

Behavior Sampling and Ethnography: Complementary Methods for Understanding Home-School Connections among Latino Immigrant Families

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Both ethnography and experience-sampling methods (ESMs) are effective for assessing children's home activities. The authors combined them to examine home activities that were school-like, complementary to school, or unrelated to school. The activities were then related to children's school achievement in a sample of low-income Latino immigrant families and their ten- to eleven-year-old children at risk for low school achievement. Children reported a wide variety of types of activities in their evening routines. Children with higher school achievement were engaged in chores; homework; monitored outside activities; family social activities and hobbies; and self-directed, goal-oriented activities. Children with lower levels of school achievement tended to be engaged in more television, video games, peer and solitary play, and resting. ESMs are a valuable and effective complement to ethnographic and school achievement data in the study of home activities and home-school relationships.

Problems in school among working-class, minority, or culturally diverse groups who have demonstrated disproportionate underachievement in mainstream American schools have been attributed to a lack of continuity between home and school cultural practices (Gallimore, Boggs, and Jordan 1974;



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Datcher-Loury 1987; Azmitia et al. 1994). Home factors that have been implicated include parent expectations and attributions, the structure available for learning, affective home environment, the nature of discipline in the home, home literacy environments and practices, language usage, and the amount and type of parent involvement with the schools (Heath 1983; Delgado-Gaitan 1987; Christenson, Rounds, and Gorney 1992; Wang, Haertel, and Walberg 1993; Suárez-Orozco and Suárez-Orozco 1995; Marjoribanks 1996; Gibson 1997; Volk 1997). A cultural mismatch or discontinuities model rests on the premise that if students are not performing on par with their middle-class peers, then culturally diverse homes must not be providing children with the attitudes, experiences, and language usage associated with school achievement (e.g., Taylor 1983).

Our previous work has led us, however, to examine the connections between home and school in terms of complementarities, as well as continuities and discontinuities. Complementarities include those practices or values that, while not identical to those of teachers and schools, nonetheless serve to support or complement school success (Reese, Balzano, et al. 1995). Examples of complementarities include the establishment of a balance between socializing or other uses of leisure time and school-related activities found to be related to school performance (Bergin 1992; Chang 1992). Successful patterns of family management in low-income neighborhoods have also been found (Furstenberg et al. 1999). Weisner (1996) found that children who participate in domestic management and child care in Western Kenya do as well or better in school as children who have less child care, even though these activities are not school-like. Weisner, Gallimore, and Jordan (1988) found that sibling caretaking in the home was associated with school success in classrooms that were accommodated to Native Hawaiian culture in specific ways (such as allowing peer assistance and having children assist in managing the classroom). Home activities, classroom activities, and the child's mental life are related, each influencing and partly constituting the others

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(Cooper and Denner 1998). If children, in fact, do experience success in school, there may well be activities present in many of these Latino immigrant homes that can *amplify* effective teaching and school achievement or at least not work against it.

Complementarities such as these suggest that many home practices support school success without necessarily recreating school-like activities in the home. For instance, in a study of middle- and upper-middle-class families, Csikszentmihalyi, Rathunde, and Whalen (1993) found that average-achieving teens spent significantly more time socializing, going to parties, and being with friends than their talented counterparts. The students in the talented group spent more time in activities and hobbies requiring concentrated, skilled performances (computers, drawing, singing) involving goal direction and a balance between structure and freedom. However, there were no differences between the groups in school-like tasks, such as the amount of time spent studying and doing homework. The differences were in other goal-engaged activities.

Complementarities surely exist in minority family activities, yet studies that seek to identify specific home practices that are associated with measured school performance within, as well as across, groups are rare. Although one can speculate that preadolescent and adolescent children in working-class or culturally diverse communities engage in less school-relevant activity, there are limited data on what they actually are doing at home. Most of what is known is based on interviews and surveys in which parents or children are asked to describe what they are doing in general. For example, Datcher-Loury (1987), Soto (1988), and others compared the home environments of higher and lower achieving school-age children, as well as the parental educational values and aspirations for themselves and their children. However, neither study provides information on what children are actually doing in the home. Nor have these studies incorporated ethnographic data in their analyses. Other studies have included direct observations of nonschool activities, usually using a mix of parent interviews and naturalistic observations (Gallimore, Boggs, and Jordan 1974; Heath 1983; Teale 1986; Delgado-Gaitan 1987, 1992; Weisner, Gallimore, and Jordan 1988; Bergin 1992; Chang 1992; Gallimore and Goldenberg 1993; Reese, Goldenberg, et al. 1995; Weinberger 1996). These methods yield findings that suggest that out-of-school activities are often different for disadvantaged youth with lower achievement.

The present study uses a combination of longitudinal ethnographic data and experience-sampling methods (ESMs) to map children's home activities among low-income Latino immigrant families and their ten- to eleven-year-old children who are at risk for low school achievement. We

then compare these home activities to school achievement data for the children. We did find home activities that appear to be associated with better school achievement among Latino immigrant families. These were a mix of school-like and more complementary activities, as we have defined them. ESMs are a useful and efficient extension of diary and ethnographic methods for obtaining information on such home activities.

