Using Mixed Methods to Explore Latino Children's Literacy Development

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A Newtonian image of an inalterable, mechanical universe biased social scientists toward avoiding the messy aspects of humanity. It mentally prepared them for a bold exploration of the icy depths of interplanetary space. Instead, they found themselves completely unprepared for the tropical nightmare of a Darwinian jungle: A steaming green Hell, where everything is alive and keenly aware of you, most things are venomous or poisonous or otherwise dangerous, and nothing waits passively to be acted upon by an external force. . . The sweltering space suits . . . had to come off.

Secrest and Figueredo 1993, 647–48

Using less colorful metaphors but no less forceful arguments, Bronfenbrenner (1979) chided the developmental research community more than 20 years ago for neglecting the everyday contexts in which children develop and learn. As a result of this neglect, "our ability to address public policy concerns regarding contexts of child rearing is correspondingly limited" (1979, 844). Much has changed since 1979, and attention to context is no longer a novelty. In
addition to Bronfenbrenner’s “circle of influences” as a metaphor of contextual influence, other perspectives have also flourished—for example, a “woven fabric” of ecological/cultural features (Cole 1996; Weisner 1984). From the work of many research communities, over the past four decades much has been learned about context and development, including effects of cultural, community, neighborhood, family, and school factors.

Taking account of the “steaming green Hell” of context effects demanded rethinking of the methodologies that dominated psychology and related disciplines for half a century (Cronbach 1975). Since Bronfenbrenner’s admonitions, a wider range of methodological and conceptual tools has come into use, although much debate accompanied his challenge and continues to this day. Many remain uncomfortable because so many of the data generated by contextual studies do not live up to the traditional methodological requirements of their disciplines. Others argue for turning away from conventional methods toward interpretive branches of the social sciences and toward the humanities for methodological foundations (Cole 1996, 4).

As epistemological debates continued, and dualistic rhetoric escalated, some concluded that the methodology wars were not likely to be ended in our lifetimes and that a purist approach would not get much research done (Miles and Huberman 1985; Greene and Caracelli 1997). A more ecumenical or “multiplist” approach suggested mixing methods from intense local observation to random-assignment experiments (e.g., Campbell 1974; Cook and Reichardt 1979; Cronbach 1975; Houts, Cook, and Shadish 1986; Sechrest, Babcock, and Smith 1993; Webb et al. 1966). The multiplist approach rejects single methods in favor of juxtaposing multiple probes using heterogeneous methods to seek stable and convergent results and interpretations across contexts, times, populations, data sets, analytic strategies, and perspectives. It assumes that all research is affected to varying degrees by values and preferences and that “individual passion and intellectual commitments provide the life force of science,” which are best minimized by “trying to represent multiple preferences and values in a research program” (Houts, Cook, and Shadish 1986, 62–63).

Included in those individual preferences and values are choices of methods. Multiple, competing approaches provide one way to estimate the degree of convergence of findings and interpretations, as well as to force out conflicting assumptions. Multiplist approaches are claimed to be especially helpful for problems where little is yet known or understood (Cook and Reichardt 1979): they can reveal unsuspected relationships; suggest unanticipated variables and effects; provide a basis for more ambitious and expensive undertakings; and ground “defensible interpretations of what may be true about the world” (Houts, Cook, and Shadish 1986, 61).

Our research team has been influenced by Campbell, Sechrest, Cook, and others, and we have been purposefully ecumenical, mixing methods to study an understudied population: Spanish-speaking children of immigrant Latino parents. We chose this approach also because the existing research literature seemed markedly inconsistent with our own professional and personal experiences in Latino communities. These inconsistencies were especially marked regarding Latino children’s literacy development and academic attainment.

Some inconsistencies were directly related to questions of how to help Latino children succeed in American schools in general, and how to assist their literacy development in particular. The importance of the questions we confronted could hardly matter more to the children and their parents and to the school personnel who try to serve them. Latino children are a large and growing portion of the U.S. school-age population. Despite progress and the narrowing of gaps between majority- and minority-group students, Latinos continue to be at risk for poor school attainment (Goldenberg 2001). In this chapter we will focus on the family part of the equation and review some of what we have learned about factors that influence Latino children’s educational outcomes, most especially in literacy. Over the past 15 years we have tried many combinations of research methods to uncover family and school factors influencing the academic development of Latino children of immigrant parents.

What literature there was on this population often asserted that Latino parents devalue formal education either because of economic circumstances or because experiences with discrimination against Latinos have led them to conclude that education will not help their children get ahead (e.g., Ogbu and Matutti-Bianchi 1986; Suárez-Orozco and Suárez-Orozco 1996). Another perspective, no longer so common in the research literature (although still heard informally), attributed Latino children’s school failure to traditional values—family ties, honor, masculinity, and immediate gratification (Heller 1966, 33–34). These perspectives, different as they are, have at least one thing in common: they attribute the difficulties Latino youngsters have in U.S. schools to discrepancies, or discontinuities, between family values and beliefs about schooling and the values and beliefs assumed to be important for school success in this country.

