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Guided Participation in Cultural Activity by Toddlers and Caregivers

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I've pulled out the pages of this monograph that focus on the integration of qualitative and quantitative methods, for your reference. Barbara R

Guided Participation in Cultural Activity by Toddlers and Caregivers
Abstract

In this monograph we examine how toddlers and their caregivers from four cultural communities collaborate in shared activities. We focus on both similarities across communities in processes of guided participation – structuring children's participation, and bridging between their understanding and that of their caregivers – and on differences in how guided participation occurs. We examine the idea that a key cultural difference entails who is responsible for learning – whether adults take this responsibility by structuring teaching situations, or whether children take responsibility for learning through observation and through participating in adult activities with caregivers' support. We speculate that these two patterns relate to cultural variation in the segregation of children from adult activities of their community and in emphasis on formal schooling. The four communities of our study vary along these lines, as well as on others: a Mayan Indian town in Guatemala, a middle-class urban group in the United States, a tribal village in India, and a middle-class urban neighborhood in Turkey.

In each community, we visited the families of 14 toddlers (aged 12 to 24 months) for an interview focused on childrearing practices in which we embedded observations of caregivers helping the toddlers operate novel objects and put on clothes upon our request, as well as toddlers exploring novel objects spontaneously during adult activities. Results are based on systematic analysis of patterns of communication and attention in each family in each community, combining the tools of ethnographic description, graphical analysis, and statistics.

The findings point to the importance of understanding not only how children learn through instruction that is managed by adults, but also how they learn through keen observation and participation in adult activities. A major contribution of the study is an analysis of how children's keen observation involves managing their attention to complex ongoing events, which was more apparent in the two non-middle-class communities in which children are minimally segregated from adult activities.

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This chapter discusses one way that qualitative and quantitative approaches can be integrated, and gives some references that may be of interest. Skim (or skip) the definitions of variables in the middle of the chapter.

III. ANALYSIS STRATEGY FOR THE OBSERVATIONS

In this chapter, we first discuss our approach to data analysis and interpretation, which relies on systematically abstracting patterns derived from ethnographic analysis of the videotaped visit to each family. We then describe in detail the stages of analysis, which proceeded from (*a*) ethnographic description to (*b*) developing a common language for discussing the cases that would capture individual and cultural variation to (*c*) coding the observations according to the categories of that common language to (*d*) analyzing the patterns of guided participation graphically and statistically and preparing them for communication to readers.

Our approach contrasts with others that focus on individuals as the unit of analysis, with the behavior of individuals conceived as separate from and related mechanistically to that of other people and to cultural characteristics (see Altman & Rogoff, 1987; Pepper, 1942; Rogoff, 1982a). Our view focuses on activities rather than individuals as the unit of analysis and assumes that developmental processes of individuals simultaneously constitute and are channeled by social and cultural processes (see Rogoff, in press).

We combine ethnographic analysis of the interactions in each family in each community with systematic abstractions from these single-case analyses to analyze patterns appearing across multiple cases (see Rogoff & Gauvain, 1986). We believe that approaches that focus on the behaviors of individuals, defined *separately* from each other, arbitrarily separate the partners' contributions to whole dynamic events. The analysis of patterns of activity considers the mutually constituting actions of the participants in the context of the changing meaning and function of an event rather than imposing a static framework on the participants' actions.

Analyses that arbitrarily separate the contributions of each participant in the interaction make it difficult to capture the meaning of their actions. The separation of individuals' behaviors from the interactional context requires each event to be coded in terms of surface characteristics rather than in terms of the purposes that actions serve for the participants. In an ongoing interaction, a given act may mean something different at one point in

the interaction than at another, but a static code that separates the behaviors of the participants has to assign a behavior the same meaning wherever it occurs, ignoring the fact that, in communication, the meaning of an action changes as circumstances change. For example, a mother's question "What do you think goes next?" means one thing if a child has just handled a similar problem with confidence but quite another if it follows a succession of errors.