MEASUREMENT OF HOME ACTIVITIES

Among the most effective techniques for assessing home activities are the event sampling methods or ESMs (Csikszentmihalyi and Larson 1987; Csikszentmihalyi et al. 1993). ESM-like approaches have a long history in anthropology under the rubric of time allocation (Johnson 1975, 1996; Gross 1984; Bernard and Killworth 1993; Chick 1994), behavior observation (Mitchell 1979; Whiting and Edwards 1988), and spot observation techniques (Munroe and Munroe 1971; Rogoff 1978; Flinn 1988a, 1988b). Time-budget diaries and surveys are often used in psychology and other behavioral sciences to map home activities (Szalai 1972; Hofferth 1998; Hofferth and Sandberg 1998).

ESMs draw on immediate self-reports by informants and use beepers or programmed watches to signal informants randomly during a fixed time period. Each time the informant receives the signal, he or she is expected to respond. Although directly observed behavior by fieldworkers or confederate observers might be the preferred means of data collection in some circumstances, for both logistic and ethical reasons collecting *continuous* observational data in the home is usually unfeasible. ESMs focus on the self-defined experiences of the participants in the study and their own subjective reports given repeatedly and quickly to a familiar and trusted fieldworker who contacts them over and over, rather than on observer assessments of activities or time usage done once or only a few times during more obtrusive visits. As such, ESMs are a very feasible and satisfactory compromise alternative to unannounced and obtrusive home visits, using family members who act as confederate recorders of family activities, or using continuous video monitoring.

Another reason to use ESMs is that they have been associated with differences in school achievement. For example, Clark (1983) used an ESM to show that responsibility and accountability for household chores and parental influence over students' time and space (neither constant monitoring nor extensive unsupervised time with peers) distinguished high- from low-achieving African American high school students.

ESM frequency measures are akin to the use of diaries kept by family members recording events by time units. Correlations as high as .93 have been found between ESM data and rank order data from diary frequencies (Csikszentmihalyi and Larson 1987:530). However, ESMs have many other advantages diaries don't have. Family members can more freely report the activities and are not tied to fixed diary categories. Recording and recall are not routinized into time units fixed by the diary sheet and do not require literacy or numeracy skills to fill them out completely and on a regular basis.

ESMs also increase the accuracy and veridicality of information compared with diaries or more obtrusive measures. Informant inaccuracy can be a major problem in much of the social science research on time use if our goal is veridical description of the amounts of time that individuals spend in varying activities (Deutscher 1973; Bernard et al. 1984; Romney and Weller 1984; McNabb 1990). In our own earlier studies using children's reports of home activities, for example, compared with random home observations by trained observers, we found that Native Hawaiian girls systematically tend to overreport that they are engaged in caretaking of other children, while boys underreport (Weisner, Gallimore, and Tharp 1982).

ESMs have an additional advantage over recall-based surveys or self-initiated diary records because subjects are signaled at *random* intervals with *immediate* recall. ESMs can increase informant accuracy by acquiring immediate recall from informants (usually within a few minutes after being paged by the researcher). In experience sampling, researchers contact informants at various points in the day, and informants ideally immediately verbally report their behaviors and experiences at that moment. Delays between the signal/page and response for ESMs are typically quite small. Csikszentmihalyi and Larson (1987) found that 64% of all their contacts responded immediately and that 87% responded within ten minutes of being signaled. In Hormuth's (1986) study of 101 German adults ($N = 5,145$ signals), 50% responded immediately and 90% responded within eighteen minutes. In our Latino immigrant ESM study, we only included activity reports when a child responded within ten minutes of the original page, and our median was two minutes.

Unlike cross-sectional survey measures, or a few preplanned visits to the home, ESMs capture *variation* in individual behavior. Because ESMs recognize that people are not necessarily going to be consistent in behavior, multiple measures of behavior are taken over a period of time. Individual behavior and home activities will vary from day to day and across time periods. Any particular day's activities may or may not be relevant for school performance. ESMs provide empirical evidence as to the extent of consistency and

patterning in everyday behavior rather than assuming consistent patterns in cultural practices.

To map recurring patterns in activities and behavior requires observations taken at multiple points in the day and across multiple days. Hence, ESMs do not rely on normative accounts of typical days or generalized self-reports. If important associations between home activities and school performance exist, we would expect to find associations with average behavior patterns over time rather than with behavior from a particular day or two of fieldwork only now and then, which is often the database for surveys or ethnographic studies.

ESM data are “thin” compared to ethnography. ESMs do not capture the stream of behavior and whole events in context, but they do capture many of the elements that make up that larger context in a systematic way. And ESMs are not normed as are achievement tests of school abilities. But ethnography, normed assessments, and ESMs together provide a powerful data collection combination.

