with the children's scores being significantly lower on the TERA–2 at Time 2 as compared to Time 1, $z = 3.09$, $p = .002$. The entire group of children averaged 1.25 standard deviations below the test mean (or a standard score of 100).

Additionally, comparisons were made between the SE and SI learners' literacy scores at Times 1 and 2. No differences were observed in the literacy abilities of the SE and SI learners at Time 1, $z = 0.08$, $p = .93$, or Time 2, $z = -1.69$, $p = .09$, (see Table 5). When tested at Time 1, both groups of children scored within one standard deviation of the mean of the test. When tested at Time 2, the SI and SE learners scored 1.0 and 1.5 standard deviations below the test mean, respectively.

Relationships Among the Four Scales and the TERA–2

Significant correlations were observed between the press for achievement and the value placed on literacy for the entire group, $\rho = .37$, $p = .02$, and the simultaneous learners, $\rho = .41$, $p = .03$; see Table 6. A significant correlation was also found between the press for achievement and the frequency of mother–child reading activities for the entire group, $\rho = .34$, $p = .03$. No other significant relationships were observed among the four factors and the four factors and children's performance on the TERA–2.

DISCUSSION

Children's Home Literacy Experiences

The purpose of the current study was to (a) determine if differences existed in the home literacy experiences and early reading abilities of Head Start children learning Spanish and English sequentially and simultaneously and (b) investigate the relationship between the children's home literacy experiences and their early reading abilities in English. The findings revealed differences in the home literacy experiences of the SE and SI learners. Specifically, the two groups differed with regard to the press for achievement found in the home. The mothers of the SI learners engaged more frequently in teaching pre-academic and early literacy abilities and taking their children to the library. This difference may relate to possible differences in the mothers' educational experiences. Half of the mothers of the SI learners were born in the United States as opposed to 7% of the mothers of the SE learners. Mothers who were born in the United States may be more familiar with school practices in the United States and with the skills that children are expected to have acquired by the time they enter school. Thus, mothers of the SI learners emphasized teaching children pre-academic concepts, such as letters and numbers. The mothers of the SE learners, most of whom were born in Puerto Rico and moved relatively recently to the U.S. mainland, may follow more traditional parenting behaviors that reflect the values of nurturing children and supporting the parent–child relationship, as well as networking among community members and extended families (Zentella, 1998, 2002). These mothers value education and literacy; however, children learn more from an oral tradition and observation. The children's exposure to academic work is provided by teachers in the classroom setting (Kayser, 1998; Langdon, 1992).

Differences were not observed with regard to the value placed on literacy as measured by maternal literacy activities, frequency of mother–child book reading, and the availability of reading materials. The lack of differences between the mothers of SE and SI learners on these two scales may be due to the fact that all families had low incomes. Economic disadvantage limits families' ability to purchase literacy materials, which in turn reduces the literacy activities that adults perform in the home and the range and number of literacy materials available in the home. Economic disadvantage also causes stress in families (August & Hakuta, 1997), which may reduce their ability to engage in more leisure-related activities, such as literacy events.

Children's English Literacy Abilities

No differences between the two groups of children were observed in terms of their English literacy abilities during the middle of the children's first year of Head Start or the second month of their second year. Although a significant difference was not observed between the two groups, it is important to note that in the second year of Head Start, the SI learners scored 1.0 standard deviations below the test mean and the SE learners scored 1.5 standard deviations below the test mean. This difference may be related to the children's language learning status and the language used at home during literacy activities. SE learners may be focusing their efforts on learning English as opposed to acquiring more academic abilities, such as knowledge about literacy. SE learners may not have acquired the English language

abilities necessary to advance their early literacy abilities in English. Additionally, mothers of SE and SI learners differed with regard to the language used when reading books with their children, which may account for the difference in children's literacy abilities at the time of the second literacy assessment. Seventy-eight percent of the mothers of the SI learners read to their children only or primarily in English during their child's first year in Head Start as opposed to 28% of the mothers of the SE learners. This difference in language choice may not have affected children's outcomes during the initial stages of literacy development, because children are learning more general print and book conventions at that time. Thus, exposure to books in any language is sufficient for assisting children to acquire these early concepts. However, as children develop, they acquire knowledge of letters and letter–sound correspondences that most likely need to be taught in English in order for children to do well on a test of English literacy.

