

# Longitudinal Analysis of the Antecedents of Emergent Spanish Literacy and Middle-School English Reading Achievement of Spanish-Speaking Students<sup>1</sup>

Leslie Reese, Helen Garnier, and Ronald Gallimore  
*University of California, Los Angeles*  
Claude Goldenberg  
*California State University, Long Beach*

*Among students entering kindergarten speaking Spanish, those with greater emergent Spanish literacy development and oral English proficiency were better able to maintain grade level performance in Spanish reading, transition more quickly to English reading, and attain a higher level of English reading proficiency in middle school. Non-English speaking student success in learning to read in English does not rest exclusively on primary language input and development, nor is it solely the result of rapid acquisition of English. Both apparently contribute to students' subsequent English reading achievement. Family factors predicting both early Spanish literacy and later English reading were parents' socioeconomic status and family literacy practices, as well as grandparents' educational level. Results suggest that early literacy experiences support subsequent literacy development, regardless of language; and time spent on literacy activity in the native language—whether it takes place at home or at school—is not time lost with respect to English reading acquisition, at least through middle school. The results also indicate the value of encouraging families to provide home literacy activities (in whatever languages they control) as well as formal preschool experiences.*

---

LESLIE REESE is Senior Research Associate, Center for Culture and Health, UCLA. Her research interests include culture and education, language minority education, and immigration.

HELEN GARNIER is Chief Analyst, TIMSS-R Video Study. Her research interests include research methods and evaluation in education, and adolescent development.

RONALD GALLIMORE is Professor, UCLA. His research interests include culture and education, and teaching research and improvement.

CLAUDE GOLDENBERG is Professor and Associate Dean, College of Education, California State University, Long Beach. His research interests include literacy development, homeschool connections, and school improvement for Spanish speaking English learners.

---

Among monolingual populations, there is evidence that children's literacy "emerges" or develops prior to entering school and is antecedent to later reading achievement (e.g., Adams, 1990; Epstein, 1992; Graue, Weinstein, & Walberg, 1983; Hess & Holloway 1984; Mason & Allen, 1986; Teale & Sulzby, 1986). The term "emergent literacy" (Mason & Allen, 1986; Teale & Sulzby, 1986) refers to the idea that prior to school entry, reading and writing gradually emerge in family contexts (Adams, 1990), a developmental process that influences a child's subsequent response to formal reading instruction.

Much less is known, however, about early or emergent literacy and later reading proficiency among bilingual populations where the language in the home differs from the language of the school. Does a similar developmental process occur in bilingual populations, where children's early literacy exposure and development in one language then affect the course of reading development in a second language? Such antecedent relationships are suggested or implied in several lines of investigation focused on Latino populations, for example, home literacy activities of Latino families (Delgado-Gaitan, 1990), Mexican American fathers' contributions to children's early literacy development (Ortiz, 1996), and children in Mexican American homes learning particular language genres (Heath, 1986). Other investigators have examined factors increasing Latino parent involvement in children's literacy development, such as providing primary language support or training opportunities, again assuming its effects on later reading achievement (cf. Ochoa & Mardirosian, 1996; Young & Helvie, 1996).

Several critical issues regarding emergent literacy remain unexamined. One is the relationship between emergent Spanish literacy and subsequent English reading achievement. What family factors in Spanish-speaking homes are associated with emergent Spanish literacy, and do these factors subsequently create an advantage for children in English reading in school? Does the advantage extend past the primary grades to upper elementary or middle school? Bilingual education theory predicts such relationships (Cummins, 1981; Skutnabb-Kangas & Toukomaa, 1976), and empirical investigations have concluded that sustained academic instruction in Spanish is associated with later gains in English achievement (Ramirez, 1992; Thomas & Collier, 1998). But we do not know the degree to which emergent literacy in Spanish, developed through family-mediated activity in the preschool years, contributes to subsequent reading achievement in English.

As important as home literacy activities and early literacy development might be for later outcomes, they are only two links in a chain of possible antecedents of English reading achievement among Spanish-speaking students. Other potential antecedents include, for example, parental values, oral English proficiency at kindergarten entry, family literacy history, parents' education, and family socioeconomic status. However, compared to English-speaking populations, the corpus of empirical evidence on these potential antecedents of English reading achievement among Spanish-speakers is limited on several counts. First, there is a general lack of correlational evidence on the relationship of emergent Spanish literacy with subsequent scores on

school-administered Spanish and English reading achievement tests. Second, what data there are tend to be cross-sectional rather than longitudinal. Most studies of family literacy practices among Latinos have not included longitudinal, systematic assessment of individual children's early Spanish literacy development and tested English reading achievement.

In order to examine antecedents of early Spanish literacy development and subsequent English reading achievement, we took advantage of an existing longitudinal study of Latino families and their children (Gallimore & Goldenberg, 1993; Goldenberg & Gallimore, 1995; Goldenberg, Gallimore, Reese, & Garnier, 1998; Reese, Balzano, Gallimore, & Goldenberg, 1995a). The longitudinal study began in 1989 with recruitment of a randomly selected sample of 121 Latino girls and boys entering kindergarten in two school districts in Southern California. The data set for the study reported here includes information collected from kindergarten through middle school and includes both quantitative (Survey Sample) and qualitative data (Case Sample, the latter obtained by frequent contacts with a randomly selected quarter of the Survey Sample).

At kindergarten entry, all in this sample of second-generation Spanish-speaking students were placed in transitional-bilingual programs where initial literacy instruction was conducted in Spanish. Upon entering kindergarten, students exhibited substantial variability on individually administered tests of early Spanish literacy. Test performance variability within the sample continued throughout their elementary and middle school years irrespective of program of instruction (Goldenberg et al., 1998). Over the course of the study, many families moved away from the neighborhoods where students had begun their schooling and were enrolled in increasingly diverse programs. By seventh grade, all the children were enrolled in English instruction, with some moving to English as early as first grade (15%), with 40% more transitioning to English by third grade and an additional 31% by fourth grade. This sample's literacy history and variable performance make it suitable for investigating the antecedents of English reading achievement of children from Spanish-speaking homes who were taught in Spanish in early grades.

### **An Ecocultural Model of Antecedents of Reading Achievement**

Ecological/cultural (or ecocultural) theory proposes that constructing and sustaining a daily routine is an adaptive problem that confronts families in all cultures (LeVine, 1977; Super & Harkness, 1986; Weisner, 1984; Whiting & Edwards, 1988). Activities embedded in family routines have profound effects on children's development. These everyday activities create opportunities for children to learn and develop through modeling, joint production, apprenticeship, and other forms of mediated social learning embedded in goal-directed interactions (c.f. Gallimore & Goldenberg, 1993; Rogoff, 1990; Tharp & Gallimore, 1988; Weisner, 1984).

Family routines and development-sensitive activities are partly determined by the surrounding environment and are socially constructed by fami-

lies in accordance with their cultural schema and values. More distal features of the environment, for example, parents' working class jobs that place them in high-crime neighborhoods and low-resource communities, indirectly influence developmental outcomes by constraining the daily routines families are able to construct and sustain. Competencies required to make a living, such as weaving (Greenfield, 1974), pottery making (Price-Williams, Gordon, & Ramirez, 1969), literacy (Rogoff, 1990), or other subsistence-required competencies (Nerlove & Snipper, 1981), along with other factors, shape a family's daily routine and indirectly create developmentally sensitive experiences for children.

For example, in many communities literacy is a key adaptive competence on which family subsistence depends and which shapes children's learning opportunities. There is substantial evidence that better educated parents working in jobs requiring literacy create differential literacy activity at home for their children (Feitelson & Goldstein, 1986; Heath, 1983; Teale, 1986; Wells, 1985). However, categorical indicators such as parents' education level, job status, or neighborhood resources are only indirect proxies for children's literacy learning opportunities and may underestimate within group variability. Numerous studies have documented significant variability in early literacy experiences within relatively homogenous social and cultural groups (Delgado-Gaitan, 1990; Gallimore & Goldenberg, 1993; Heath, 1983).

This within-group variance indicates that even in the poorest families and neighborhoods, some children have access to literacy activities and resources (Taylor & Dorsey-Gaines, 1988). For example, low-income, immigrant Spanish-speaking families engage in a variety of literacy activities motivated by subsistence demands as well as by cultural values. Some immigrant Latino parents fill out forms or study pamphlets required by their work, or they use reading and writing for domestic purposes such as keeping household accounts, writing letters, and writing grocery lists. Some parents read storybooks or Bible stories to their children, retell folk tales, take them to libraries, and find inventive ways to encourage literacy development. They read to children when required by the school but also in order to promote moral values (Reese, Goldenberg, Loucky, & Gallimore, 1995). Latino children observe their parents using reading and writing skills; they participate in activities with parents, for example, following along with a Bible in church; and ultimately these children begin to use literacy skills themselves in their play and schoolwork.