HOME-SCHOOL CONNECTIONS AMONG LATINO IMMIGRANT FAMILIES

We used an ongoing longitudinal study of Latino families and children to examine the strategies parents and other adults use to structure nonschool activities (Reese, Balzano, et al. 1995). In previous ethnographic work with this sample, several strategies were identified that low-income Latino parents use for raising families and protecting elementary school-aged children. Families almost unanimously believe that schooling, along with learning how to show respect and other social values, is key to the future of their children in this society. To give their children a chance at an education within their dangerous urban neighborhoods, parents restrict their children’s movement outside the home and carefully screen their children’s friends. Students who do not live very close to school are usually dropped off and picked up at school by adults or are accompanied by older children. Children are encouraged to play indoors and if outside, to stay within sight of home. The scope of their social experience is generally limited to family, school, and one or two neighborhood friends—children whose families are known to the child’s parents (Kroesen, Reese, and Gallimore 1998). These restrictive strategies mean that children may not be strongly encouraged to join in extracurricular activities after school. Sometimes, they even miss out on advanced educa-

tional opportunities that would take them to areas outside their neighborhood or mix them with older children.

However, there is within-group variability in this population. A few families were found to be less able to enforce restrictions on children. These children tended to perform very poorly in school. A larger group was successfully protected from neighborhood dangers but did not participate in a particularly wide range of activities outside the home and regular schooling. Children in this group were low-to-average performers. A higher performing group consisted of families in which parents and children together were more assertive in their quest to formulate activities or organize for completing homework projects. Children in this group exercised choice in a way that was limited by parents but also stimulated and inspired by parental participation. These children were more likely to be involved in activities such as sports teams or music groups and were supported by their parents in these activities (Reese and Gallimore forthcoming).

The rich data from family ethnography led us to four research questions that we used ESM data to help answer:

1. What are Latino low-income immigrant children doing at home?
2. Are these patterns of home activities associated with current school achievement?
3. Are patterns of home activities associated with prior school achievement?
4. How do ESM data fit with the ethnographic and other qualitative data independently obtained for these families?

We expected associations between home activities and school achievement. We expected that home activities in low-income Latino families would assist in children's school achievement if ESM data showed the following patterns: encourage homework activity; make it easier for children to engage in goal-directed activities; provide children with responsible tasks and include them in joint family activities; reduce or replace time spent watching television or playing electronic games; engage children in activities out of the home with some adult facilitation, monitoring, and structure; and show some awareness of and responsiveness to the child's school activities.

Similarly, we expected that home activities in low-income Latino families would not assist in children's school achievement if ESM data showed the following patterns: participate in fewer goal-directed activities, watch more television and play more video games, do less family and community socializing, and be less engaged in parent-monitored activities outside the home.

SAMPLE AND METHOD

Overview

Eight ten- and eleven-year-olds (in fifth and sixth grades) with high, midrange, and low school performance were randomly selected from a larger sample of Latino children. Fieldworkers familiar with these families, *but unaware of the children's school performance scores*, paged children randomly during after-school hours (4 P.M. to 10 P.M.) and asked them about their activities. The behavior data were coded and systematically described. We then compared the ESM data on children's home activities with actual school performance scores and with ethnographic data on selected families.

Sample

One hundred twenty-one families were recruited in the fall of 1989 for a study of Latino children's school careers from kindergarten through middle school. The eight families in the ESM study are a stratified random sample (high, mid, and low school achievement) of the ninety-two cases that continued to participate in the larger University of California, Los Angeles (UCLA) Latino Home-School Project at the time the current study was initiated in 1996–97. Analyses repeated each year have shown that the families retained in the current sample do not differ significantly from the original sample on any key variables (length of time in the United States, parents' level of education, country of origin, parents' job category, initial academic performance of target child). The intensive and exploratory nature of the ESM study (100 pages planned per child) meant that the number of children used for the ESM subsample needed to be small; however, these eight children were randomly sampled from the known and well-studied longitudinal sample.

The children in the full UCLA Latino Home-School Project sample ($N = 121$) were initially enrolled in one of thirteen kindergarten classrooms in two Los Angeles area school districts (Lawson and Sandy Beach, both pseudonyms). In addition, a subset of thirty-two families from the full sample was randomly selected for a case study subset. Parents in this subset participated in two to six in-depth interviews per year. The eight ESM families included two case study subset families, and we used these ethnographic data to supplement the ESM data for those cases. We used *all* the ethnographic cases in the overall analysis and interpretation of the ESM data. Further details concerning the UCLA Latino Home-School Project study sample are available in Gallimore and Goldenberg (1993) and Reese, Balzano, et al. (1995).

The eight families randomly selected for the ESM study had a demographic and family history profile similar to the full sample. Most of the parents in the full sample were born in Mexico (85% and 90% of mothers and fathers, respectively) or Central America. The Mexican-origin parents in the sample tended to follow an earlier migration pattern identified by Cornelius (1989–90), with most coming from the Mexican states of Jalisco, Michoacán, and Zacatecas. When the longitudinal study began in 1989, mothers in the sample averaged 9.9 years of residence (range = 1–27 years) in the United States, and fathers averaged 11.7 years (range = 1–21 years). The average number of years of formal schooling for mothers and fathers was virtually identical, with an aggregate mean of 7.1 years (range = 1–13 years). Parents' occupations tend to cluster in the lower levels of occupation within each census category: service (mothers = 28%, fathers = 35%), repair (mothers = 3%, fathers = 22%), and laborer (mothers = 16%, fathers = 41%). Fifty-three percent of mothers described their work as homemaker. In contrast to their parents, the majority of the children were born in California (74%). Twenty-four percent of the children were born in Mexico, and a few were born in Central America. All of the children had commenced their formal education in the United States.