In addition, any action may serve several alternative or simultaneous purposes (Leont'ev, 1981). For example, a mother's glance at her child may function to maintain her child's attention, evaluate the child's understanding, or maintain her social status relative to the child, among other purposes. The coding of an individual participant's behavior independent of the other participants' behaviors and of preceding events removes the communicational context and meaning, missing the processes involved in participants' management of communication and shared activity.

Attempting to interpret interaction from coded superficial behavior of independently analyzed individuals requires a large step of inference regarding the meaning of the data when the coding does not directly examine the meaning or purpose of the participants in the activity. Often, the eventual interpretation of such data relies on unchecked guesses based on preconceptions or haphazard observation of events (during piloting or running the study) before they were reduced to coded behaviors. Adamson and Bakeman (1982) noted that, if researchers "attempt to discern the organization of infants' interactions with their environment . . . [by coding] occurrences of discrete behavior patterns, interobserver agreement may be high but analyses of such frequency count data may leave them with a sense that little has been retained about the dynamics of the interactive process" (p. 1). Achieving reliability of coded behaviors thus does not solve the problem of trustworthiness of conclusions. Although measures of reliability ensure that several observers independently agreed on how to code a specific behavior, the basis of the researcher's interpretation of the pattern of data is more readily available if the coded variables address the level of meaning that the researcher uses in interpreting the data.

Werner (1954, pp. 8–9) argued for the necessity of analysis of meaningful wholes:

> If it is impossible to derive the totality from a synthesis of the elements, it follows that the only course left is to seek an explanation in the totality itself. The entire problem is now reversed. The elements are not precedent to the whole, but the whole, as a basic entity, is the precursor of its component parts. . . . It is not the concept of "creative synthesis" but that of "creative analysis" which leads to fruitful results. The component members of a mass are dependent parts of this mass, which represents the real, living unity. The single man as a member of a generic unity possesses characteristics which are his because of his integration within a totality, and are intelligible only in terms of this totality.

Ethnographic and related analyses focus on the meaning and purpose of the participants in events, often analyzing a few cases in depth (see Bremme & Erickson, 1977; Cazden, Cox, Dickinson, Steinberg, & Stone, 1979; Cicourel, 1974; Fox, 1988; Gardner & Rogoff, 1982; Jacob, 1987; McDermott, Gospodinoff, & Aron, 1978; Mehan, 1979; Rogoff & Gardner, 1984). Such analyses are based on the idea that participants in social interaction usually provide explicit evidence to each other regarding the meaning of their actions, informing each other of their intentions through jointly created discourse and action and clarifying ambiguities. This evidence is essential to the achievement of understanding between participants, and it also provides researchers with evidence regarding the meaning of actions (Shotter, 1978). As McDermott et al. (1978, p. 247) note, "We can use the ways members have of making clear to each other and to themselves what is going on to locate to our own [the researchers'] satisfaction an account of what it is that they are doing with each other. In fact, the ways they have of making clear to each other what they are doing are identical to the criteria which we use to locate ethnographically what they are doing."

Rigorous ethnographic researchers provide checks on their interpretations by presenting rich transcript material and by balancing a small sampling of individuals with more intensive analysis of the sample of observed behavior in order to examine all relevant data. This contrasts with research that involves statistical methods with large samples, in which most of the variation observed is regarded as random and relegated to the error term. Mehan (1979) emphasizes the aim of constructing a model that accounts for the organization of each and every relevant instance rather than regarding anomalies as random error.