The investigation revealed that both groups of children are at risk for poor literacy outcomes early in their educational careers. The entire group of children performed worse on the TERA–2 when they were retested during their second year of Head Start (or 7 months after the initial testing time in their first year in Head Start); furthermore, a sizable percentage no longer scored within normal limits. This result is consistent with the results of the Family and Child Experiences Survey (FACES) study conducted by the Head Start Bureau on a nationally representative sample of Head Start children (Zill & Cook, 2002). One possible explanation for the decline in children's performance is that the amount and extent of literacy activities that occurred in the homes and Head Start classrooms were sufficient to establish an early foundation in literacy during the children's first year. In the second year, however, the frequency and types of literacy provided to children in Head Start classrooms may not have been sufficient to support the acquisition of additional literacy abilities at this point of the children's development.

Observations made in the Head Start classrooms by the first author revealed that literacy events in classrooms followed a whole language approach to literacy. For example, in all classrooms, story books were read on a regular basis, and books and writing materials were made available to children. Although these experiences are valuable, more explicit literacy activities, such as identification of letters and phonological awareness activities, were observed less frequently. Only some teachers provided occasional direct literacy instruction. It is likely that Head Start teachers will incorporate more direct literacy instruction in their classrooms because the Head Start Bureau has mandated that programs target children's literacy development (Zill & Cook, 2002). As a result of this new emphasis, it is anticipated that children's literacy abilities will increase.

A second possible explanation for the decrease in children's performance on the TERA–2 is that the children may have forgotten information over the summer, as most of the children did not attend a Head Start program over the summer months. When reviewing children's raw scores, an increase in the average number of items passed was observed for both groups. An examination of individual raw scores showed that half of the children's raw scores increased or remained the same and half of the children's scores decreased. Therefore, loss of knowledge over the summer months may explain some, but not all, of the children's performance on the TERA–2.

Relationships Between the Home Literacy Environment and Literacy Outcomes

With regard to relationships between the four key factors named in Snow et al.'s (1998) model, press for achievement was correlated with value placed on literacy for the entire group and for the group of SI learners. This finding indicates that the frequency of maternal teaching activities was related to the frequency with which mothers engaged in literacy activities themselves. A relationship also existed between the frequency of maternal teaching activities and mother–child book reading activities for the entire group.

Additional relationships were not found between the children's performance on a standardized measure of early English literacy and the four factors of the home environment proposed in Snow et al.'s (1998) model. There are several explanations as to why significant relationships were not found. First, the scales that were created based on the definitions provided by Hess and Holloway (1984) may not have completely captured the essential aspects of the home literacy environment. Additional observational data may be needed. The behaviors that were examined in this study are supported by the research on children's early literacy development (cf. Dickinson & DeTemple, 1998; Dickinson & Tabors, 2001; Hess & Holloway, 1984; Snow et al., 1998).

Second, the model may not fully apply to this population or may need to be expanded. As noted earlier, the model was based on literature on monolingual children. Other factors related to the unique characteristics of the language learning environment of bilingual children may need to be included in future research. In addition, more direct teaching about literacy rather than modeling of literacy activities may be needed to encourage children's literacy development in the second language. One might expect, for example, that mother–child book reading contributes to children's literacy outcomes. Hammer et al. (2002) observed that mothers from this community read books to their children. They found that the mothers restricted their talk to the pictures in the books or the story line of the book and rarely engaged in talk about components of the book, letter identification, the process of reading, or print awareness.

Another reason relationships may not have occurred is that a critical level of literacy events in the home may be necessary for home literacy events to impact literacy outcomes. Perhaps significant relationships would have been found if the families had engaged in literacy activities more frequently and possessed more literacy materials. In addition, there are far fewer opportunities for Spanish-speaking mothers to access written materials in Spanish. The availability of Spanish books, magazines, environmental print, or alphabet books to monolingual Spanish-speaking mothers is limited (Goldenberg, 1994).

A final explanation is that the TERA–2 is not measuring literacy-related abilities affected by the four factors outlined in Snow et al.'s (1998) model. Most of the factors proposed by Snow et al. involve children observing mothers engaging in literacy events, being exposed to various literacy materials, and experiencing literacy through mothers reading books to them. Scarborough and Dobrich (1994), for example, have argued that early book reading does not have long-ranging effects on children's literacy development. More frequent, direct teaching may be needed. The items on the TERA–2 involve recognition of environmental print and recognition or identification of letters. These skills may not be learned through observation.

Although one of the factors discussed by Hess and Holloway (1984) involves parental teaching of literacy and academic abilities, the mothers apparently did not engage in these activities to a sufficient degree in order for their efforts to have an impact.

Clinical Implications

The findings clearly indicate that not enough is known about how young children acquire two languages or the effect bilingualism has on emerging literacy. More research on the process of literacy acquisition in bilingual children should lead to a better understanding of the process and to recommendations for parents for providing literacy support in the home. In addition, further research may lead to expanded options and improved practices in preschool programs so that the most advantageous learning environment is available in both settings.