Seven of the eight children in our ESM sample were born in the United States, and the remaining child was born in Mexico. Most of the mothers (62.5%) in the ESM sample of eight worked outside of the home in service jobs (50%), and two were housewives. In contrast, fathers were more evenly divided among laborer, service, and repair/craft jobs, with one father working in a managerial capacity and one unemployed.

Children's school achievement was assessed by a combination of standardized test scores of reading and math performance and teacher ratings of performance and behavior collected in the spring of each year (Goldenberg et al. forthcoming). To create the stratified sample, all available performance information (including data on grade retention, special education referral and placement, grade of transition to English reading, and test scores and ratings) was used to group all students into high, middle, low, and variable performance groups. High achievers displayed test scores consistently above the 65th percentile and teacher rating scores of one standard deviation above the mean or higher. Low achievers had test scores below the 36th percentile and factor scores of one standard deviation below the mean or lower. Students with highly variable performance from year to year, approximately one-fifth of the total sample, were not included in the ESM study.

Method

Data Collection

Each child received a cellular pager and instructions on how to operate the device. We randomly paged each child between 4:00 P.M. and 10:00 P.M. from Monday to Saturday, but never more than three times in a single day. ESM researchers typically contact respondents six to seven times per day for short periods of time (usually a week or two). Our approach differs somewhat from standard ESM sampling. We used a maximum of three calls per day but increased the number and variety of days we contacted each child. On average, we paged children for approximately twelve weeks (range = eight to thirteen weeks, median = thirteen weeks).

Children were asked to call the fieldworker whenever the pager sounded. As an incentive to the children to respond to the beeper signal, we promised to pay them \$0.50 each time they returned a call. For each child, we hoped to collect 100 spot checks (but obtained a median of 77). We only included data when a child was present in the home at the time the page sounded. (It would undoubtedly have been valuable to include activities outside the home in our study. However, we told parents and children that pagers could not be taken from the home. In any event, the pagers were altered so that they could not be used outside the home. This was done because some youth carry pagers to participate in drug sales, and neither we nor the parents nor children wanted our pagers inadvertently to be a false signal to anyone of such participation.)

ESM studies usually rely on closed-ended instruments for collecting behavioral data. Because we did not know the range or variance of activities children themselves would say they were engaged in, we felt it was important to first ask children to describe behaviors in their own words. Action identification theorists, and our own ethnographic studies, suggest that children vary in how they segment and label their behavior—another reason for seeking measures that will capture relevant sources of intracultural variation (Harré and Secord 1972; Wegner and Vallacher 1977).

When a child responded to a page call, he or she was asked, “What were you doing when the pager went off?” The open-ended responses were recorded verbatim. The interviewer then proceeded to ask the child a short series of questions to pick up simultaneous activities that the child might have forgotten to mention and to eliminate false negatives. For each activity mentioned, we also collected data on the activity’s duration, what language was used (Spanish, English, or both), and the presence or absence of parents

TABLE 1
Contacts per Child ($N = 8$; 100 contacts attempted per child)

<i>ID</i>	<i>Gender</i>	<i>Hits</i>
5	F	33
28	F	63
105	F	76
112	F	86
18	M	78
23	M	84
71	M	62
78	M	93

NOTE: $N = 575$ hits, range = 33–93, mean = 71.9, $SD = 19.0$, median = 77.

and siblings. We also asked whether the child had been reading within the past hour. After recording information on the present activities, we asked the child to recall what he or she was doing just prior to the current activity. The time that the pager sounded and the time the child called also were recorded.

This conversational approach allowed the fieldworker to chat with the child and ask further clarifying questions about context in addition to the standard activity and setting questions. The benefits in completeness and richness of data are considerable compared to the use of entirely precoded response categories such as those usually used in ESM studies. Although children may alter answers to please parents or others who might have been listening to the conversation, we believe that this report bias was minimal due to the familiarity of the fieldworker with each child and the relative neutrality of the questions and responses. Of course, the same potential bias is present for children filling out self-reports or completing time diaries at home.

Table 1 shows the frequency of contact and responses for each child across our 100 attempts. Missed signals could have indicated technical problems, someone occupying the phone, a lost pager, or an unwillingness to answer. The vast majority, however, were due to the child being away from the home. On average ($N = 575$ pages), children responded to pages *within 2.4 minutes* (median = 2, $SD = 2.2$) of the page signal—a very prompt response and one that is well within the norms of other ESM studies. Children were more likely to be out of the house during the late afternoon and early evenings, so there was a slight tendency for more reports during the later evening hours.

Data Coding

We coded the activities in a two-stage process. In the first exploratory phase, we examined the open-ended responses as a window into understanding how children categorized their own behavior. To identify behavioral categories, members of the research team printed children's responses about their behaviors on slips of paper and sorted them into piles of behaviors that appeared similar.

Many of the responses such as watching television, doing homework, and eating were easy to categorize. Other responses, such as "getting ready to go to play soccer" and "just arriving from Chuck E Cheese" were a bit more difficult. One of the behavioral categories that emerged from such open-ended responses was the category "just arriving from." Although children were in the house when the pager sounded, they reported their behavior as "I just arrived from the store," "I just arrived from Sizzler," "I just came from a friend's house," or "I just came back from church." It was clear from how children talked about their routine that their actual current home behavior is overshadowed in the child's mind by more salient recent past activity.