Reliability and validity are handled differently in ethnographic than in conventional psychological research (Guba & Lincoln, 1982; LeCompte & Goetz, 1982). In conventional research, the investigator trains several observers to a criterion of agreement regarding how to label what is seen, reports the level of agreement on labels, and bases the interpretation of the data on the labels assigned by those observers. However, the fact that several observers can achieve consensus on what to call a behavior does not make their label "true." It simply means that, if another person were similarly trained (enculturated), he or she would likely call that behavior by the same label. Hence, objectivity is no more than shared subjectivity, in conventional approaches just as in all others. All accounts are interpretations; they vary only in the basis on which they are made. Cicourel (1974) pointed out that

researchers cannot avoid interpretation in *any* kind of research because they must rely on knowledge of the context and of norms for behavior in order to recognize the relevance of the observed behavior for the theory being tested. Since ethnographic approaches often interpret the data closer to the observed events, they make the evidence for their interpretations of the event more explicit and subject to the reader's scrutiny, providing a different test of reliability. The reader is frequently given excerpts to check the investigator's interpretation of instances, and, in some cases, transcripts of the entire corpus of raw data are made available for public examination (e.g., Green & Wallat, 1979; Mehan et al., 1976).

Some ethnographic approaches examine generalities or patterns in a variety of similar cases (i.e., individuals, dyads, classrooms, events) while attempting to maintain the meaning of individual actions in their context (see Mehan, 1979; Wellman & Sim, 1990). Functional pattern analysis, suggested by Rogoff and Gauvain (1986), is such an approach. It served as the basis of our analyses and can be summarized as follows:

1. Functional pattern analysis focuses on the unfolding development of purposive acts within ongoing events. Categories are functionally defined as they relate to the purposes of the event as a whole rather than as involving superficial behaviors independently defined and separated from their context.

2. The contributions of participants are examined in the context of those of other individuals; this differs from the traditional separation of individuals' behaviors to code them without reference to the efforts of others or to the development of joint activity over the course of an event. Evidence for constructing an account of the participants' goals is available in the communication of participants (including the researcher).

3. Patterns are analyzed with statistical methods as well as with examination of graphic arrays that allow tracking across multiple variables to examine patterns of interrelations and to account for anomalous or similar cases. Anomalies are pursued as informative for the results as a whole, and raw data are referred to in the attempt to account for them and to substantiate general patterns by looking within cases. Statistical approaches, examination of graphic arrays, and ethnographic analyses of individual cases supplement each others' vantage points for interpreting the data.

This approach to analyzing data is similar to that advocated by Tukey (1977) for exploratory data analysis.[1] He noted that graphic displays strengthen comparisons of the data by permitting researchers to see how the data behave generally as well as how points deviate from the general

[1] We also employed a software program, Data Desk, that was developed from Tukey's work. Some of the graphs appear in Chaps. V and VI.

pattern. Tukey claimed that exploratory data analysis is like detective work, with graphs forcing the researcher to notice the unexpected.

The approach also corresponds with ethnographic qualitative data analysis (Goetz & LeCompte, 1984; Miles & Huberman, 1984). Miles and Huberman noted that displaying data in a systematic fashion is essential to sorting and condensing information to the conceptual core in order to make general statements about ethnographic or qualitative data. They advocated abstracting data from the idiosyncratic details of a case and argued for the use of numbers when appropriate to characterize the textual data and for checking back to the raw data in order to be sure that generalized statements are grounded in the individual cases.

A number of other researchers have developed related ways of systematizing ethnographic or qualitative data (Cazden et al., 1979; Green & Wallat, 1979; Mehan, 1979; Mehan & Riel, in press; Moore, 1981). Systematic analyses of functional patterns in interactional data also appear in other scholarly traditions, such as ethology (Grossmann, 1981), infant social interaction research (Als, Tronick, & Brazelton, 1979; Uzgiris & Fafouti-Milenkovic, 1985), and the hermeneutic tradition (Kreppner, Paulsen, & Schuetze, 1982).

Our analysis was a process of abstraction from contextually rich ethnographic analyses of the data from each family to a systematic examination of the generality and variations in patterns appearing in the 14 families from each of the four cultural communities. The coding categories were derived in a process of abstraction from the ethnographic descriptions, progressively developing a common language that we believed fairly represented the gist of the events. The common language for looking at patterns across the four communities was arrived at through a dialogue among the researchers representing these communities, in which we discussed and revised the common language of analysis until it satisfied us as both capturing the important variations and fairly representing the practices of the families in each community. The abstracted, reduced data did not maintain the rich idiosyncratic context of each family; rather, it attempted to develop an abstracted language for use across cases that reflected the focal variations in the families' approaches.