However, based on personal and professional experience, we were skeptical about the validity and comprehensiveness of these characterizations of Latino students and family. For example, we had observed that
despite differences in cultures and outlook between Latino immigrant parents and educators in the schools their children attended, there were also considerable commonalities in their values and beliefs. Both parents and teachers want children to do well and succeed in school; both parents and teachers see formal schooling as important for economic and social mobility. Moreover, and despite attempts to maintain links with their native cultures, some immigrant parents made self-conscious attempts to move away from the educational values espoused by their parents and provide greater educational opportunities for their children than they felt they themselves had. At the same time, most of the children did not come from homes that afforded a wealth of literacy experiences. Although literacy (and other academic learning) opportunities were not nonexistent, neither were they as plentiful as they tend to be in middle- or upper-middle-class homes. The reality lay somewhere in between. In short, a complex portrait of commonalities and differences, continuities and discontinuities, seemed more plausible than the widely held stereotypes about this population (Goldenberg and Gallimore 1995).

Using several samples and mixed methods, our findings eventually converged on several broad ecocultural categories of contextual influence on children’s literacy experiences and literacy development. These influences included family history and community demography, job-related constraints and enablers, domestic routines and roles, institutional influences, natal cultural schemas, and exposure to alternative cultural schemas. In the following, we summarize what we learned in our longitudinal studies about literacy learning opportunities in low-income Spanish-speaking households, including some of the ecocultural factors that either constrain or enable those opportunities. We provide illustrations of how we have used quantitative and qualitative methods reflexively and interactively to pursue questions about home influences on Latino children’s literacy development. Finally, we give a brief indication of how we are currently attempting to gain comparable understanding of home influences on these children’s mathematics attainment.

Routines, Settings, and Ecocultural Niches

An important theoretical assumption of our work is that influences on children’s development (interactions with others, playing, watching television, reading, counting, etc.) are embedded in the routines of family life that themselves are embedded in a larger ecological and cultural (hereafter “ecocultural”) niche. Our qualitative studies therefore nearly always employ as a unit of analysis some variable that is directly or indirectly linked conceptually to the routines of family life.

Use of the daily routine as the unit of analysis results in the focus on whom a child is with during various times of the day, what they are doing, what kinds of purposes organize and structure their interactions, and what kinds of rules govern their interactions. We have referred to these as the characteristics of “activity settings.” Activity settings are regular scenes (e.g., doing homework, watching TV, attending mass) that represent the playing out of the family’s ecocultural milieu. They represent the way families can and do structure their time based on the traditions handed down to them, the orientations provided by culture, and the structures of the socioeconomic system within which they live. Activity settings provide the diet of communication, activity, and structure that plays an all-important role in the child’s cognitive development (Gallimore, Goldenberg, and Weisner 1993). Conceptualizing influences on children’s development in terms of daily routines and ecocultural niches helps provide a measure of structure and predictability to what is naturally a complex and dynamic landscape.

The use of activity settings and daily routine as units of analysis is guided by a related consideration. For research findings to be of practical value in the design of effective interventions (a complementary aspect of our work), changes induced by interventions must be fitted to the context of the lives of the individuals involved. Otherwise, the changes will not survive. A promising program of instruction can be identified, for example, but is doomed if teachers do not have the materials, time, training, or support from other professionals—in other words, the appropriate settings—to carry it out. Similarly, mothers can be trained in innovative home reading practices, but if the assumed activity settings that permit these practices to take root do not exist and are not created (e.g., if sibling childminding is common), the intervention program faces a formidable implementation challenge. For these reasons, knowledge of family routines, settings, and niches is vital for the sort of applied social science research to which we aspire.

Ecocultural Context Enablers and Constraints on Literacy: Opportunities and Development

Table 1.1 summarizes the results of more than a decade of studies of ecocultural features related to literacy experiences and development. The find-
ings are organized using an "ecocultural framework" of children's literacy development, which assumes that a wide range of social, cultural, and historical factors are distilled through children's proximal experiences in the home and other developmental settings (Gallimore et al. 1989; Gallimore, Goldenberg, and Weisner 1993; Goldenberg, Reese, and Gallimore 1992; Reese and Gallimore 2000; Weisner 1984). These dimensions and others sketched in table 1.1 describe a child's "ecocultural niche"—the constellation of proximal influences in the child's day-to-day life that shape developmentally significant child experiences (Gallimore et al. 1989; Weisner 1984). "Ecocultural niche" is a useful way of conceptualizing the context of the home and of organizing and interpreting diverse forms of empirical findings. It is one way to "unpack" proxy variables correlated with reading achievement, such as socioeconomic status (SES), which highlight problems but offer limited information on specific, concrete remedial steps. The focus in this approach is on an empirical analysis to identify specific niche features that influence everyday routines in family, school, and other settings and that affect child learning opportunities, such as exposure to literacy-learning activities. Such a model has guided our more than 15 years of longitudinal studies of at-risk Spanish-speaking children and their families and provides a useful means to organize diverse and complex findings. It is an alternative way of studying "cultural effects" on development, in contrast, for example, to proxy research that compares the effects of culture- or ethnic-group membership on developmental processes and outcomes.

As table 1.1 indicates, a number of contextual factors are perhaps redundantly influencing Latino children's home literacy experiences, literacy development, or both. Obviously, some covary, which is expected within an ecocultural perspective since it is assumed that the various dimensions of the niche are interrelated, mutually supportive, and redundant.

We elaborate a few findings from the table.