In fact, we found that children were also keenly aware of future events. These statements were often prefaced by the phrase "I was getting ready to. . . ." For example, kids reported "getting ready to go over to my aunt's house," "getting ready to go to my soccer game," "getting ready to eat," "getting ready to do my language art homework," and "getting ready for bed." In most cases, we coded these behaviors as the activity for which they were preparing. We did, however, make a separate code for activities that were related to getting ready to leave the house. In all, we identified twelve kinds of mutually exclusive activities, shown in Table 2. These included watching television, playing video games, doing homework, playing, chores, eating, hobbies, hygiene-related tasks, sleeping/resting, socializing, "arriving from," and "getting ready to leave."

In the second phase of the coding process, we used standardized procedures from content analysis (Krippendorff 1980; Weber 1990; Roberts 1997) to code children's self-reports of behavior into the twelve mutually exclusive categories. Two fieldworkers were given a codebook of the twelve behavioral categories and were asked to independently code all the children's responses.

One of the first problems we had to solve was what to do with children's reports of simultaneous behaviors. For example, one child reported "listening to music and doing my homework, too." Another described her activity

TABLE 2
Frequency and Percentage of Mutually Exclusive Activities

<i>Activity</i>	<i>Total Frequency</i>	<i>%</i>
Television	191	33.2
Homework	98	17.0
Play	48	8.3
Chores	47	8.2
Eating	40	7.0
Video games	33	5.7
Hobbies	26	4.5
Hygiene	26	4.5
Sleep/rest	23	4.0
Arriving	17	3.0
Social	16	2.8
Getting ready	10	1.7
Total	575	99.9

this way: “I was wrapping presents and watching TV.” The problem of simultaneous behaviors is not new to behavioral researchers and is thoroughly discussed by Gross (1984). We took Gross’s suggestion to code for the most salient behavior, which in most cases was the first behavior mentioned. Generally, fieldworkers were able to consistently identify the most salient activities versus background. However, there is undeniably some judgment required in taking sometimes multiple home activities and reducing them to any set of analytic categories.

Cohen’s kappa was calculated to assess the strength of agreement among the two coders. Researchers typically consider kappa above .80 to indicate that the constructs being investigated are shared and multiple coders can reliably apply the same codes (Krippendorff 1980). In this study, agreement among the two coders was very high (kappa = .96). Remaining discrepancies between coders were resolved by taking the response of the coder most familiar with the codes.

Analysis of ESM Data

We calculated the amount of time each child was engaged in the twelve behavioral activities (see Table 2), the time that either of the parents was home, and the time parents were engaged with the child (see Table 3). We

TABLE 3
Frequency and Percentage of Adult Presence (N = 575)

	<i>Total Frequency</i>	<i>%</i>
Mother	433	75.3
Father	302	52.5
Parent	469	81.6
Adult	477	83.0

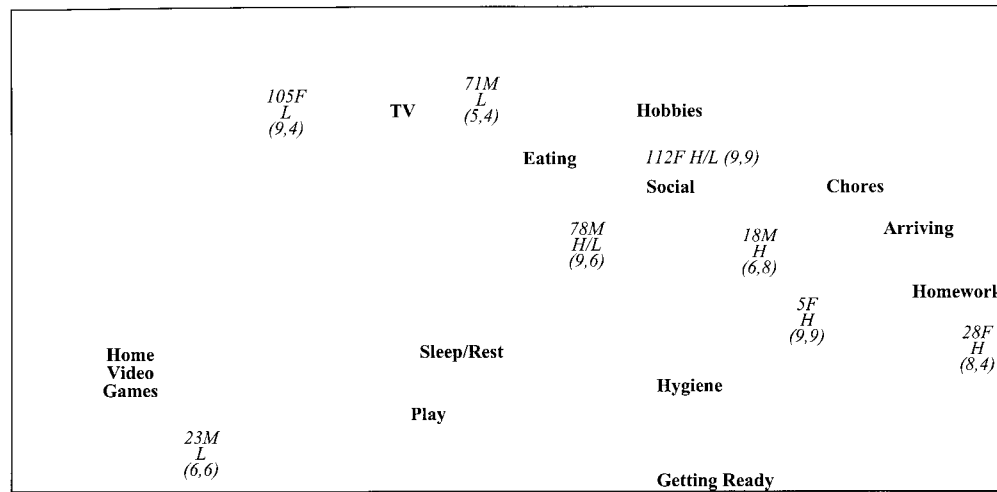
used correspondence analysis to visually display the similarity among children in terms of their home activities (see Figure 1). Correspondence analysis is a technique for exploring and describing tables of categorical data (Greenacre 1984; Weller and Romney 1990; Greenacre and Blasius 1994; Watts 1997). The technique scales the rows and columns of a table (in this case, Table 2) into the same multidimensional space. It can be used on both large and small samples and is relatively insensitive to cells with low or no cases. Correspondence is a purely exploratory technique and is not used to test hypotheses.