This process resembles Berry's (1969) recommendation for derived etic research, in which researchers approach a project with preconceived ideas (*imposed etic*), then study how the issues take form for natives of the community (*emic*), and finally synthesize the emic with the original imposed etic perspective to derive a general approach that is more faithful to the local meanings of the people observed (*derived etic*).

The analysis of the observations in the current study thus followed four main steps, which are described in the remainder of this chapter:

1. An ethnographic description of the record for each family in each community;
2. The development of a common language with which to describe similarities and differences occurring across families and communities;
3. The coding of the record of each family according to this system; and
4. The graphic and statistical analysis of the coded data and the condensing of results into a communicative form for readers.

METHODS USED TO DESCRIBE EACH CASE

The 1½–2-hour videotapes were first described ethnographically, focusing on the meaning of the actions and the speech of the child and the caregivers in the specific activity. A common set of guidelines was used for the descriptions in the four cultural settings so that a similar approach and level of detail would be employed. The similarity in the four researchers' approaches to description was checked by cross-describing numerous segments of observations from the United States, with which all four were familiar. By the time we began writing the "official" descriptions, the differences among them seemed minor and not to reflect differences in interpretation. Although length varied, for the most part the same material appeared in the overlapping descriptions of the same observation, as can be seen in the following descriptions made by each of the four investigators, involving a 12-month-old Salt Lake boy, his mother, and the embroidery hoop (a metal ring with handles that release it from inside a plastic ring when they are squeezed together; see Fig. 1 above).

Transcript 1

Mother holds the hoop up toward Stanley [a pseudonym] and starts to manipulate it.

Stanley becomes interested. He watches what his mother does and reaches for the hoop with a lusty "Hah! Haaah!"

The view is obscured for a moment, during which the mother probably released the inner ring very briefly and returned it, without vocalization.

Stanley grasps the hoop.

The mother smiles, lets him have it, and sits back.

She looks up at the baby with a smile and asks, "What *is* that?"

The baby looks through the hole of the hoop.

The mother reaches for the handles, saying, "Look. . . . Look at this."

The baby doesn't stop in his activity, which is to bring the hoop to his face and peek through the hole.

The mother and others laugh at his insistence, and the mother continues trying to get hold of the handles.

The baby turns away from her and pulls the hoop away, bringing it up to the top of his head.

The mother laughs, "Oh, you're going to put it on your head, huh?"

Transcript 2

The mother just slightly separates the two rings in front of the baby's face.

"Huah!" the baby laughs. "Ha! Ha! Huuh!" Baby laughs and reaches up and grabs the rings as the mother slides the rings together again.

Mother laughs and lets go of the hoop as the baby takes it.

Baby examines the hoop interestedly.

Mother leans on her elbows toward baby at the coffee table. Smiling, she asks baby in a mildly enthusiastic tone, "What is that! . . . Look." She reaches out for the hoop as baby peers through the circle at her, framing his face. "Oh, hah!" mother laughs humorously.

Baby continues to clutch the hoop tightly and turns away from mother, sliding the hoop on his head like a halo.

Mother and everyone laugh. Mother continues to reach for the hoop, attempting to squeeze the handles, but hesitating from taking it from baby. "Oh, you're gonna put it on yer head, huh?" mother says in an amused tone.

Transcript 3

Stanley is interested. He looks at the hoops and then reaches for them. His mother lets him take the hoops, as she settles herself into a more comfortable position. She then reaches over to try to demonstrate how to take the hoops apart. She tries to do this while Stanley is busy mouthing the hoops. She tries to direct his attention to her action, saying, "What is this? Look at this."

Stanley now puts the hoops on his head.

The mother laughs and comments, "Oh, you want to put it on your head."