### Table 1.1. Summary of Selected Contextual Factors Affecting Literacy Development and Achievement

<table>
<thead>
<tr>
<th>Ecological/cultural niche features</th>
<th>Selected findings</th>
</tr>
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<tbody>
<tr>
<td>Family history and community demography (family cultural and literacy background, neighborhood context)</td>
<td>Grandparents' and parents' literacy correlated with children's reading achievement (Reese et al. 2000). Family literacy practices predicted by grandparents' education in home culture (Reese and Gallimore 2000). Perception of neighborhood danger increases constraints on children's activities, sometimes increasing frequency of literacy-learning opportunities (Reese, Kroesen, and Gallimore 2000). Commitment to the traditional cultural values correlated with teacher ratings at beginning and end of kindergarten and end of first grade (Reese, Balzano, et al. 1995).</td>
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<tr>
<td>Job-related constraints and enablers (hours available for children, on-the-job learning)</td>
<td>Father's job-related literacy and education correlated with ratings of home literacy environment &amp; child's reading achievement (Reese, Gallimore, and Goldenberg 1999). Father's job-related literacy correlated with frequency of home literacy learning opportunities (Reese et al. 2000; Reese, Gallimore, and Goldenberg 1999).</td>
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<td>Domestic routines, roles, and childcare</td>
<td>Frequency of reported reading by parents correlated with higher reading achievement (Reese, Goldenberg, et al. 1995). Mother &amp; father participating in literacy activities with the child in first grade correlated with home literacy use rating (Reese, Gallimore, and Goldenberg 1999). Father's participation in home learning in family life in general significantly correlated with kindergarten teacher ratings (project files). Home literacy practices predict early Spanish literacy development, which predicts seventh-grade English reading scores (Reese et al. 2000).</td>
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<td>Institutional connections and familiarity (e.g. home-school connections, home-church)</td>
<td>Children's literacy experiences and literacy materials at home nearly doubled as a result of kindergarten entrance (Goldenberg, Reese, and Gallimore 1992). Church attendance correlated with early reading achievement (Reese, Goldenberg, et al. 1995). Familiarity with the university system through the experience of relatives was correlated with kindergarten and first-grade achievement &amp; teacher ratings (project files).</td>
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### Connections between Home and School

School entry has a strong effect on children's home literacy experiences. Although parents do not see promoting early literacy as part of their role during the preschool years (Reese, Balzano, et al. 1995; Reese and Gallimore 2000), once children enter school, parents are highly responsive to teachers' attempts to enlist their support to help children's literacy development. In one study, we found that children's literacy experiences and literacy materials at home nearly doubled as a result of kindergarten entrance (Goldenberg, Reese, and Gallimore 1992). One reason is that children's literacy...
Table 1.1. continued

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<th>Ecological/cultural niche features(^a)</th>
<th>Selected findings</th>
</tr>
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<tr>
<td>Cultural schema (parents’ literacy theories and beliefs, attitudes toward formal schooling)</td>
<td><strong>Educación</strong> cultural schema: child “becoming a good person” as prerequisite to doing well in school (Reese, Balzano, et al. 1995). Parents value formal schooling and aspire to high levels of education for children but believe attainment dependent on child’s moral development (Reese, Gallimore, et al. 1995). Parents see themselves as playing important supporting, but not leading, role in their children’s academic development (Goldenberg 1987). Parents see literacy development as beginning when children begin formal schooling; consequently, they do not typically create preschool literacy opportunities for children. Parents have “bottom-up” view of learning to read (Goldenberg, Reese, and Gallimore 1992). Parents conduct home reading sessions by focusing on accurate reading of letters and words (Gallimore and Goldenberg 1993). Parents’ expectations do not enable or constrain children’s achievement; rather, expectations reflect child’s school performance (Goldenberg et al. 2001).</td>
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<td>Community heterogeneity (exposure to alternative cultural schema, English, diverse groups)</td>
<td>Parents incorporate into natal cultural schema new features as a result of contact with U.S. model of literacy development (Gallimore and Reese 1999). Parents’ years in United States predict child’s English proficiency at kindergarten entry, which predicts seventh-grade reading achievement (Reese et al. 2000). Children who attended preschool had higher English proficiency, prekindergarten Spanish literacy, and seventh-grade English reading (Reese et al. 2000). Mother taking classes correlated with kindergarten achievement (project files).</td>
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\(^a\)Adapted from Weiner 1984 and Gallimore et al. 1989.

exploring kindergarten (Goldenberg and Arzubiaga 1994). However, we also found that the type of material sent home made a difference—home use of code-oriented materials (sent from school) that focused on letters, sounds, and syllable reading was strongly associated with kindergarten literacy attainment, whereas home use of meaningful “little books” was not (Goldenberg, Reese, and Gallimore 1992). All materials were in Spanish since children were learning to read in Spanish in a transitional bilingual education program.

Community Safety

Another important finding with a direct bearing on the role of family and community context is the effect of neighborhood safety on family child-rearing practices. Reese, Balzano, et al. (1995) reported that neighborhoods with high rates of gang activity, delinquency, and crime were considered by parents to be dangerous for their children in both the physical and the moral sense. Parents often responded by keeping their children close to home and closely monitoring their activities and friendships. With young children, high levels of protectiveness sometimes resulted in higher levels of children’s involvement in literacy activities, as parents sought ways to keep their children entertained in reduced home areas (Reese, Kroesen, and Gallimore 2000). Reese (1998) found that this “protective” strategy was seldom employed by relatives of families under study who resided and raised their children in Mexico. The rural and semirural towns and villages in which the sample’s relatives lived were unlikely to be perceived as dangerous, suggesting it was the U.S. context that produced the response.