The more children are exposed to reading and writing as adaptive tools in everyday family life, the more likely children's literacy begins to "emerge" prior to school entry. This is consistent with the generally accepted idea that learning to read and write begins long before children enter school, as children engage in a variety of activities with parents and caregivers that support literacy development (Snow, Burns, & Griffin, 1998). Such activities at home promote literacy-related skills and knowledge, for instance, knowing about print and books, comprehending stories, and knowing that letters

have names and corresponding sounds, among other emergent developments (Adams, 1990; Clay, 1985).

Based on ecocultural theory, we propose the following general predictions for the children of immigrant Latinos in the U.S.: Distal environmental factors (e.g., family educational history and SES, parents' years in the U.S.) predict children's Spanish literacy and oral English proficiency at kindergarten entrance through the more proximal environmental factors that are the joint activities of the daily routine. For example, parents who have spent more years in the U.S. have had more opportunities for contact with American schools and teachers' expectations, either through their own or older children's experiences, than have parents with less time in the U.S. In some of these families, home literacy practices undergo changes over time as families respond to school demands to read at home (Reese & Gallimore, in press). An important feature of our model is that the influence of the family background factors on children's outcomes is conceptualized as an indirect process in which distal environmental factors influence greater children's exposure to the more proximal environment. Based on previous research on the long-term effects of early language and literacy proficiency and experiences, we expect children's Spanish literacy and oral English proficiency at kindergarten entry to directly predict Grade 7 English reading achievement. The general conceptual model underlying our predictions is depicted below.



## Methods

### Sample Description

With the assistance of school officials, we sent contact letters in the fall of 1989 to the parents of all Spanish-speaking children in 13 kindergarten classrooms in two Los Angeles area school districts. These classrooms were selected in four different schools that had large bilingual education programs. On the basis of school-conducted assessments, all children in the sample pool were to be placed in Spanish-language reading instruction at the time the study began. Of the 296 letters sent home, 252 (85%) were returned by parents indicating willingness to participate in the study. Of these, 154 parents were selected at random and contacted by phone to construct a Longitudinal Cohort of 121 families with a child entering kindergarten. In 15 cases, it was not possible to contact the family after making repeated attempts and/or leaving messages. In another 6 cases we were given incorrect telephone numbers. Six families had moved by time of the telephone contact. Five families declined to participate after we called and explained the project. One family was omitted from the sample because they

had insisted to the school that their child be placed in an English-only instructional program.

Among the cohort of 121 children when the study began in 1989, 91 lived in Lawson, an un-incorporated area of approximately 1.2 square miles in metropolitan Los Angeles. School enrollment in the Lawson District was over 90% Latino. Lawson is a small, Latino community near a major airport. In this district, children were placed in the district's bilingual education programs in which early instruction was carried out predominantly in Spanish. Spanish is also the language used in most of the small businesses and churches in the area. The remaining 30 families of the 121 in the initial sample included immigrant Spanish-speaking families residing in a racially mixed neighborhood approximately 25 miles south of Lawson (Sandy Beach); these children attend school in a large urban district.

The great majority (84%) of the parents in both communities came to the United States from Mexico; the rest were from Central America. Although all of the parents in the sample are immigrants, the majority (75.2%) of their kindergarten-aged children were born in the United States. In comparison with the mothers, fathers tended to have lived longer in the United States. When the study began in 1989, mothers had spent an average of 10.3 years in the United States, while fathers averaged 11.8 years. Mothers and fathers had virtually identical levels of education; both averaged 7.0 years of education (range = 0 to 16 years). These averages are similar to those reported for first-generation Mexican Americans according to the 1979 Current Population Survey carried out by the U.S. Census Department (Chapa, 1988). They are within the range reported for rural migrants to and non-migrants in the city of Oaxaca in 1987: 5.4 years of education for rural migrant females, 6.7 for non-migrant females, 6.8 for migrant males, and 7.8 years of education for non-migrant males (Rees, Murphy, Morris, & Winter, 1991). It should be noted, however, that years of schooling in the U.S. and Mexico are not directly comparable. At the time that the parents in the study were in school themselves, elementary schooling was universally available throughout the country but secondary schooling (grades 7-9) was not. Those who had completed secondary (grade 9) schooling were able to obtain white collar jobs such as cashiers, bank tellers, secretaries, and private accountants.

Families were mostly low-income, with over 90% of the families qualifying for the free or reduced lunch program in kindergarten. Only 3.2% of the fathers reported being unemployed when the study began in 1989; however, this percentage rose during the economic decline of the early 1990s which had a strong impact in California. Parents with jobs in the service industries worked as cooks, waiters, maids and housekeepers, janitors, bartenders, bus boys, parking attendants, child care workers, and cafeteria workers. Also included were two teacher's assistants and several gardeners. Skilled workers included mechanics, electricians, carpenters, welders, construction workers, as well as a dressmaker. Both men and women were employed as laborers, including factory work such as assembly, packing, machine operation, loading, and factory supervisor positions, as well as

drivers of various types of vehicles. Approximately 43% of the mothers worked outside the home when the study began, with numbers rising as children grew older. Over 90% of the men and 86% of the women were employed in skilled or unskilled labor jobs, and only 2% of the men and 3% of women were found in managerial or administrative positions.

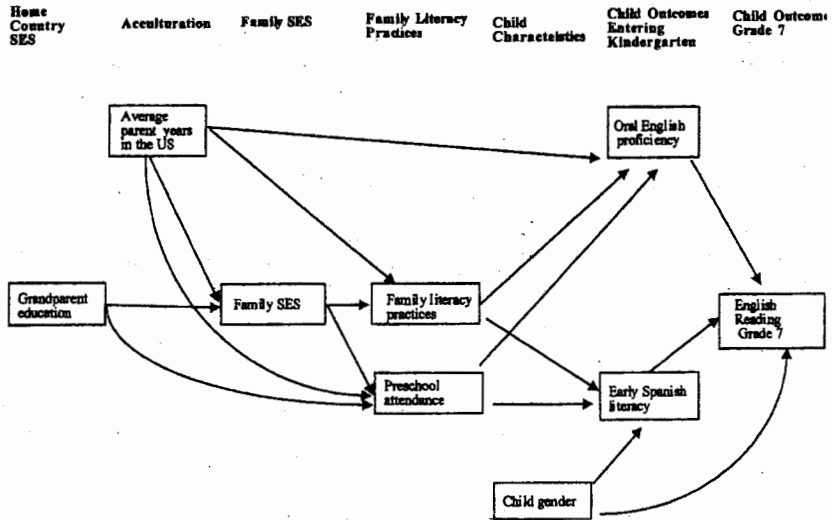
*Sample retention.* Currently, 91 of the original 121 families recruited for the study continue to participate. Of the 30 lost cases, half were lost during the first two years of the study when families moved away and contact information proved inadequate. For the last four years, the sample has remained constant at  $N = 91$ . Sixty percent of the children are boys; 40% are girls. Complete information on sample construction and retention is found in Goldenberg et al. (1998).

In the study reported here, we used complete data on children's school achievement from kindergarten through grade 7. During year 5 of the study, one of the participating districts switched permanently to a locally rather than nationally normed test of reading performance, which proved inadequate for our analyses and further reduced the sample size to  $N = 66$ . Statistical comparisons of the 66 cases retained in the final sample with the 55 cases excluded from these analyses indicated no significant differences at entry on grandparent education, mothers' or fathers' education or occupation, length of time parents had lived in U.S., or home literacy practices. The 66 children with complete achievement data did not have significantly different overall entering kindergarten or grade 7 reading skills compared to those children not retained in study. A small amount of missing data was estimated for home literacy experiences and for father and grandparent education using mean substitution.

### **Development of the Hypothetical Model**

The model presented in Figure 1 organized theoretical propositions, Case Sample interpretations, and results of prior Survey Sample analyses into a proposed longitudinal and predictive path model to be statistically tested by path analysis using the Survey Sample pre-kindergarten through 7th grade data set. The model presents a longitudinal timeline in which ecological/cultural antecedents predict grade 7 English reading achievement through children's early Spanish literacy and English oral proficiency.