As more research is being conducted in this area, it is important for speech-language pathologists to understand that bilingual children from low-income backgrounds come to early childhood and elementary school programs with a range of home literacy experiences and English literacy abilities. Speech-language pathologists can best serve children by determining what literacy experiences children have had at home and by developing a program that builds on children's familiar experiences and supplements children's literacy activities to include more frequent and/or more varied exposure to literacy materials and events. Research has not determined the critical amount and types of literacy activities/experiences children must be exposed to in order to ensure positive literacy outcomes. As outlined by Snow et al. (1998), multiple factors exist that promote literacy development and that place children at risk. Much more research is needed that links analyses of children's language skills with the larger political and social context in which children are learning (Carlo & Snow, 2002). Rather than judging parents' provision of home literacy experiences, speech-language pathologists need to enhance and build on children's previous literacy experiences. In this way, a negative view of families is avoided and a positive, proactive approach to intervention is achieved.

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Table 1

Sociodemographic characteristics of mothers and children.

Variable	***Sequential learners* (n = *15*)** *Mean* (SD) *or Percentage*	***Simultaneous learners* (n = *28*)** *Mean* (SD) *or Percentage*
Mothers		
Age (years)	27.20 (7.81)	25.50 (4.08)
Education (years)	10.43 (2.14)	11.31 (1.20)
Working outside the home	40%	50%
Birth place		
Puerto Rico	93%	50%
United States mainland	7%	50%
Number of children	3.67 (1.9)	2.75 (1.0)
Children		
Age (years)	3.78 (.33)	3.83 (.47)
Birthplace		
Puerto Rico	33%	7%
Unites States mainland	67%	93%
Fathers' involvement		
Sees child 5–7 days/week	77%	42%
Sees child several days/week to a few times a month	8%	20%
Sees child 1 time/month or less	15%	38%

Table 2

Home language use.

	***Sequential learners* (n = *15*)**	***Simultaneous learners* (n = *28*)**
Language adults use	***Percentage***	***Percentage***
With other adults		
Spanish only	75	19
More Spanish than English	17	7
Same amount of Spanish/English	8	37
More English than Spanish	0	19
English only	0	19
With children		
Spanish only	70	12
More Spanish than English	0	4
Same amount of Spanish/English	30	28
More English than Spanish	0	40
English only	0	16

Table 3

Literacy-related items.

Value placed on reading
The frequency with which the mother
1. read a book
2. read the Bible
3. read a newspaper
4. read a magazine
5. read church newsletters
6. read sale ads
7. checked out a book from the library
8. used a dictionary
9. used an encyclopedia
10. used recipes
11. made a grocery list
12. sent a card
13. sent a letter
14. paid bills
Press for achievement
Providing reading instruction: The frequency with which the mother
15. taught colors
16. taught shapes
17. taught the alphabet
18. taught letter sounds
19. taught to count
20. taught numbers
21. colored with the child
22. taught to write
Responding to children's reading interest: The frequency with which the mother
23. took the child to the library
Availability of reading materials
24. number of children's books in the home
25. number of adult books in the home
Reading with children
The frequency with which the mother
26. read books to child

Table 4

Children's home literacy experiences.

	Entire group		***Sequential learners***		***Simultaneous learners***	
Scale	**M**	**SD**	**M**	**SD**	**M**	**SD**
Value placed on literacy	3.30	0.95	3.27	0.74	3.33	1.00
Press for achievement*	4.93	0.98	4.46	1.12	5.20	0.81
Availability of reading materials	1.65	0.63	1.64	0.84	1.66	0.49
Reading with children	6.00	1.28	5.80	0.86	6.11	1.48

* Difference between sequential versus simultaneous learners was significant at $p = .05$.

Table 5

Children's performance on the Test of Early Reading Ability–2.[a]

	Entire group		*Sequential learners*		*Simultaneous learners*	
	M	**SD**	**M**	**SD**	**M**	**SD**
Administration Time 1	89.19	10.33	89.00	9.05	89.29	11.14
Administration Time 2	82.03	11.27	77.38	8.78	84.54	11.81

[a]Reported as standard scores.

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Table 6

Significant correlations between home literacy factors.

	Entire group	***Sequential learners***	***Simultaneous learners***
	ρ	ρ	ρ
Press for achievement and value placed on literacy	.37*	.16	.41*
Press for achievement and frequency of mother-child book reading	.34*	.43	.33

* $p \leq .05$