In the United States, as children grew older, they were occasionally prevented from participating in learning activities such as the school’s outdoor camp, extracurricular activities at school, or an accelerated math program at a nearby high school because of parental concerns for their safety. Furstenberg (1993) noted a similar “lock-up” strategy used by Puerto Rican parents in the high-crime neighborhoods of Philadelphia, and Jarrett (1995) described “stringent parental monitoring strategies” used by African American parents in dangerous neighborhoods. Her findings also reveal the differential use of community services by families of different SES backgrounds: middle-income families are more likely to involve their children in activities (sports, classes, teams, clubs) outside the neighborhood, whereas low-income families are dependent to a much greater degree on the availability of these resources within their immediate communities.
Cultural Schema about Literacy and Schooling

Another set of niche features we have explored has to do with cultural schema or models (Gallimore and Goldenberg 2001) in the form of parental attitudes and beliefs about children’s literacy development and, more generally, formal schooling.

The immigrant Latino parents in our studies share a “bottom-up” cultural schema of literacy development: children learn to read by learning the letters, corresponding sounds, and how the letters combine to form words. Reading and writing is to be taught explicitly, in school; informal preschool literacy experiences are not accorded great importance. Children’s attempts at pretending to read and write are interpreted as “making things up” and “pure scribbling” (puros garabatos). This model probably has its origins in parents’ native countries, where reading and writing instruction followed a strict and linear sequence of learning vowels, consonants, consonant-vowel combinations, and finally learning to read words (Gallimore and Goldenberg 1993; Goldenberg 1987, 1988; Goldenberg and Gallimore 1995; Goldenberg, Reese, and Gallimore 1992; Reese and Gallimore 2000).

Parents highly value literacy for moral, religious, personal, vocational, and economic reasons. Indeed, much of the literacy activity in the homes of the immigrant families that we have visited over the years centers on sharing stories based on the Bible or with a strong moral content. The importance of reading or retelling stories with a moral, and the advice (consejos) that stems from these, has been noted in other studies as well (Valdés 1996). Parents also value their children’s academic attainment, in part because they see it (along with English proficiency) as key to economic and social mobility. Although parents’ understanding of the U.S. educational system and its “pipeline” to higher education varies considerably, virtually all parents hope that their children will attain at least some college education. But while parents’ aspirations rarely diverged from hoping that their child would attend college, their expectations—what they thought was likely—varied considerably as children progressed through elementary school. We saw little evidence that expectations influenced children’s achievement, however, as the traditional “expectancy model” suggests. To the contrary: Parents’ expectations themselves (in particular, parents’ perceptions of how interested and motivated children were) were influenced by how well their children were doing in school.

Parents take a broad view of their children’s education; indeed, the Spanish cognate —educación— includes moral and behavioral dimensions in addition to academic ones. Ultimately, parents want their children to stay on the “the good path” (el buen camino), meaning that they become responsible, respectful, morally upright individuals. One indication of being on the good path is staying in and being successful school. But although highly desirable, formal degrees (high school, college) are not seen as absolute requirements for remaining on el buen camino (fig. 1.1).

Examples of Mixed-Methods Investigations

We have employed a diverse set of methods—for example, survey questionnaires, open-ended interviews, participant and ethnographic observations, literacy testing, standardized test results, teacher and parent ratings—to try and understand key aspects of Latino children’s academic development, particularly in the area of literacy. Analytically, we have used quantitative and qualitative methods as complementary, each providing the basis for inferences and conclusions the other could not. Quantitative methods permit the use of inferential statistics to test hypotheses about generalizable findings. Qualitative methods permit more nuanced exploration into what people say, do, and think and the meanings they ascribe
to their words, deeds, and thoughts. We will illustrate this premise, and how we have used it to understand Latino children's literacy development, by describing in more detail some strands of our investigations.

Hypothesis Generation from Case Study Observations of Home Literacy

During the 1980s, many elementary schools in California were moving toward language- and literature-based approaches to literacy instruction (California State Department of Education 1987). In coordination with district teachers and administrators, Goldenberg (1990, 1994) designed a quasi-experimental study that included two types of classrooms. The first type were bilingual kindergarten classrooms that used and sent home language- and meaning-based literacy materials (Libros, literally "books"). The second type of classrooms used the readiness and phonics approach to Spanish literacy instruction employed at their schools. The readiness/phonics classrooms also sent home packets of phonics materials with the same frequency as the Libros that were sent home in the first type of classrooms, approximately once every three weeks. The project was designed to answer two basic questions: (1) Will the children receiving the language- and meaning-based instruction and materials outperform those receiving the traditional readiness and phonics instruction? (2) When sent home, what is the influence of the contrasting literacy materials on children's home literacy experiences and literacy development?

In order to answer the first question, we conducted standard quantitative comparison of student performance in the two conditions (Libros vs. readiness). At the end of the school year, randomly selected children from each group were given an individual battery of early literacy measures in Spanish (including concepts about print, letter/sound recognition, story comprehension, word recognition, and ability to write words). The students in the Libros group outperformed their peers in the readiness/phonics group (Goldenberg 1990, 1994).