When we first produced the correspondence analysis of the child-by-behavior table (Table 2), we were still unaware of each child's academic performance. We used the correspondence analysis for the child-by-behavior activity table to *guess* which children were doing well in school and which were not. (Note that each child's school achievement shown in Figure 1 was added *after* we made our best guesses.) Finally, we compared our estimates of each child's school achievement with UCLA Latino Home-School Project data. Table 4 shows the correspondence between our guesses and each child's overall school achievement.

Analysis of Ethnographic and School Achievement Data

Ethnographic data were systematically collected for families as described in the sample description, and fieldworkers responsible for those cases (Reese, Kroesen, and Gallimore 2000) summarized their notes and observations. School achievement data were provided by teachers based on existing school records collected and maintained by the UCLA Latino Home-School Project as described in the sample section above.

FIGURE I
Correspondence Analysis of Activities by Children Showing School Performance,
Child Gender, and Level of Parental Education



NOTE: Numbers in the plot are codes for each of eight children in the experience-sampling study. Gender is indicated immediately following the number by *F* (girl) or *M* (boy). Below the number and gender code is an indicator of the predicted level of school achievement: *H* = predicted high school performance, *L* = predicted low school performance, *H/L* = predicted intermediate school performance. Below or adjacent to the number code, gender ID, and school prediction is the level of parental education in parentheses. Level of parental education is shown in years of schooling; first the mother and then the father. Thus, (9,4) the upper left-hand quadrant indicates that case 105 (a girl), who was predicted to be low in school achievement, had a mother with nine years of schooling and a father with four years of schooling. (Directly to the right of case 105 is "TV," one of the child activities plotted, indicating that the girl frequently reported watching television.)

TABLE 4
Predicted School Performance and Actual School Assessment

<i>Team Prediction</i>	<i>School Assessment</i>	<i>Accuracy</i>	<i>ID</i>
High	High	Correct	5
High	High	Correct	28
High	Low	Incorrect	18
Intermediate	Intermediate	Correct	78
Intermediate	High	Incorrect	112
Low	Low	Correct	71
Low	Low	Correct	105
Low	Low	Correct	23

NOTE: "Predicted" performance based on experience-sampling method data on children's home activities; "actual" school performance based on school achievement data.

RESULTS

What Are Latino Low-Income Immigrant Children Doing at Home?

Table 2 shows the percentage of time that all eight children were engaged in the twelve activities. Watching television was the most frequently reported behavior, occurring almost twice as often (33%) as doing homework (17%). Playing, doing chores, and eating were all reported between 7% and 8% of the time.

Table 3 shows that on average, mothers were present 75% of the time (range = 30.2%–100%), while fathers were present 52% of the time (range = 15.8%–94.2%). On average, at least one parent was home 81.6% of the time or an adult was present 83.0% of the times we paged. In four of the eight cases, an adult was present at least 90% of the time. Between 4 P.M. and 10 P.M., most of these children tended to be with their parents or another adult. This does not necessarily mean they were interacting with their parents when we called, only that parents and children were home together.

Finally, Latino immigrant children, as we expected, vary quite widely. Tables 2 and 3 show considerable variation with regard to being home, the types of activities, and the presence or absence of parents.

Finally, our ESM criteria are limited to the intrinsic features of the activity (e.g., watching television, doing a family chore jointly, reading a magazine). Hence, these estimates may actually be lower than what actually occurs in the

family due to the nature of the ESM method. For instance, a fieldworker visiting with one of the families on another occasion during the ethnographic studies sat with the family watching a television movie about the life of Christ. While the movie was on, the family discussed whether the movie was based on the gospel of Luke or Matthew and compared the Bible with the story in the movie. This whole lengthy event is a literacy event in part, and we know this because a fieldworker was present and had knowledge of the full activity over time. However, if we had paged the child and asked about what the child was doing and the child said “watching a television program on Christ,” we would not have caught the family discourse adding the literacy component.

Are These Patterns of Home Activities Associated with School Achievement?

Figure 1 illustrates this variation in home activities and relates it to school achievement. We used correspondence analysis to plot the similarity among children and their activities. In Figure 1, children who share a similar activity profile are plotted together and are located near the activities in which they frequently engage.

Figure 1 indicates that three children, represented as numbers 18, 5, and 28, were all performing more activities related to homework, chores, and outside activities compared with other children. In contrast, children 23, 105, and 71 were more likely to be watching television, playing video games, playing, or resting. Two children, 78 and 112, are midway between homework/chores/arriving and television/sleep/play. They are closest to activities such as eating/social/hobbies. There is a slight tendency for parents with better education to have children doing better in school.

Recall that until coding was completed, the fieldworkers and data analysts did not know the school achievement information on these children. Table 4 summarizes our ability to predict children’s school achievement based solely on the ESM data on home activities. While we expected that children in the television/video/play/resting cluster of activities would not be doing as well in school as the children in the homework/chores/outside activities cluster, we were less sure about the two children with inconsistent, less clearly patterned activities. We thought that these children might be in the middle on school achievement.

We did well at predicting two of the three high achievers (5, 28), three of the four low achievers (105, 23, 71), and the one middle-range achiever (78). These six (of eight) children generally fit our expected clusters of home

activities. However, one high achiever (112) was misassigned into the middle-range group based on our ESM data, and child 18, who was not doing well in school, was incorrectly expected to be doing well according to our ESM data.