At the beginning of the study, the general model was derived from ecocultural predictions as described earlier. However, once the study began, at several critical junctures Case Sample materials and theoretical insights suggested new lines of investigation that were subsequently pursued with the Survey Sample. In turn, statistical findings from the Survey Sample identified and focused subsequent Case Sample interviews and observations. This coupling of qualitative and quantitative methods within an ecocultural approach (Reese, Kroesen, & Gallimore, 1998) provided a recursive cycle of discovery and hypothesis testing throughout the longitudinal study. Family literacy practices were proposed initially as direct determinants of early



**Figure 1. Hypothetical model predicting child school performance from kindergarten through grade 7. Family SES includes mother and father education, and mother and father occupation recoded to 1 = low SES to 4 = high SES-standardized; family literacy practices includes mother and father use of literacy recoded 0 = no literacy, 1 = some (recreation/computation/homework), 2 = read and write in one language (English OR Spanish), 3 = read and write in two languages.**

Spanish literacy (Gallimore, Reese, Balzano, Benson, & Goldenberg, 1991) and indirect determinants of English reading based on the ecocultural proposition that family subsistence or income-producing activities are significant mediators of child exposure to developmental experiences through their impact on activity settings in the home (Rogoff, 1990; Weisner, 1984). Through participation in everyday activities that require cognitive and communicative functions, children are predicted to be drawn into the use of these competencies in ways that nurture and develop them. These general predictions were consistent with Case Study ratings of family literacy environments in the Case Sample that correlated significantly with reports of fathers' job-required literacy (Reese, Gallimore, & Goldenberg, 1999). Other qualitative observations in Case Study homes indicated positive relationships among the following: parental use of literacy on the job, higher frequency of home-based literacy activity for children, more children's reading materials, and greater opportunity for children to observe parents' literacy use. Thus, we hypothesized that variation in children's early literacy experiences (partly indexed by family literacy practices), regardless of language used, would be associated with students' early Spanish literacy development, and that the effects of the latter would continue through elementary school, that is, we expected that children's early Spanish literacy performance at kindergarten



entry would predict achievement on standardized tests of English reading in middle school.

We also expected that distal factors (including family socioeconomic status and length of residence in the U.S.) would be associated with home literacy experiences. This was based on the general ecocultural proposition that family literacy activities are a significant mediator between distal influences and children's literacy development. Because parents' values and practices are shaped by their own experiences, we included the grandparents' level of education as a distal factor expected to continue to exercise an indirect influence on the home literacy environments of children in the study. In addition, Case Sample observations suggested that intergenerational family literacy history might be related to parents' education levels and would play a role in parents' focus on literacy development with the children in our study (Reese & Gallimore, in press). At the same time, however, we expected that more proximal environmental factors would be stronger predictors of children's early Spanish literacy performance than distal factors; that is, more distal factors would predict emergent Spanish literacy only indirectly through two indicators of children's early literacy experiences (family literacy practices and children's preschool attendance). We further expected that the influence of proximal environmental factors on middle school English reading achievement would be indirect through Spanish literacy performance at entry to kindergarten.

Although data on the effects of preschool attendance on later academic outcomes consistently indicate that preschool attendance reduces the probability of later grade retention or placement in special education (Clarke, 1984), findings with respect to gains in reading performance in first grade and beyond are inconclusive. Some programs have reported reading gains, while others with differing design and curricula have not (Marcon, 1992; Reynolds & Temple, 1998; Schweinhart & Weikart, 1997; Zigler & Styfco, 1994). We expected that, for children in our sample, preschool attendance would provide early exposure to English as well as promoting early Spanish literacy development. Additionally, we predicted that the number of years that the family resided in the U.S. would be associated with oral English proficiency at kindergarten entry even though other family background measures of family SES and parent education are associated only indirectly with this measure of English proficiency. Our prediction is based on the assumption that English acquisition by parents is roughly indexed by length of exposure. Prior research on this sample indicated that parents' years in the U.S. were not directly correlated with either children's school performance or parental values, attitudes, and expectations for further achievement (Goldenberg et al., 1998; Reese et al., 1999). However, the exposure to English assumption made it reasonable to expect that the number of years that the family had resided in the U.S. would be associated with children's development of oral English proficiency. It was our expectation that both early Spanish literacy performance and oral English proficiency (at entry to

kindergarten) would predict middle school English reading achievement. We finally expected to find that girls would have a higher level of literacy outcomes upon entering kindergarten and at grade 7 compared to boys based on findings in the general population that girls tend to outperform boys in verbal subject areas (Maccoby, 1966; Maccoby & Jacklin, 1974). We expected differences in English proficiency at kindergarten for this sample of children would be related to the length of time that the family resided in the United States rather than to child gender.

In order to test the model with path analysis, it was necessary to limit the number of variables included. Several antecedent variables that were theoretically interesting were included initially but later excluded because they were only weakly correlated with children's emergent literacy and English reading achievement scores. Those variables excluded were parents' reports of child interest in learning and parental educational expectations for their children. It is our belief that children's interest in learning indeed influences children's literacy development; however, it is likely that the rather crude measures that we had available from survey data did not permit us to fully test their importance.

The omission of parental expectations also requires comment given the longstanding interest in the hypothesis that negative social factors in the U.S. tend to lower Latino parent educational expectations, which in turn depress children's achievement (e.g., Ogbu & Simons, 1998). A prior analysis of this data set (Goldenberg, Gallimore, Reese, & Garnier, 1998) indicated that (1) parents' educational aspirations are high and invariant throughout the elementary years, regardless of children's academic performance, while expectations fluctuate over the same time period; (2) children's school performance influences parents' expectations, but expectations do not influence children's achievement; and (3) immigrant Latino parents attribute high instrumental value to formal schooling, and neither years in the U.S. nor perceived discrimination diminish this belief.

### Measures

Interviews, child assessments, and school records beginning at child age 5 and continuing through child age 13 were used to obtain data on family background, home literacy activities, child outcomes, and child gender. Summary statistics are presented in Table 1.

*Procedures for collecting parent and child data.* Families were interviewed in their homes in the fall of children's kindergarten year by project-trained Spanish-speaking interviewers following a standard protocol. The interview included questions on family characteristics and demographics, parents' views of their children's projected academic progress, their aspirations and expectations with regard to their children's educational and occupational future, and their attitudes toward the instrumental value of schooling. Parents also were asked about factors that they considered important for student academic success and about the role parents play in school achievement.

Table 1  
 Descriptive Statistics of Parent and Child Measures From  
 Pre-kindergarten to Grade 7 (N = 66)

Variables	Mean	Standard deviation	Range
Family background			
Grandparents' education average	2.47	3.44	0.00-16.00
Average parent years in the U.S.	10.61	4.26	1.00-19.50
Family SES	0.00	1.00	-1.63-2.34
Kindergarten, Fall, 1989			
Family measures			
Family literacy practices	0.00	1.00	-1.44-1.95
Child measures			
Child gender	1.39	0.49	1.00-2.00
Pre-school attendance	0.41	0.50	0.00-1.00
Child outcomes			
Early Spanish literacy ( <i>Lectura Inicial</i> )	0.10	0.96	-1.71-3.14
Oral English proficiency (ENGLEV)	1.55	0.99	1.00-4.00
Grade 7, 1996-1997			
Child outcome			
English reading (national percentile)	32.74	25.77	1.00-91.00

In-depth home interviews were carried out in the spring of 1993 and 1995. In addition, parents were interviewed by telephone in the fall and spring of each year through the fall of 1997. We asked about children's school progress, parents' aspirations and expectations for children's future educational attainment, specific learning activities in the home, parents' beliefs about how children learn, and their views regarding parent and teacher responsibilities in the learning process. Each telephone interview lasted approximately 20 minutes. Spring telephone contacts were shorter and served to collect updated information on children's school attendance and performance.

Nested in the Longitudinal Cohort was the Case Sample, originally consisting of 32 families who were randomly selected from the entire longitudinal cohort. This subset was visited at home by a fieldworker 3-6 times each year in order to supplement information obtained during home and phone interviews with the entire Longitudinal Cohort and to provide a more detailed picture of family life.

*Student achievement.* To measure students' achievement we used two sets of measures— independently administered assessments of early literacy development in kindergarten and standardized tests of reading performance in grade 7. At the beginning and end of kindergarten, students were tested using a Spanish language literacy assessment developed for the project because Spanish was the primary language of all participating children (*Prueba de Lectura Inicial* or *Lectura Inicial*). Children were asked to identify letters

and their corresponding sounds; read words (real and nonsense); write (or attempt to write) letters, words, and stories; demonstrate knowledge of important concepts about print; and demonstrate oral comprehension of a story. These are important dimensions of early literacy development (Adams, 1990; Clay, 1985; McCormick & Mason, 1989).