To answer the second question, we used a different set of methods that combined qualitative and quantitative techniques (Goldenberg, Reese, and Gallimore 1992). Because of our focus on families' daily routine, we were interested specifically in the role of the home in children's reading performance. We wanted to know if and how parents made use of the different types of materials, and if home use was correlated with performance on end-of-year literacy measures. To this end, five students from each group were randomly selected to be observed both at home and in school. Each student was observed at home after school for 2 hours every other week, with approximately 12 visits over the course of the school year (for a total of about 220 hours of observation). Spanish-speaking observers described and timed all activities of the child, with particular focus on any activity that made use of literacy materials or skills.

We were particularly interested in use of school materials at home. The observations were coded using activity category and duration of activity. These categories were both theoretically derived a priori (e.g., use of materials from school and activities involving use of print) and empirically derived over the course of the study (e.g., children "playing church" and using the Bible in their play). In some cases, use of school materials had been observed only infrequently or fleetingly; therefore, on the final visit, parents were asked to demonstrate for the observer how they normally used the materials. This session was videotaped. Also during the final visit, parents were interviewed about their and their children's literacy practices, in an effort to capture descriptions of activities which might take place in the home but had not been observed. Finally, students were observed in their classrooms in order to detect any visible carryover of home use of materials in the classroom setting. (For a more detailed description of the findings of this part of the study, see Reese, Goldenberg, et al. 1995.)

Transforming qualitative data into quantitative data yielded surprising findings. The frequency and duration of Libros use at home was unrelated to literacy achievement in kindergarten. In contrast, the use of phonics worksheets was strongly and positively associated with kindergarten literacy achievement (Goldenberg, Reese, and Gallimore 1992).

In order to tease out why this unexpected finding might be true (recall that in the classroom evaluation, the Libros classrooms had outperformed the readiness classes), field notes were analyzed qualitatively and interpretively. For example, all instances in which the children used Libros materials from the school were studied in terms of what parents and children were doing and saying as they used the materials. In the following field note excerpt, Fernando is reading a Libro with his mother.

Fernando's mother calls him over, "Ven a estudiar este libro." [Come and study this book.] He stands beside her as she sits on the bed with the baby on her lap. She reads a page and has Fernando repeat it. She is reading upside down, so when she reads "miles de melones" [thousands of melons] as "melones de melones" [melons of melons], that is how he repeats it.
On the next page, Fernando reads what he knows. When he hesitates on a word, his mother tells him and he repeats it. This form of word-by-word repetition continues for the rest of the book.

They finish the book, and Mother says, “Otra vez.” [Again.] She has him start again and they continue word by word as earlier. On one page, Fernando looks at the picture of the melons in the tree and asks, “Mamá, ¿por qué se metieron aquí los melones?” [Mama, why did they put the melons here?] She responds, “¿Sabe?” [Who knows?] and immediately says the next word to cue him to continue with the repetition.

Fernando’s mother initiated the activity and referred to it as “study.” Reading was practiced as a repetition of words. There is no reference to or discussion of the text of the story. On the single occasion when the boy tries to call attention to the text’s meaning, his mother does not respond. The activity is rather lengthy, with the motivation to continue provided by the mother’s prompting. When all of the episodes in which Fernando uses Libros are compared, they consistently share these traits.

A similar analysis of all instances of Libro use by the five children revealed overall patterns. Libros were used more frequently and for longer periods of time when the use was initiated by the parents rather than the children. When parents guided the use of the Libros, they tended to use them in ways which were similar to the ways that phonics worksheets were used. Children were encouraged to repeat or sound out words; sometimes they were told to copy sections of the books in order to practice them. Although each book had questions at the end for parents to ask children, these were never observed to be used, nor were parents observed to engage in discussion of the meaning of the text or pictures at all. On occasion parents did discuss texts with children. However, this interaction was not stimulated by reading homework but rather tended to occur when parents shared Bible stories or stories with a moral with their children.

These qualitative findings suggested the hypothesis that parents may be more successful in their use of phonics materials because they conform more closely to the parents’ beliefs about literacy development. Because they see the process of reading as a “bottom-up” activity, in which students are taught first letters, then syllables, then words (Goldenberg 1988), they tended to convert the whole-text materials to this type of use. Because learning is believed to occur through repetition until the new information becomes “recorded” in the brain, parents had their children copy the books over and over. Since early reading is seen as learning to break the code of the syllables on the page, there is little attention to the meaning of the text when the purpose of the activity is perceived to be “learning to read.” (We should note that parents’ beliefs about the importance of “cracking the code” are in many respects consistent with current understandings in the professional literature. See Snow, Burns, and Griffin 1998.) On other occasions, for example, when the purpose of reading was to impart a moral, parents did discuss the meanings and implications of texts with children. This implies that inviting parents to participate in school-initiated literacy activity needs to take into account the parents’ cultural model of what reading is and how it is taught, as well as scientifically based principles and practices.

Hypothesis Confirmation with a Larger Sample

This “cultural model” explanation for our paradoxical findings provided a hypothesis for a subsequent study (Reese and Gallimore 2000). Our case studies of 10 families had suggested the hypothesis that parents’ cultural view of reading influences how literacy materials are used at home, but to confirm it a study of more cases was undertaken.