Are Patterns of Home Activities Associated with Prior School Achievement?

Our ESM data are cross-sectional and cannot be used to suggest directions of change in children's school achievement. However, the UCLA Latino Home-School Project has data on the prior school performance for these children. The data from the larger longitudinal study found three patterns in school achievement over time that paralleled the data from the eight children in our ESM study.

Students in the longitudinal study have exhibited a wide range of achievement in school based on their performance on individual tests of literacy in kindergarten, standardized tests of reading and math in their language of instruction (either English or Spanish) in Grades 1–6, and ratings of classroom performance by their teachers each year K–6. One group of students has shown high or above average achievement since their early years in school. Although all students' test scores declined drastically when they transitioned from Spanish to English reading, the students in this group quickly recuperated from this drop and by middle school were again scoring above the 50th percentile in math and reading. In middle school, many of these students were placed in honors or accelerated programs. In the current sample, cases 5, 28, and 112 fall into this group. We correctly predicted cases 5 and 28 from our ESM home activities data and were close with child 112. All these children are certainly making relatively successful academic progress and show both school-like and complementary-to-school activities.

A second group of students, although initially instructed in their dominant language (Spanish), showed consistently low or below average achievement beginning in the early grades. These students transitioned to English later. Their test scores remained low thereafter. Teachers rated these students as lower in performance and often low in interest and ability. Some students in this category were retained in school or placed in special education programs. Students in this low or below-average group in the present study are cases 18, 23, 71, and 105. We correctly predicted the relatively low status of 23, 105, and 71 but missed child 18, who was misassigned by our ESM data as high. Children 23, 105, and 71 are not making very successful academic progress and show much less evidence of either school-like or complementary-to-school activities.

Of course, many students are neither high nor low achievers. A third group of students exhibits consistently average test achievement and teacher ratings, while others showed variation from year to year or have classroom performance that is at odds with their test score potential. Case 78 falls into this middle achieving group. ESM also gave a “mixed” (*HIL*) position to this boy.

How Do the ESM Data Fit with Ethnographic and Qualitative Data Independently Obtained?

Two of the children in our pager study who had been followed since kindergarten with ethnographic methods (cases 78 and 112) turned out to be in our ESM random sample. They illustrate two of the three school achievement patterns: the high and the moderate/variable (Reese, Kroesen, and Gallimore 2000).

Case 112, “Teresa,” is an articulate child of parents who are the most recent immigrants in the group, who both completed *secundaria commercial* (through Grade 9) and had white-collar jobs in Mexico City before coming to the United States. Teresa is in the high-achievement group. She was a solid achiever in her bilingual program, scoring well enough at the end of Grade 5 to qualify for an all-English accelerated program in middle school. Interview data from both Teresa and her mother indicate that the percentage of time that she was captured by the ESM doing homework may underestimate the time she actually spends on homework assignments. For instance, she reported that she extends her homework time by watching the television she has in her bedroom while studying. Her parents, particularly her mother, monitor her homework and assist her with completing it accurately (e.g., by having her summarize a story orally and then rewrite a paragraph when her mother felt that it was not accurate or detailed enough).

Furthermore, both the father and mother had helped their daughter with a science project by buying materials for her, helping her gather data, and so on. They also structure household chores in such a way that all the *grandes* (older people) and children pick names of Saturday chores from a bowl to ensure that tasks are equitably distributed. Teresa has participated in this system since she was in Grade 4. It is the *quality* of interaction and support that appears to be making a difference in this family as well as the sheer amount of time on homework, which is what the ESM captures.

Teresa also spends more time than other children in the sample on hobbies. She enjoys jewelry making and decorating and spends long hours in her bedroom on activities of her own choosing. Although Teresa is not on a sports team herself, the family enjoys attending both her father’s and

brother's soccer matches. Thus, our ethnographic data would place Teresa squarely within the cluster of homework/chores/outside activities that is predicted for higher achievers, although we predicted intermediate school achievement for Teresa based on the ESM alone.

Daniel, case 78, lives with his parents and younger sister. His mother is from Mexico and is the second wife of Daniel's father, who is from El Salvador. Daniel falls into the middle-achieving group of students. His performance was fairly strong in the early grades before his transition to all-English classes. He had a low patch in Grades 6 and 7, running average to low on standardized tests, receiving some low grades, and at one point receiving extremely low teacher ratings. He seemed disaffected from school, and his mother was quite worried. However, soon after this, his grades rebounded. According to his mother, Daniel was very enthusiastic about playing in the school band and brought his grades up when his band participation was threatened by his low grade point average. He keeps pet birds and enjoys drawing. He is a good artist but has not found any particular outlet for his artistic skill.

Daniel speaks carefully and fluently but does not divulge much personal information. He is described by teachers as a loner and a person who is easily embarrassed when being called on to speak in class. One teacher imagined that Daniel's parents must not be encouraging him to join in, but his mother said she had encouraged him to try after-school activities and he had demurred. For a time, Daniel's family shared a small upstairs apartment with relatives, and Daniel and his little sister never left the apartment or the upstairs landing without adult supervision. In their new neighborhood, Daniel's family lives in a small, two-room detached apartment. Daniel, his sister, and friends her age play outside on the driveway, but Daniel has not developed any friendships with children his own age.