In the concepts about print section, based on Marie Clay's (1985) measure, students were shown a book and asked questions about what it is, what part is read, how text is predicted by pictures, etc. In the story comprehension section, students listened to an age-appropriate story (in this case a fairy tale) and answered oral questions about what they had heard. In the letter recognition section, they were given 10 upper case and 10 lower case letters in random order to identify. The child's reading rate was assessed only on the posttest at the end of kindergarten and consisted of a rating by the tester of the child's fluency in reading a short piece of text. Children also were asked to write as many words as they could. The total number of points possible on the assessment battery was 69 plus the number of words (including names) that they wrote correctly. For the purposes of comparison and analysis, raw scores on the six subtests of this assessment battery were converted to a factor score for the pretest administered in the fall of kindergarten. Principal components analysis yielded a single robust factor with factor loadings of individual measures ranging from .49 to .66 (eigenvalue = 3.26).

Children demonstrated a wide range of performance on selected subtests of *Lectura Inicial* at the beginning of kindergarten. While some students entered kindergarten unable to recognize any letters or to answer questions about a story read aloud to them, and with few notions of what a book is, how it is used, and which part of the book is read, others demonstrated proficiency in all areas. By the end of the year, although average performance had increased overall, the range of performance was even greater than had been observed at the beginning of the year.

In each subsequent year, students were tested on standardized reading tests at their local school sites in their language of instruction (primarily *Spanish Assessment of Basic Education* [SABE] and *Comprehensive Test of Basic Skills* [CTBS], both published by CTB/McGraw-Hill, in the elementary grades). Standardized test scores (national percentiles in reading and math) continued to be collected through elementary school and middle school, even when families moved out of the original participating districts. By the end of the students' seventh grade year, national percentile scores from six different tests were collected (CTBS, California Achievement Test, Individual Test of Academic Skills, Stanford Achievement Test, Iowa Test of Basic Skills, and Texas Assessment of Academic Skills).

Summary national percentile data for grade 7 reading are reported in Table 1. With the exception of 14 students who were instructed and tested in English in grade 1, the students in the cohort were enrolled in transitional bilingual programs in which they received their initial literacy instruction in Spanish. By 7th grade, all children were enrolled in English instruction.

Although most of the schools that children attended reported using established criteria for transitioning the children to English reading instruction (typically performance in Spanish reading at approximately the 3rd grade level and conversational fluency in English), some students found themselves transitioned abruptly when they changed schools. As children moved from Spanish to English literacy instruction, grade of transition negatively predicted grade 7 English reading achievement ( $r = -.33, p < .01$ ); that is, children who transitioned earlier—those who were reading fluently in Spanish and who were also more conversationally fluent in English at earlier grade levels—maintained higher performance in grade 7 than children who transitioned later. In general, scores declined dramatically in upper elementary grades (grades 3–5) when the children were first tested in English and then began to improve slowly (Goldenberg et al., 1998).

*English language proficiency.* According to California state requirements, all students who speak a language other than English—including by definition all students in the study—must be assessed in English and in their native language soon after enrolling in school. Students in our sample were tested in one district ( $n = 91$ ) on the Bilingual Syntax Measure (BSM) in both English and Spanish. Students in the other district ( $n = 30$ ) were tested on the IDEA Proficiency Test (IPT) in English. Both the BSM and the IPT are individually administered tests which yield scores ranging from 1 to 5 (BSM) or from 1–6 (IPT), which indicate extremely limited to fluent oral proficiency in the language. These two measures were combined to form a single measure of English proficiency level (ENGLEV). This measure was coded from 1 (non-English-proficient) to 5 (fluent-English-proficient). Seventy-two percent of the children were coded 1; 10% of the children were at level 2; 9% were at level 3, and 9% were at level 4. None of the students tested “fluent” in English proficiency upon entrance to kindergarten.

Family measures obtained through the interviews with parents described above include child characteristics, parent practices and beliefs about literacy, and family background.

*Child gender.* Child gender was coded 1 = boy and 2 = girl.

*Child preschool attendance.* Parents reported whether their child attended preschool (1 = yes, 0 = no). Of the 41% of the children who attended preschool, their preschool experiences varied. Some had attended a local Head Start center; others had participated in a pilot program in one of the participating elementary schools, in which children received a preparation for the kindergarten curriculum.

*Family literacy practices.* Principal components analysis was used to create one measure of children's exposure to literacy experiences in the home environment: mother use of literacy, father use of literacy, and the child-centered literacy practice of reading aloud to the child (standardized loadings were .73, .74, and .68, respectively). A detailed description of these variables follows.

*Parents' literacy use.* Parents reported the extent to which mothers and fathers used literacy as part of their job and outside of their job. Their

responses were coded as follows: 0 = no literacy used; 1 = literacy not used on the job itself, but used for recreational reading, domestic use, or school help; 2 = read and write on the job in one language (Spanish or English); and 3 = read and write on the job in two languages (Spanish *and* English). Five percent of the fathers and 8% of the mothers read and wrote on the job in two languages (both English and Spanish). Fifty-two percent of the fathers and 14% of the mothers read and wrote on the job in one language (English or Spanish); 16% of the fathers and 50% of the mothers reported using literacy for recreational reading, school and domestic use, but not on the job at all; and 27% of the fathers and 28% of the mothers reported not engaging in any literacy practices, either on or off the job.

*Reading aloud to the child.* At the beginning of kindergarten, parents reported whether or not they read aloud to their child (0 = no, 1 = yes). Twenty-eight percent of parents read to their child. Although many parents later reported reading to children in response to teacher suggestions or homework requirements, upon entrance to kindergarten reading aloud was not a common practice in our sample.

*Grandparent education.* Our measure of grandparent education was created by averaging available data on the highest grade completed by both sets of maternal and paternal grandparents. All of our parent informants knew the educational level of at least one of the maternal or paternal grandparents; however, close to half of the informants were unsure of the level of education one or more of the grandparents. For cases in which data were missing, we averaged only the grandparents for whom we had data. For example, if the maternal grandparents' levels of education were known and the paternal grandparents' were not, the average was based on the two known grandparents.

*Family SES.* Family SES was created by averaging measures of parent reports of mother and father education and occupation. Parent education was measured by the highest grade completed by parent. Mothers averaged 7.1 years of education (range = 0 to 16 years), and fathers averaged 6.9 years of education (range = 0 to 14 years). Mother and father years of education were significantly correlated ( $r = .34, p < .01$ ).

Parents identified their current occupations and also reported if they had worked prior to coming to the U.S. Both responses were coded. The measure used in this study (and percentages reported above) represents a combination of these two questions, using the higher level reported as the measure of parent occupation, regardless of country. Most mothers did not work in Mexico. However, for fathers, this measure yields slightly higher employment status levels than U.S. employment only. For example, fathers were six times more likely to hold managerial or white-collar jobs in Mexico as in the U.S. We believe that combining these measures provides a more accurate picture of the type of job experiences that the parents had over time and that may have contributed to certain types of literacy use in the home.

Mother and father occupation measures were coded as follows: 1 = unskilled labor, housewife; 2 = skilled labor; 3 = white collar, technical work;

and 4 = managerial, professional. Seventy-six percent of mothers were housewives or worked in unskilled labor, 11% were employed in skilled labor, 14% were in technical or white-collar jobs, and none were in managerial or professional jobs. Thirty-six percent of fathers did not work or worked in unskilled labor, 56% were employed in skilled labor, 5% were in technical or white-collar jobs, and 3% were in managerial or professional jobs.

*Parent years in the U.S.* Mothers and fathers reported the number of years that they had lived in the U.S. Mothers lived in the U.S. an average of 9.3 years (range = 1 to 19 years), and fathers 12 years (range = 1 to 21 years). We averaged mothers' and fathers' number of years of residence in the U.S. to create a single measure of parent years in the U.S.

### Analysis

Path analysis was used to estimate and test hypothesized interrelations among family and child variables. The hypothetical model (Figure 1) reflects a longitudinal sequence in which three early, ecocultural family background measures (grandparent education, family SES, and parents' years in the U.S.) indirectly and positively predict child's early Spanish literacy performance (*Lectura Inicial*) and oral English language proficiency (ENGLEV) at kindergarten through two measures of family daily routines and activity settings (family literacy practices and child's preschool attendance). Parent years in the U.S. also directly and positively predict English language proficiency. Children's literacy performance and English language proficiency then directly and positively predict grade 7 reading achievement. Gender positively predicts children's early literacy development but not English language proficiency. The hypothetical model was tested using path analysis and the fit of the model was assessed with the comparative fit index (CFI: Bentler, 1990) and  $\chi^2$ /degrees of freedom ratios. One-tailed tests were used to test hypotheses about the direction of the results.

## Results

### Path Models

The correlations between parent and child measures used in the path analyses are presented in Table 2. In the first model, we explored the associations among family background, family literacy practices, children's preschool attendance, and children's literacy outcomes. The first model had the following fit indices:  $\chi^2(19, 66) = 17.38, p = .56, CFI = 1.00$ , indicating an acceptable fit.