Reese and Gallimore (2000) made use of a randomly selected subset of case study families nested in the sample of 120 immigrant Latino families in our longitudinal study. These families participated in 14 in-depth home interviews over the course of the first four years of the longitudinal study, corresponding to the children’s kindergarten, first-, second-, and third-grade years in school. The open-ended case study interviews took the form of guided conversations in which we sought information on family literacy activities. We probed for parents’ understandings about how reading proficiency develops, about the age at which reading aloud to children is feasible, as well as how they reported reacting to children’s early attempts at making meaning from print. Parents were not only asked to describe home learning experiences, activities, and values but were also asked on occasion to comment on the experiences and opinions of others.

Analysis of narrative interview data across the 32 cases confirmed the effect of parents’ cultural models on home literacy practices. However, in confirming this hypothesis, we also made an additional unexpected discovery that linked parents’ literacy beliefs and practices to their sociohistorical origins: literacy behaviors on the part of parents (e.g., reading aloud to preschool-aged children) were associated with parents’ home country experiences. Although most parents had initially shared a common cultural model of literacy, longitudinal evidence showed changes over time in some
of the families. Parents reared in towns or cities were more likely to read to children early (before formal schooling at age five) after exposure to that practice through American schooling (as a result of the school experiences of older siblings or experience with American preschools). Nearly two-thirds (65%) of the town parents began reading to their children before their children entered school. In contrast, only one of the five reared in ranchos, or rural hamlets, began reading to children at age four or earlier. A possible explanation is differences in parents' education levels: town mothers averaged 8.7 years of education, compared to 4.3 years for rancho mothers (p < .003).

Rancho and town life were also associated with different levels of schooling for the parents' own parents (the grandparent generation). Many of the grandparents had lived as children in ranchos and at that time had little access to education beyond the rudiments of reading and counting. Others, however, had moved to towns and cities and had access to formal schooling, at least through elementary school. These data suggest that parents (and grandparents) reared on ranchos employed practices consistent with a cultural model of reading that assumes that literacy develops after children enter school and that before that age they are not able to understand texts. Although parents in the sample shared a cultural model of how literacy develops, those with higher levels of education and urban life experiences tended to more quickly adopt the practices encouraged by American teachers. One key implication of these findings is that the school can have a substantial impact on literacy practices at home in the early school years, but this impact is likely to differ across the families. Even though all families were part of the same nominal "culture/ethnic" group, there is important variability within the group. This variability, in turn, influences how families responded to school-based interventions. Findings also demonstrate the flexibility of cultural belief systems. Cultural models guide behaviors, but they are not unchanging; they can be modified in response to demands of the environment.

Path Analysis Confirmation of Qualitative Findings

The findings that emerged from thematic coding of narrative case material generated hypotheses that could be tested statistically with the larger longitudinal sample. These findings prompted us to collect data from all 120 families on where parents were schooled (urban/rural) and on grandparent educational levels. In addition, because of evidence of the continuing effects of home country experiences on current literacy practices in the United States, we adjusted our SES variable to include home country occupational status as well as U.S. occupational status (choosing whichever status was higher for the composite SES variable).

Reese et al. (2000) employed path analysis to confirm that 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. Grandparents' level of education also 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. Higher levels of both English proficiency and initial Spanish literacy performance uniquely and significantly predicted higher English reading achievement in grade 7.

These findings demonstrated variability in this population that had direct implications for children's home literacy experiences and attainment. Settings, routines, and ecocultural niches were all influenced by identifiable sociohistorical factors going back to the children's grandparents' generation. Changes in parental literacy practices occurred over time. These changes were associated both with encouragement from the school to read to children at home and to help with homework and with parents' own home country education and experiences. Taken as a whole, our findings illustrate why "one-shot" parent training sessions, in which parents are exhorted to read aloud to children or are taught how this reading should take place, are seldom successful. Without sustained activity as part of a daily routine (e.g., the school regularly requiring home reading as part of homework) and without a cultural model of literacy development that sees reading proficiency as beginning to emerge early on through repeated contact with texts, the teachings of these sessions can go unheeded by many parents.

Diverse and Recursive Mixing of Methods: The Case of Mathematics

These studies illustrate a mixed and recursive process of qualitative and quantitative analysis, data collection, and hypothesis generation and testing. So far, we have illustrated a flow from the bottom up, as trends that emerge from "messy" and often contradictory qualitative data, rooted in the daily routines of a small number of families, are confirmed through quantitative analysis of the larger sample. However, this is only one of the ways
in which qualitative and quantitative methods have been combined in our work over the years. Currently, a new line of research essentially employs the sequence in reverse. In current studies of children’s math performance through middle school, many of the variables constructed for the literacy analysis were utilized to develop path analyses. Correlations between early math performance and family literacy practices have led to a reexamination of case data to unravel the ways in which home literacy and numeracy practices play themselves out in children’s lives in ways that have implications for their subsequent academic performance.

These data suggest that in some families numeracy activities that could be expected to better prepare children for formal instruction once they enter school are incorporated into daily routines. For example, the mother in one family is a cashier. Her children observe her making change and counting money at work. Because of their interest, the father bought a toy cash register and play money, which the children use to create activities that involve counting and making change. In another case, a mother responded to information from the school that her son might be held back a grade by working with him at home on counting activities. She reported that when she sees him counting on his own, she steps back and observes. Current research plans include a reexamination of the “academic pipeline” model of the Latino achievement gap in mathematics using the ideas about connections between numeracy and literacy development that the analysis of quantitative and qualitative data has generated.