Daniel's mother works as a maid in the mornings and is home in time to accompany the children home from school. Daniel does his homework, but sometimes his effort is minimal. His mother not only encourages Daniel to do his homework but helps him where she can. After he finished one school term with low grades, she even made him do extra work over the holidays. Daniel's parents seemed quite concerned and involved with his schoolwork, but Daniel and his mother rarely described any activities—besides band and his drawing—that he was motivated by. Given this profile of Daniel and his family, it is not surprising that ESM data would capture a strong dose of school- and band-oriented activities as well as other less-goal-directed activities at home. Ethnographic and ESM data provide a similar picture.

DISCUSSION

ESM home activity profiles and school achievement data matched for six of our eight children. The cluster of activities in Figure 1 shows an activity/engagement/sociability dimension on the right and a more passive/less involved/television/video games pattern on the left. Children with higher school achievement tended to be engaged in a pattern of family activities that included doing chores, doing homework, engaging in outside activities, and engaging in more family social activities and hobbies. These children were also involved in activities that included more literacy content and joint-goal-directed activities. Children with lower levels of school achievement tended to be engaged in television, video games, play with peers, solitary play, and resting. They were less likely to be involved in activities using literacy. We also have a third group whose home activities and school achievement were more mixed and less consistent with our expectations, and for whom other factors not accessible to the pager method but available with ethnographic methods appeared to be important.

Clearly, we are not able to make causal inferences from our design and small ESM sample; nonetheless, our findings do show patterns of associations using mixed methods. ESMs could be used on a larger sample, with a control group (other Latino samples as well as non-Latino samples), and over time to test causal relationships between home activities and school achievement.

The ESM data do not reveal to us the mechanisms that lead to the associations between home activities and school achievement that we found, but the ethnographic work identified several such mechanisms (Weisner, Gallimore, and Jordan 1988; Goldenberg and Gallimore 1995; Reese, Goldenberg, et al. 1995; Gallimore and Reese 1999). Parents may directly monitor school-like activities. For example, Daniel's mother closely monitors his schoolwork, making it difficult for his work to decline without it being noticed—and this may have contributed to the improvements he has made. Other mechanisms have been observed, including parents promoting new activities, children constructing activities on their own, teachers encouraging home activities (such as through contacts with parents and/or children with regard to doing homework and reading), and adults responding to signs of their children's productive school abilities. Parents and/or children also unintentionally and inadvertently promote certain activities unaware of any connections to school achievement. For example, a child who gets into a community soccer team or goes to church often does somewhat better in school, although school competence is not the explicit goal of those activities.

The ESM or pager method captured patterns of activities and base rates for these activities that other methods, such as questionnaires, open-ended interviews, and ethnography, cannot reliably obtain. But ESMs are most valuable when complemented by other methods for understanding children in home and community contexts. The complementary ethnographic data introduced rich context and insight to the processes that produce and sustain these patterns, which ESMs cannot capture. School achievement data provided independent, longitudinal outcome information.

In addition, ESMs can provide the basis for comparisons with low-income families from other ethnic and immigrant communities and with families who are economically better off by establishing a common set of methods, categories, and baseline frequencies for more reliable estimates of patterns of activity. For example, the immigrant students in our study who live in dangerous neighborhoods are often kept close to home by their parents in an attempt to protect them from the negative influences of gang- and drug-ridden environments. These children were typically at home during their out-of-school hours; overall, students were at home 72% of the time that they were contacted between the hours of 4 P.M. and 10 P.M., with one of the children found at home 93% of the time. The role that home activities play for children who are largely restricted to their homes may be quite different than the role these activities play for children who are engaged in supervised or monitored activities away from home, or who are largely unsupervised and away from home.

The ending of middle school will bring new changes for the second-generation Latino youth in the UCLA Latino Home-School Project longitudinal study, which should be the focus for future studies of home activities using ESMs. For instance, by the time these children are in middle school, their homework is in English, and many parents are unable to (or feel that they are unable to) provide instrumental help with homework. While parents may have worked with the children and checked over homework more diligently when the children were younger, by the time the children are older most parents rely on the children to do the work on their own, and parents simply ask whether it is completed or remind them to do it. This tends to reinforce higher achievers continuing to do well, while lower achievers flounder. Furthermore, as children get older, girls are kept in the home and watched over more than boys; hence, gender differences may increase as children get older. Future ESM studies can track such changes.

Rather than coming from homes with cultural patterns that stand in stark contrast to those of the schools, as the more extreme variants of the cultural discontinuities model would posit, our students' homes provide considerable

congruence with the school in terms of pro-school values and monitoring of activities. Rather than facing alienation or separation from the family in order to succeed in school, successful immigrant students in our study were observed to be well integrated into their families' activities. There is considerable variability across the sample, however. The ESM data show that school-like as well as complementary-to-school activities are commonly practiced and, hence, could be encouraged in the community, even in the face of the difficult economic and neighborhood circumstances confronted by both low-income families and underfunded schools.

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