The final model (Figure 2), which was modified by gradually dropping nonsignificant parameters, had excellent fit indices:  $\chi^2(24, 66) = 22.71, p = .54, CFI = 1.00$ .

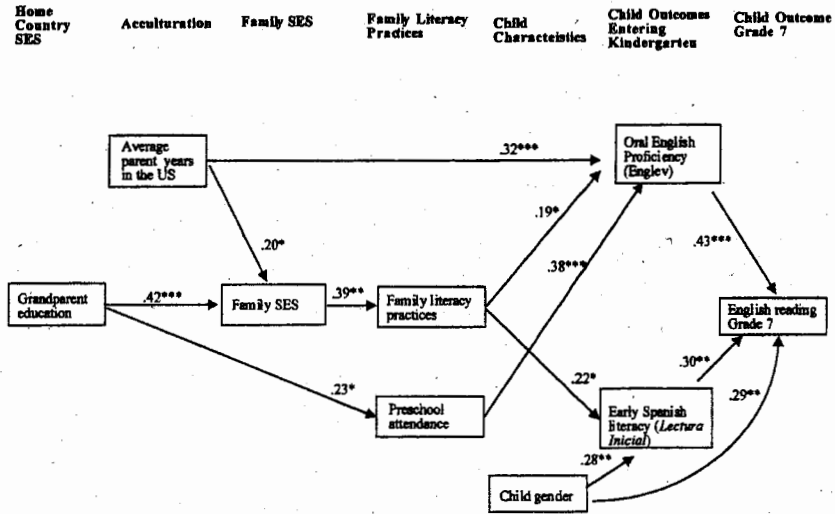
Table 2  
Correlations Between Family and Child Measures in Path Analyses (N = 66)

Variables	1	2	3	4	5	6	7	8	9
1. Grandparents' education	1.00								
2. Average parent years in U.S.	-.09	1.00							
3. Family SES	.40**	.17	1.00						
4. Father literacy practices	.35**	.20	.43**	1.00					
5. Child gender	.02	-.01	.00	.08	1.00				
6. Preschool attendance	.23	-.01	.08	.02	.09	1.00			
7. Kindergarten literacy test (Fall)	.19	.01	.36**	.20	.30*	.14	1.00		
8. Oral English proficiency	.01	.35**	.22	.25*	-.04	.40**	.21	1.00	
9. Grade 7 reading achievement	.02	.21	.30*	.20	.35**	.18	.47**	.48**	1.00

\*\*p < .01, \*p < .05.



## Antecedents of Emergent Literacy



**Figure 2.** Trimmed model predicting child school performance from kindergarten through grade 7.  $\chi^2 (24, N = 66) = 22.71, p = .54$ ; CFI = 1.00. Regression coefficients are standardized (\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ ). Family literacy practices is a factor score of mother's and father's literacy (0 = no to 3 = reads/writes two languages) and reads to child (loadings = .73, .74, .68, respectively; eigenvalue = 1.54).

### Main Results of the Path Analysis

The path analyses indicate that children's English reading performance in grade 7 is predicted by two independent measures of children's language and literacy proficiencies upon entering kindergarten: children's level of oral English proficiency (ENGLEV) and their early Spanish literacy proficiency (*Lectura Inicial*).

1. Grandparents' level of education (in the home country) predicted family socioeconomic background, which in turn predicted family literacy practices. Family literacy practices predicted both children's emergent Spanish literacy and oral English proficiency, which in turn predicted seventh grade English reading achievement. In the final model (Figure 2), the effects of grandparent and parent socioeconomic background on child reading achievement at age 7 were indirect through family literacy practices prior to children's entrance into kindergarten.
2. The average number of years that the parents lived in the U.S. predicted the child's oral English proficiency, which then predicted English reading performance in grade 7. Predictably, early English proficiency was not correlated with early literacy proficiency in Spanish. The average years that parents lived in the United States

- did not predict home literacy practices nor children's preschool attendance.
3. Grandparents' level of education predicted the child's attendance in preschool, which in turn predicted oral English proficiency. Higher grandparent education directly predicted that children would attend preschool, and indirectly predicted home literacy practices through higher family SES. More years parents lived in the U.S. and children's preschool attendance predicted a higher level of children's English language development. However, attending preschool was not associated with children's higher literacy performance entering kindergarten.
  4. Girls generally had higher literacy performance entering kindergarten and higher reading achievement at grade 7. Gender was not correlated, however, with the proximal literacy environment factors that were utilized in the model.
  5. In sum, English proficiency and initial literacy performance and gender uniquely and significantly predicted higher reading achievement grade 7.

#### Results of Qualitative Analysis of Significant Pathways Identified in the Path Model

The path analyses identified two converging pathways to 7th grade English reading proficiency for the second-generation immigrant students in our sample. English reading performance in middle school was predicted by both early oral English proficiency as well as by literacy development in the students' native language. To better understand the interplay of factors that contributed to outcomes in each pathway, we turn to qualitative analysis of case material. In the section that follows, we examine each of the pathways enumerated above that emerged as influential in the path model.

##### *1. Grandparent education, family SES, and home literacy practices.*

Case materials suggest that grandparents' level of education is strongly associated with parents' socioeconomic status, as reflected in parental levels of education and parental work status. Many of the grandparents lived as children in *ranchos*, or rural hamlets, and at that time had little access to education beyond the rudiments of reading and counting. Others moved to towns and cities and had access to formal schooling, at least through elementary school. The parents in our sample who grew up in homes with more literate parents (the grandparent generation) are themselves more highly educated and more likely to use literacy themselves for work, domestic, recreational or religious purposes. In addition, both higher grandparents' level of education and the literacy practices associated with it are correlated with the child's interest in learning as reported by parents at the beginning of kindergarten.

The case of Mrs. Lara provides an example of the process of intergenerational effects. Both of her parents grew up in rural areas; however, both

had moved to Mexico City to work, and it was there that they met and married. Although Mrs. Lara's mother had never been to school, her father had two years of education and worked as a carpenter. Mrs. Lara commented that, although her parents had little in the way of schooling themselves, they wanted more for their children. "*La verdad, la gente de antes iba muy poco a la escuela. Para ellos lo veían normal, para nosotros no. Ellos siempre insistieron en que íbamos a la escuela.*" ("The truth is that then people did not go to school much. For themselves they saw this as normal, for us no. They always insisted that we go to school.") She remembers that at home her father frequently read the Bible and the newspaper. Living in Mexico City, Mrs. Lara was able to complete commercial secondary school (grade 9), and she worked as a secretary for five years before coming to the U.S. When her daughter entered kindergarten, Mrs. Lara did not initially report reading aloud to her, but she did report teaching her the alphabet and cutting out magazine pictures to use in reinforcing the letters and sounds that Tadia was learning in school. By the time Tadia was in first grade, her mother reported reading to her on a daily basis.

Grandparents' level of education also appears to be related to changes in families' home literacy practices and attitudes over the course of the first three years of the longitudinal study. Some families, like the Lara family above, began reading to children and reported seeing connections between this activity and children's subsequent interest and ability in reading. These changes in practice were spurred, for the most part, by school expectations and demands, as teachers required home reading as part of regular homework or as school reading clubs were formed to encourage children and parents to read at home. Within the family, the ways in which parents responded to the school demands appeared to be associated with parents' home country experiences: Parents from urban rather than rural settings, who had access to higher levels of schooling, were more likely to quickly adopt school-sponsored practices of reading aloud to children (Reese & Gallimore, in press).

On the other hand, parents who were raised on *ranchos* by grandparents who had not gone to school were more likely to read aloud to children when reading aloud later formed part of a homework requirement but without changing their beliefs about the benefits of reading aloud to preschool-aged children. As one of these mothers stated, she did not read to her child's younger siblings because they were too young to understand and reading to them would merely "*gastar saliva*" ("waste saliva"). This attitude is consistent with a belief, expressed by over two thirds of the sample, that children under age five have not yet reached "*la edad de la razón*" or "age of reason" (Reese & Gallimore, in press).

Connections between family socioeconomic status and parent-child interactions as well as home learning environments are not new findings and are well documented (c.f. Bernstein, 1977; Laosa, 1984). What is of greater interest in the present study is the predictive power of grandparent education in the home country on family SES. A key component of family SES as

it is measured in the present study is the inclusion of parental work in the home country *prior to* immigration. The Lara case cited above provides an example. Mrs. Lara had more education than the mean for women in the sample (9 years compared to the sample mean of 7), and she worked at a white-collar job in Mexico prior to immigrating. Because of her limited skills in English, she did not seek employment in the U.S. at other than cleaning houses. She and her husband, a former bank clerk who now works in a refinery, both form part of a "working class" immigrant population in California, yet their home country experiences are different than their current working class jobs would indicate. Their full educational and occupational experience comes into play in the activities that they create for and with their children as part of the home literacy environment.