**Concluding Comments**

The broad consensus that children’s development occurs in a complex context, a mix of interpenetrated ecological and cultural factors that challenge even the most sophisticated and richly funded research design, provides the basis and justification for mixed-methods investigations (Greene and Caracelli 1997). We no longer have to argue, as Bronfenbrenner did a generation ago, that context matters. Nor do we have to argue that social research requires both qualitative and quantitative designs and methods. As Riggin observes, “The need to argue for the interdependence of qualitative and quantitative methods is over” (1997, 87). Our investigations and those of others contributing to this volume demonstrate that developmental pathways are more likely to be illuminated if we use a combination of empirical methods. Our interpretivist methods, such as open-ended interviews that are essentially guided conversations, led us to understand the role that formal schooling plays in the minds of Latino immigrant parents. They also helped us understand how educación is different from education, but then how the concepts relate to each other when parents talk about the developmental pathways they hope their children will follow. Our objectivist methods, such as surveys and structured observations, allowed us to test hypotheses probabilistically and led us to discover that grandparents’ education and origin had a significant impact on the literacy environment and the literacy development of their United States-born grandchildren, a clear instance of developmental influence across the generations. Table 1.1 summarizes some of our most significant findings across the range of methodologies we have used; it illustrates the value of multiple methods for gaining insights into children’s development and the factors influencing it.

Our research team has been enriched by multiple methodological and conceptual perspectives, but there have been times when some of us have wondered whether ecumenism was such a blessing. The following story illustrates both sides of the methodological coin.

One of the questions we posed at the outset of our longitudinal study was “What is the relationship between children’s school achievement and parents’ aspirations and expectations for children’s eventual school attainment?” It is an important question, not just for Latino children and families but for the field of motivation more generally. The conventional wisdom is that performance is influenced by expectations (what someone thinks will happen) and aspirations (what someone hopes will happen). Numerous correlational investigations have shown a link between parents’ expectations and aspirations and children’s school performance (e.g., Coleman 1988; Duran and Weller 1992). However, no one had ever studied the issue longitudinally throughout elementary school and on into middle school, observing aspirations and expectations over time and relating them to children’s achievement. Our hypothesis was that children’s school performance would influence parents’ expectations and, possibly but not as strongly or as directly, parents’ aspirations. We did not think that aspirations and expectations would influence children’s achievement. Based on our previous work with this population (e.g., Goldberg 1987), we expected aspirations to be uniformly high when children began formal schooling, so that there would be no correlations with attainment. Immigrant Latino parents very much want their children to attain high levels of formal schooling since they see schooling as key to social and economic stability and mobility. We also expected expectations to be consistently high, although not as high as aspirations (Laosa 1982). Our prediction was that as patterns of school performance among the children began to emerge, parents would adjust their
expectations: parents of children who were doing well in school would adjust their expectations upward, whereas parents whose children were not doing very well would adjust them downward.

Testing these hypotheses required that we ask parents repeatedly (at least once a year) what their aspirations and expectations were for their children’s eventual school attainment. This turned out to create some problems among members of our research team. Fieldworkers noticed that sometimes parents did not respond to the questions in ways that the interviewers had intended. For example, some parents did not seem to distinguish between expectations and aspirations. Parents were asked, “How far do you expect your child to go in school?” Some parents refused to answer, saying they were not sure. When pressed, most would make a selection from the set of choices presented, but some of the interviewers got the distinct impression that these did not represent highly meaningful answers. Indeed, we always had a subset of parents who answered “don’t know.” Other parents answered the expectations question using the same terminology as they had for the preceding aspirations question (“How far do you hope your child will go in school?”). For example, some said, “Well, as I already told you, I hope she’ll . . . .” This again suggested to some of the fieldworkers that these were not meaningful or comprehensible questions for the parents.

In order to represent our story’s conclusion, we will borrow a device from John Fowles (1969). In the celebrated novel The French Lieutenant’s Woman, Fowles wrote two conclusions, leaving the reader to decide which ending best fit the novel and, more likely, the reader’s worldview.

Ending 1
Aside from some heated discussions during project meetings (“Are these meaningful questions?” “Do we have to ask them again?”), we got an indication of how our mixed methodological perspectives created empirical turmoil when the number of “don’t knows” spiked one year. It turned out that one of the fieldworkers, instead of trying to probe parents’ thinking and trying to encourage them to select an answer to the expectations and aspirations questions, decided to offer “don’t know” as a choice. From an anthropological perspective, it could be argued that she was being responsive to the parents’ cultural schema, in which these questions did not seem to fit very neatly—or at all. From the more “objectivist” perspective, her attempt at responsiveness threatened the internal validity of this portion of the investigation. Nevertheless, we still collected sufficient data to test our hypothesis that children’s school performance throughout elemen-

tary school is not influenced by parents’ educational aspirations and expectations. Instead, the converse is true: school performance influences parents’ expectations (but not their aspirations) for children’s future educational attainment (Goldenberg et al. 2001).