In the path analyses, home literacy practices in addition to family SES significantly predicted children's emergent literacy development. This finding is consistent with Rogoff's (1990) conclusion that where family subsistence is based on literacy and formal schooling is widely available, children develop specific higher order functions that are associated with adult uses of literacy. Weisner's (1984) ecocultural model, based on a review of cross-cultural evidence, predicts that the subsistence or income-producing activity of the family will have a substantial impact on activity settings in the home.

The following summaries from case files illustrate some of the ways in which parents' job-required literacy use impacts home literacy activities. Mr. Duarte (Case 111) uses literacy on his job as a machine operator and has been asked by the mother to assist the children with their homework on the days that she has to work late. He is taking classes in mechanics and English and was observed to study at the kitchen table in the afternoon when the children came home from school. Mr. Rojas (Case 114) does not make use of literacy on his gardening job. He could not understand why the mother spent money on a set of encyclopedias. "*¿Por qué compras esto? Es bastante caro,*" he is reported to have said. ("Why did you buy that? It's pretty expensive."). On one occasion, she suggested to the father that he should continue his studies, because as the children got older and brought home homework or questions that their parents don't know, they'd think "*Mi papá no sabe*" ("My father doesn't know."). The mother reported that father only laughed and said that he was doing fine on the job as it was and didn't need to study (Reese et al., 1999).

Children in the Duarte household observed their father working to improve his job level by taking coursework and were assisted by their father when they needed help with homework. When asked if there were children's books in the home, their mother gestured to indicate a stack about two feet high. In the Rojas family, on the other hand, the mother bought an encyclopedia set, reported assisting her son with homework, and herself used literacy skills as she took telephone messages for her brother-in-law's gardening service. However, she was not supported either in her schoolwork and learning activities or in her education-related values by her husband.

The "parents' literacy use" variable used in this study most likely serves as a proxy variable for a set that includes a much wider variety of home literacy uses and experiences. Parents' literacy use does not occur in isolation but rather is part of a number of interrelated literacy activities in which family members engage. Ours is but one measure of the exposure that the child has to literacy experiences in his or her everyday routine. Those children who are exposed to more literacy functions and more frequent literacy use are those who enter school with advantages that are reflected in higher initial literacy performance. On the other hand, although literacy experiences in the home environment to which children are exposed significantly predict emergent literacy development, the magnitude of this association is small. One reason is the limited nature of our measure of home literacy practices: the restricted number of measures of literacy in the home environment, the lack of home observations, and the restricted range of the available measures.

The path analysis also shows a relationship between family literacy practices and children's oral English proficiency. The case of the *Laosa* family provides an example of how they may be connected. Mr. *Laosa*, who had resided in the U.S. longer than the average for fathers in our sample, stated that he learned to read in English by reading recipes on his job as a cook. During one interview, he described how he decided to help one of his daughters who had been falling behind in class. In order to give her extra help at home, he bought books of crossword puzzles, which they ended up doing as family activities. He said that he got the idea for using crossword puzzles from a co-worker who was always doing them at work. Thus, we observe one way in which workplace literacy exposure and use (in English) makes itself felt in the home in ways that ultimately influence children's academic performance.

*2. Years in the U.S., oral English proficiency, and English reading.* The "story" of literacy practices described above is one that begins in the parents' own home country upbringing and continues as parents raise children in a different cultural setting but with values and experiences similar to their own childhood. The "story" of English language development among the children in our sample is a different one, rooted not in home country experiences but rather in the length of time that the family has resided in the U.S.

In the path model, early English proficiency is predicted by the number of years parents lived in the U.S. This relationship is straightforward. The longer that a family has resided in the U.S., the greater the likelihood that the child will enter kindergarten with some oral proficiency in English. Even though all of the families in the sample continued to speak Spanish in the home, and all of the children spoke Spanish fluently when they entered school, some had more exposure to English, mainly through older siblings who were already in school. Greater oral English proficiency upon entering kindergarten was highly predictive of eventual reading performance in grade 7 for children in our sample.

The Frías household is an example of one in which the family had resided in the U.S. for 15 years, over 4 years longer than other families in the sample on average. Their two oldest daughters were in middle school when Manuel began kindergarten, and their mother worked as an instructional aide at a local elementary school. Not surprisingly, Manuel entered school with oral proficiency in English on par with his proficiency level in Spanish, and in seventh grade he was performing well above the mean for the sample in English reading. It should perhaps be noted, however, that more years in the U.S. do not ensure that children will enter school with greater oral English skills nor that they will necessarily flourish in American schools. There is no direct correlation between amount of time that the family has resided in the U.S. and children's school performance.

3. *Grandparent education, preschool attendance, and English proficiency.* Another strong predictor of English proficiency level, in addition to years in the U.S., was children's preschool attendance. Data were not collected on the type of curriculum that the children experienced in preschool; however, subsequent conversations with families in the Case Sample revealed that some of their children had attended a Head Start preschool that was located on the grounds of one of the four elementary schools that children attended in kindergarten. This Head Start instructional program was carried out exclusively in English. While we cannot say with certainty that all of the children who attended preschool were instructed in English, we do know this to be the case for some of the children. These children from Spanish-speaking homes who attended English language preschools thus had a source of exposure to English in their daily routine that was unavailable to children who did not attend preschool. This exposure later paid off for the children in terms of higher English reading performance. Preschool attendance did not, however, predict children's literacy performance upon entering kindergarten. This suggests that for the non-native speakers of English in our study the main effect of preschool was exposure to the English language rather than preparation for the school curriculum.

An interesting link in the path model was that between preschool attendance and grandparent education. In a review of the effects of early intervention on cognitive development, Clarke (1984) found that the family SES was a factor in assessing children's cognitive growth in Head Start and similar programs; the families who tended to participate in parental involvement programs also tended to be better off economically than qualifying families who did not participate. Although we have no case evidence which directly addresses this issue, it may well be that for our sample as well, parents who were raised by more educated parents were more likely to seek out opportunities to enroll their children in preschools compared to parents with less educated parents.

4. *Gender and performance.* Gender also was associated with higher initial literacy performance, but not with parent reports of literacy use (reading to children, helping them with homework, buying books for them, etc.), nor were there gender differences with respect to variety of parental values,

from aspirations and expectations for academic attainment to attitudes regarding parental roles in supporting their children's education, at least through middle childhood and early adolescence. It is probable that the second-generation Latinas in our sample outperform boys for the same reasons that have been reported for other groups. Early research on gender differences suggested that in the preschool years, girls tend to have higher general intelligence scores compared to boys, especially in most areas of verbal ability (Maccoby, 1966). It has been assumed that girls' higher verbal abilities are related to more opportunities to develop verbal skills, since girls tend to spend more time at home with adults, particularly mothers, compared to boys. However, some studies reveal only small gender differences in verbal ability until around the age of 10 or 11, when girls consistently perform better than boys in verbal skills (Maccoby & Jacklin, 1974).

We can conclude, therefore, that for second-generation Latino children growing up in Spanish-speaking homes, greater exposure to literacy activities at home and greater exposure to English, in preschool as well as through extended residence in this country, predict child outcomes upon entrance to kindergarten, which in turn predict middle school reading performance.

## Discussion

### Major Findings

The findings reported above from this longitudinal study must be regarded as tentative for several reasons. Sample size and conservative missing data estimation limited the number of cases available for the statistical analyses applied in this study. Cases were omitted from the analysis if they were missing certain information even though the majority of variables were available. In addition, some measures, such as proximal literacy environment, were satisfactory but lacking in scope sufficient to tap all relevant aspects of related constructs. Finally, most of the data came from parent reports of their attitudes, activities, and the frequency with which these activities occurred, not from direct observation of home literacy practices. Although previous work has demonstrated correlations among observational data and information from parent interviews with respect to the home literacy environment in general and parents' job-related literacy in particular (Reese et al., 1999), the present study did not include systematic use of naturalistic observational data. With these caveats, and given the lack of longitudinal data on this population, some conclusions are worthy of discussion.

Emergent Spanish literacy at the beginning of kindergarten is a significant predictor of English reading ability eight years later. Students who were read to, who had early experience with print, who developed early notions of the relationship between letters and sounds and between printed and spoken language in their native language not only exhibited advantages in initial literacy performance in that language but also continued to experience advantages in later performance in English. The more Spanish literacy a child

exhibited at kindergarten, the faster he/she was judged ready for English reading instruction. Thus, the best Spanish readers in our sample were the earliest to transition to English reading instruction.

Early oral English proficiency was independently predictive of 7th grade English reading. The children in our study were acquiring literacy skills in an English-dominant environment. Their second-language (English) proficiencies were being developed in a subtractive environment in which ultimate proficiency in English is the desired outcome and is considered the foundation upon which later academic attainment rests. Under these circumstances, it is not surprising that early exposure to and use of English proved to be a second asset that children bring to school and that predicts later English reading success.

Students with both greater emergent Spanish literacy development and oral English proficiency were better able to maintain grade level performance in Spanish reading, transition more quickly to English reading, and attain a higher level of English reading proficiency in middle school. Our findings thus contradict polarized arguments that have tended to dominate the field of language minority education. Non-English-speaking student success in learning to read in English does not rest exclusively on primary language input and development nor is it solely the result of rapid acquisition of English. Both apparently contribute to students' subsequent English reading achievement.

It also is not surprising that two family factors significantly predicted both early Spanish literacy and later English reading: parents' socioeconomic status and family literacy practices. Similar factors have been shown to predict early as well as later English reading in English-speaking populations (Adams, 1990). Parents who used literacy skills for a variety of purposes when children were young probably continued to do so as children progressed through school. The home environments created by parents with higher levels of education and who grew up in homes with more educated parents probably included many other activities and patterns of interaction, in addition to the literacy activities which form the focus of the study, that also contributed to children's academic performance. For example, certain patterns and contexts of linguistic socialization in the home have been associated with greater access to and familiarity with decontextualized, academic language (Bernstein, 1977; Heath, 1983, 1986; Laosa, 1984). Ethnographic studies have also documented the degree to which, in text-rich environments, young children themselves initiate a great deal of print-centered activity, often unobserved or unmonitored by their parents (Taylor, 1983). However, observational data or qualitative data of the sort needed to document nuances of linguistic development were not available for the present study.

A key link in the antecedents story for the achievement of children in our sample is the long-term predictive value of grandparents' education for their grandchildren's literacy performance in school. Miller (1995) cautions that for current generations of school children, Latinos, African Americans, and Native Americans in the U.S. are less likely than their white and Asian



peers to have developed stores of intergenerationally accumulated education-relevant family resources:

group educational advancement is an intergenerational process. The knowledge and skills a group of youngsters acquires as a result of formal schooling and home experiences are generally put to use in most realms of their lives during adulthood, including work and interactions with their own children. Viewed from this perspective, education-relevant family resources are school resources that have been accumulated across two or more generations. (p. 339)

### **Program and Policy Implications**

Given the predictive power of children's Spanish literacy development at entry to kindergarten, one conclusion can be summed up as "the rich get richer" (Stanovich, 1986), even when the sample is relatively homogeneous with respect to poor, immigrant, and non-English speaking status. Students entering school with larger stores of education-relevant family resources (emergent Spanish literacy and conversational ability in English) were better prepared to take advantage of formal instruction. Likewise, schools in the U.S. as they are typically constituted are more successful in educating students who already possess certain key skills and prior knowledge.

In terms of program implications, this study touches on some of the issues that were widely debated in 1998 when California voted to eliminate bilingual instruction, replacing existing programs with a single year of immersion instruction in English. A casual observer of the initiative campaign might have concluded that the only factor affecting the achievement of non-English-speaking students was language of instruction. Some arguments implied that Spanish literacy development could negatively affect successful acquisition of English reading skills. Immigrant parents were reported in the press as worried that speaking Spanish at home or reading Spanish language storybooks and Bible stories to their preschoolers would inhibit their school careers. These and other implied or explicit claims raised the stakes regarding the contributions of Spanish literacy to children's academic success in English among Latino populations. While our study did not address differential program effectiveness, the findings speak to the general issue of the interdependence of primary and second language reading proficiencies.

Our results suggest that early literacy experiences support subsequent literacy development, regardless of language; and time spent on literacy activity in the native language—whether it takes place at home or at school—is not time lost with respect to English reading acquisition, at least through middle school. The results also support the value of encouraging families to provide home literacy activities (in whatever languages they control) as well as formal preschool experiences. Examples of programs that can foster home reading activities using the family's native language and thus provide sources of support for primary language literacy development include family classes sponsored by public libraries and community centers,

commercial book fairs, preschool parent training sessions, and public school book clubs. Concerns about negative effects of early Spanish literacy development at home on English reading attainment, at school, are not supported by our results. However, given that all of our sample children were Spanish-speakers at kindergarten entry, we cannot know from these data what the outcome is for children of Spanish-speaking parents who become proficient in English prior to entering school. We also do not know the relative benefits for this population of promoting emergent literacy in English rather than in Spanish, although research in bilingual education suggests that early literacy instruction might be more advantageous when provided in the language children know best.

Our results also indicate potential payoffs for this population of focused and rich literacy instruction beginning in kindergarten and continuing through the early elementary grades. In a related school reform project in one of the districts from which more than half the longitudinal sample was recruited, students' academic performance rose when teachers worked together to establish grade level standards, develop specific performance indicators, and assist students to successfully attain these standards (Goldenberg & Sullivan, 1994). This effort was identified by Fashola, Slavin, Calderón, and Durán (1996) as one of the few successfully evaluated school reform models serving many Latino students (p. 7). That study and the results presented here both indicate the long-term effects of children's early performance levels as well as underscore the need for enhanced literacy instruction when the children enter school.

Rather than finding schooling to be a "level playing field" on which their children can compete equally, some of the immigrant Latino parents in our sample will discover their children's success is partially dependent on what they bring to school from the family context. The parents will find that many American schools work better for students who already possess certain literacy skills and knowledge when they begin kindergarten. Absent effective, early intervention, variations in both home and host country experiences within our sample of working class immigrant families work to produce similar variations in children's long term school achievement. As a result, some of the children will be limited to levels of achievement and to a social class status their parents hoped immigration would overcome. They can only hope the schools will implement the kinds of programs—already available—that can help children who do not come to school with the home-developed assets already in place that are prized by schools.

#### Note

<sup>1</sup>This research was supported by grants from the National Institute of Child Health and Human Development and the Spencer Foundation, with additional support provided by the Sociobehavioral Research Group, Mental Retardation Research Center and Neuropsychiatric Research Center, UCLA. Our thanks to the parents, children, and school personnel who made this work possible.

References

- Adams, M. (1990). *Beginning to read: Thinking and learning about print*. Cambridge, MA: MIT Press.
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107, 238-246.
- Bernstein, B. (1977). Social class, language and socialisation. In J. Karabel & A.H. Halsey (Eds.), *Power and ideology in education*. New York: Oxford University Press.
- Chapa, J. (1988, Fall). *The question of Mexican American assimilation: Socioeconomic parity or underclass formation*. Public Affairs Comment. Austin: Lyndon B. Johnson School of Public Affairs, University of Texas at Austin.
- Clarke, A. (1984). Early experience and cognitive development. In E. Gordon (Ed.), *Review of research in education, vol. 11* (pp. 125-157). Washington, DC: American Educational Research Association.
- Clay, M. (1985). *The early detection of reading difficulties* (3rd ed.). Portsmouth, NH: Heinemann.
- Cummins, J. (1981). *Bilingualism and minority language children*. Ontario: Ontario Institute for Studies in Education.
- Delgado-Gaitan, C. (1990). *Literacy for empowerment: The role of parents in children's education*. New York: Falmer Press.
- Epstein, J. (1992). School and family partnerships. In M. Alkin (Ed.), *Encyclopedia of educational research* (6th ed.). New York: MacMillan.
- Fashola, O., Slavin, R., Calderón, M., & Durán, R. (1996). *Effective programs for Latino students in elementary and middle schools*. Unpublished paper. Center for Research on the Education of Students Placed at Risk, The Johns Hopkins University, Baltimore.
- Feitelson, D., & Goldstein, Z. (1986). Patterns of book ownership and reading to young children in Israel school-oriented and non-school oriented families. *Reading Teaching*, 39, 924-930.
- Gallimore, R., & Goldenberg, C. (1993). Activity Settings of Early Literacy: Home and School Factors in Children's Emergent Literacy. In E. Forman, N. Minick, & C.A. Stone (Eds.), *Education and mind: The integration of institutional, social, and developmental processes*. Oxford: Oxford University Press.
- Gallimore, R., Reese, L., Balzano, S., Benson, C., & Goldenberg, C. (1991, March). *Ecocultural sources of early literacy experiences: Job-required literacy, home literacy environments, and school reading*. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago.
- Goldenberg, C., & Gallimore, R. (1995). Immigrant Latino parents' values and beliefs about their children's education: Continuities and discontinuities across cultures and generations. In P. Pintrich & M. Maehr (Eds.), *Advances in motivation and achievement, Vol. 9* (pp. 183-227). Greenwich, CT: JAI Press.
- Goldenberg, C., Gallimore R., Reese L., & Garnier H. (in press). Cause or effect? A longitudinal study of immigrant Latinos' educational aspirations and expectations and their children's school performance. *American Educational Research Journal*.
- Goldenberg, C., & Sullivan, J. (1994). Making change happen in a language-minority school: A search for coherence (EPR No. 13). Washington, DC: Center for Applied Linguistics.
- Graue, M. E., Weinstein, T., & Walberg, H. J. (1983). School-based home instruction