Ending 2
As a result of some heated discussions during project meetings (“Are these meaningful questions?” “Do we have to ask them again?”), we reexamined our data, with its increasing percentages of “no sé” (I don’t know) answers to expectations questions. This analysis resulted in a more “emic” understanding of how immigrant parents were viewing their children’s academic and occupational futures, not simply how they were responding to the aspirations/expectations protocol. What we termed more broadly parents’ “future orientations” (Reese, Gallimore, et al. 1995) were interpreted using the path-of-life metaphor discussed above. Parents are clear about the path that they hope that their children will follow in life and try to orient their young children in ways that will keep them on the good path. However, the choice of paths is one that the children will ultimately make for themselves, and parents are unsure of the choices their children will make, including how far they will go in school.

This story, with its ambiguous two-option ending, illustrates the outcome of a choice we made at the inception of this research program. Our methodological ecumenism led us to seek out colleagues and fieldworkers with diverse empirical perspectives, and we encouraged the intellectual diversity this produced. This choice both benefited our research and led to tensions that endangered portions of it.

Nonetheless, we remain committed to the belief that the study of children’s developmental pathways and the contexts of children’s development require multiple and complementary methodologies. Our challenges now are to discern how context matters and to refine the conceptual, analytical, and methodological tools to permit further understanding of contextual influences on development. From our perspective, there is no alternative to mixing methods if we want to develop comprehensive understandings of complex social phenomena such as child development, childhood, and family life. We have no choice but to shed our space suits and wade into the steaming green hell.

Such pronouncements are easy to make but leave many questions dangling. We may declare a liberal and democratic open-mindedness in which no approach or paradigm is presumptive king or queen and where we
invite multiple methods to hack away at thorny and complex problems. But methodological pluralism surely has merits of its own, as our own experiences and those of others suggest (Houts, Cook, and Shadish 1986; Sechrest, Babcock, and Smith 1993). What about standards? How do we evaluate the validity of one or another method or combinations of methods? Certainly, each methodological tradition has its canons of rigor and standards of practice. This is appropriate, but we suggest it would be fruitful to develop at least some unified standards and criteria, cutting across methods and paradigms. We will leave treatment of this topic for another occasion but would like to conclude by suggesting that one criterion must be what Gage (1989) called "old-fashioned pragmatism": a methodological or paradigmatic approach — purist or hybrid — is validated when it can be shown to lead to findings, insights, conclusions, or concepts that lead to social improvement of some sort. Conversely, we can be rightly skeptical of approaches that generate much data and ink but little in the way of amelioration. While this might be seen as simply trading in one set of unanswered questions for another, we suggest that such an orientation will help us make progress in advancing and refining methods to permit greater understanding of complex social phenomena.

In his fanciful treatment of the "paradigm wars" in educational research, Gage imagined a pluralistic future where previously competing perspec
tives (and, of course, their attendant methods) declared a truce and vowed to judge the validity of their efforts on the basis of the good they could demonstrate: "Thus, from the jungle wars of the 1980s, educational researchers... [emerged] onto a sunlit plain — a happy and productive arena in which the strengths of [various] paradigms were abundantly realized" (1989, 9).

This volume can be seen as a validation of Gage's vision, the basic premise being that mixed methods, perhaps even multiple paradigms, are essential to advancing our respective fields. This is all to the good.

We must now go the next step and ask ourselves, "Why do the results of this investigation matter?" Herein lies methodological validation: this should be our standard, or at least one of them. Some might see this perspective as too "applied" or, worse, hopelessly naive. We make no apologies, believing as we do that the legitimacy of social science partly depends on its contributions to social improvement.

More important, we reject the notion that basic and applied research are necessarily incompatible. Stokes (1997) identified an investigative environment he called Pasteur's Quadrant, a space where use-inspired ("applied") research is combined with the pursuit of generalized knowledge ("basic research"). Rather than pitting one against the other, Stokes proposed a two-dimensional alternative exemplified by the work of Louis Pasteur. In pursuit of solving real-world problems, and superbly prepared to discover nature's secrets, Pasteur made fundamental contributions both to industry and medicine — applied fields — and to biological science. If the legitimacy of social science partly depends on its contributions to social improvement, some must commit to work in Pasteur's Quadrant. Absent such a commitment, no method or mixture of methods will, in the end, much matter.

References


Exploring Latino Children's Literacy Development


Working It Out: The Chronicle of a Mixed-Methods Analysis

Heather B. Weiss, Holly Kreider, Ellen Mayer, Rebecca Hencke, and Margaret A. Vaughan

This chapter chronicles our early process of mixed-methods analysis in the area of family educational involvement using School Transition Study (STS) data. The STS is a large, multimethod, three-cohort study that began in 1995–1996 and followed approximately 400 ethnically diverse children in low-income families from kindergarten through fifth grade. The STS uses an ecological approach to understand low-income children’s successful pathways through middle childhood and the school, family, and community contexts in which they live and learn. Such an approach is especially critical to the study of child development (Bronfenbrenner 1979).

The STS features a mixed-methods approach in its study design, data collection, and analysis. Quantitative data include, among other things, annual surveys of children’s primary caregivers and teachers. In-depth case study qualitative data were collected on a subset of 23 children when they were in first and second grades. These data include interviews with children’s teachers, other school personnel, parents or other primary caregivers, and the children themselves, as well as participant observations in schools and classrooms.