- and learning: A quantitative synthesis. *Journal of Educational Research*, 76, 351-360.
- Greenfield, P. M. (1974). Comparing dimensional categorization in natural and artificial contexts: a developmental study among the Zinacantecos of Mexico. *Journal of Social Psychology*, 93, 157-171.
- Heath, S. B. (1986). Sociocultural contexts of language development. In Bilingual Education Office (Ed.), *Beyond language: Social and cultural factors in schooling language minority students*. Los Angeles: Evaluation, Dissemination and Assessment Center.
- Heath, S. B. (1983). *Ways with words: Language, life and work in communities and classrooms*. New York: Cambridge University Press.
- Hess, R., & Holloway, S. (1984). Family and School as Educational Institutions. In R. Parke (Ed.), *Review of child development research, 7: The family* (pp. 179-333). Chicago: University of Chicago Press.
- Laosa, L. (1984). Ethnic, socioeconomic, and home language influences on early performance on measures of abilities. *Journal of Educational Psychology*, 76(6), 1178-1198.
- LeVine, R. (1977). Child rearing as cultural adaptation. In P. Leiderman, S. Tulkin, & A. Rosenfeld (Eds.), *Culture and infancy* (pp. 15-27). New York: Academic Press.
- Maccoby, E. E. (1966). Sex differences in intellectual functioning. In E. E. Maccoby (Ed.), *The development of sex differences* (pp. 25-55). Stanford, CA: Stanford University Press.
- Maccoby, E. E., & Jacklin, C. N. (1974). *The psychology of sex differences*. Stanford, CA: Stanford University Press.
- Marcon, R. (1992). Differential effects of three preschool models on inner city 4-year-olds. *Early Childhood Research Quarterly*, 7(4), 517-530.
- Mason, J. M., & Allen, J. (1986). A review of emergent literacy with implications for research and practice in reading. *Review of Research in Education*, 13, 3-48.
- McCormick, C., & Mason, J. (1989). Fostering reading for Head Start children with little books. In J. Allen & J. M. Mason (Eds.), *Risk makers, risk takers, risk breakers: Reducing the risks for young literacy learners* (pp. 154-177). Portsmouth, NH: Heinemann.
- Miller, S. (1995). *An American imperative: Accelerating minority educational advancement*. New Haven: Yale University Press.
- Nerlove, S. B., & Snipper, A. S. (1981). Cognitive consequences of cultural opportunity. In R. H. Munroe, R. L. Munroe, & B. B. Whiting (Eds.), *Handbook of cross cultural human development* (pp. 423-474). New York: Garland Press.
- Ochoa, A., & Mardirosian, V. (1996). Investing in the future of youth: parent training. *The Journal of Educational Issues of Language Minority Students*, 16, 85-114.
- Ogbu, J., & Simons, H. (1998). Voluntary and involuntary minorities: A cultural-ecological theory of school performance with some implications for education. *Anthropology and Education Quarterly*, 29(2), 155-188.
- Ortiz, R. (1996). Fathers' contributions to children's early literacy development: The relationship of marital role functions. *The Journal of Educational Issues of Language Minority Students*, 16, 131-148.
- Price-Williams, D. R., Gordon, W., & Ramirez, M., III. (1969). Skill and conservation: A study of pottery-making children. *Developmental Psychology*, 1, 769.
- Ramirez, J. D. (1992). Executive summary. *Bilingual Research Journal*, 16(1-2), 1-62.
- Rees, M., Murphy, A., Morris, E., & Winter, M. (1991). Migrants to and in Oaxaca City. *Urban Anthropology and Studies of Cultural Systems and World Economic Development*, 20(1).

- Reese, L., & Gallimore, R. (in press). Immigrant Latinos' cultural model of literacy development: An alternative perspective on home-school discontinuities. *American Journal of Education*.
- Reese, L., Balzano, S. Gallimore, R., & Goldenberg, C. (1995a). The concept of Educación: Latino family values and American schooling. *International Journal of Educational Research*, 23(1), 57-81.
- Reese, L., Gallimore, R., & Goldenberg, C. (1999). Job-required literacy, home literacy environments, and school reading: Early literacy experiences of immigrant Latino children. In J. Lipson & L. A. McSpadden (Eds.), *Negotiating power and place at the margins: Selected papers on refugees and immigrants*, Vol. VII. Washington, DC: American Anthropological Association.
- Reese, L., Goldenberg, C., Loucky, J., & Gallimore, R. (1995b). Ecocultural context, cultural activity, and emergent literacy of Spanish-speaking children. In S. W. Rothstein (Ed.), *Class, culture and race in American schools: A handbook*. Westport, CT: Greenwood Press.
- Reese, L., Kroesen, K., & Gallimore, R. (1998). Cualitativos y cuantitativos, no cualitativos vs. cuantitativos. In R. Mejía Arauz & S. Sandoval (Eds.), *Tras las vetas de la investigación cualitativa: Perspectivas y acercamientos desde la práctica*. Tlaquepaque, Mexico: Instituto Tecnológico y de Estudios Superiores de Occidente (ITESO).
- Reynolds, A., & Temple, J. (1998). Extended early childhood intervention and school achievement: Age thirteen findings from the Chicago Longitudinal Study. *Child Development*, 69(1), 231-246.
- Rogoff, B. 1990. *Apprenticeship in thinking: Cognitive development in social context*. Oxford: Oxford University Press.
- Schweinhart, L., & Weikart, D. (1997). The High Scope Preschool Curriculum Comparative Study through age 23. *Early Childhood Research Quarterly*, 12(2), 117-143.
- Skutnabb-Kangas, T., & Toukoma, P. (1976). *Teaching migrant children mother tongue and learning the language of the host country in the context of the socio-cultural situation of the migrant family*. Tampere, Finland: Tukimuksia Research Reports.
- Snow, C., Burns, M. S., & Griffin, P. (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.
- Stanovich, K. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly*, 21, 360-407.
- Super, C., & Harkness, S. (1986). The developmental niche: A conceptualization at the interface of child and culture. *International Journal of Behavior Development*, 9, 1-25.
- Taylor, D. (1983). *Family literacy*. Portsmouth, NH: Heinemann Educational Books.
- Taylor, D., & Dorsey-Gaines, C. (1988). *Growing up literate: Learning from inner-city families*. Portsmouth, NH: Heinemann.
- Teale, W. (1986). Home background and young children's literacy development. In W. H. Teale & E. Sulzby (Eds.), *Emergent literacy: Writing and reading* (pp. 173-206). Norwood, NJ: Ablex.
- Teale, W., & Sulzby, E. (1986). Introduction: Emergent literacy as a perspective for examining how young children become writers and readers. In W. Teale & E. Sulzby (Eds.), *Emergent literacy: Writing and reading*. Norwood, NJ: Ablex.

Reese et al.

- Tharp, R. G., & Gallimore, R. (1988). *Rousing minds to life: Teaching, learning, and schooling in social context*. Cambridge: Cambridge University Press.
- Thomas, W., & Collier, V. (1997). *School effectiveness for language minority students*. Washington, DC: National Clearinghouse for Bilingual Education.
- Weisner, T. S. (1984). Ecocultural niches of middle childhood: A cross-cultural perspective. In W. A. Collins (Ed.), *Development during middle childhood: The years from six to twelve* (pp. 335-369). Washington, DC: National Academy of Sciences.
- Wells, G. (1985). Preschool literacy-related activities and success in school. In D. R. Olson, N. Torrance, & A. Hildyard (Eds.), *Literacy, language, & learning: The nature and consequences of reading and writing* (pp. 299-255). Cambridge: Cambridge University Press.
- Whiting, B., & Edwards, C. (1988). *Children of different worlds: The formation of social behavior*. Cambridge: Harvard University Press.
- Young, M., & Helvie, S. (1996). Parent power: A positive link to school success. *Journal of Educational Issues of Language Minority Students*, 16, 179-192.
- Zigler, E., & Styfco, S. (1994). Is the Perry Preschool better than Head Start? Yes or no. *Early Childhood Research Quarterly*, 9(3-4), 269-287.

Manuscript received November 18, 1999

Revision received May 9, 2000

Accepted June 9, 2000