Transcript 4

The child mumbles and gets the hoop from the mother as she attempts to part the pieces. "What is that? Look, what is it?" asks the mother, again trying to part the pieces as the child holds the hoop. The child doesn't let this happen and puts the hoop on his head and turns away from the mother, who acknowledges the child's action by saying in acceptance, "Oh, you're putting it on your head, huh?"

That we four usually described events very similarly makes us confident that we were working successfully with similar criteria for interpretation. Independent descriptions by Pablo Chavajay (a native of San Pedro) of the San Pedro and Salt Lake data were also very similar.

The descriptions were used in conjunction with the videotaped records for all later coding, with the videotaped records having priority and the descriptions largely serving to keep track of the flow of events. Relying on the videotapes was indispensable, especially for capturing specific attention patterns and means of communication. The description process was also essential, however, in orienting us to the patterns that we wanted to capture in the subsequent coding scheme and in helping focus our later observation of the videotapes.

The central aim of the description was to portray the efforts of the participants in a way that was faithful to their situation and at the same time comprehensible to someone from another background. The descriptions were approached as an exercise in writing drama: we attempted to give sufficient interpretation and contextualization of the observation to enable an unfamiliar reader to visualize the scenario or to act out the sense and feeling of the event.

The descriptions were done by the investigators representing each community (Rogoff and Mosier each described all Mayan sessions; Rogoff and Mosier, with the help of Jamie Germond and Amy Urbanek, were the primary describers of the U.S. data; Mistry described all Indian sessions; and Göncü described all Turkish sessions). The investigators had been present at the sessions and thus were familiar with the family situation and the nature of the session. Before beginning the description of a session, they reminded themselves of family background information and sometimes made a catalog of the main events of the session, to help avoid the temptation to describe everything in detail. The next section reports the guidelines used for our ethnographic descriptions.

Guidelines for Description

Interpretation was essential in order to go beyond simply writing down behaviors out of context, which would render them meaningless. The guiding questions were the following: What is going on? What appears to be the reason that the child or caregiver did something? What is the overriding theme of a segment of the interaction (or of the whole interaction so far)?

The primary focus of description was the function of the participants' actions rather than the minutiae of behaviors; thus, the descriptions focused on the purpose of actions for communication or for accomplishing some other goal. For events that related to the questions addressed in this *Monograph*, we indicated the evidence available in the participants' behavior that convinced the viewer of their purposes—for example, that a child appeared frustrated with an object and tried to elicit her mother's assistance by crying and waving the object in the air while looking at her mother. When uncertain, we included notes indicating that the interpretation was a guess. Just writing down the child's behaviors (crying, looking at the mother) would not have been adequate for a reader to determine what was "going on."

We attempted to be poetic and evocative in describing events, to allow a reader to visualize the scene and to understand not only the behaviors but also the feeling and tone of the event. We found it useful to expand the vocabulary that we were used to using in psychology and to include anything that would get the point across, including analogies to familiar situations. For example, if the mother and child were struggling over a toy and the child grudgingly gave it up to the mother with a resigned sigh, such a description gets the picture across better than saying that the mother reached for the toy that the child held, the child drew it toward herself quickly, the mother grasped the toy, the child did not let go, then the mother pulled on the toy again, and the child let go with a glance at the mother with furrowed brows, and so on. The behaviors are an important supplement to the description of the purposes, but they do not get the point across on their own.

Special attention was paid to the nonverbal aspects of the situation because we have found that many people (especially middle-class Caucasians with university training) find them more difficult to attend to than the verbal interaction. To understand an event, nonverbal actions such as changes in posture, eye contact, gaze aversion, and intonation are essential. For example, it is relevant whether a mother's invitation to "put the toy here" is accompanied with a finger tapping on the place to put the toy, whether the mother guides the child's movements with her arms, and whether her gaze provides further information. Again, the focus is on the meaning rather than the motions.

Although the events of most interest involved the caregivers and the child, the actions of other people were relevant as they affected such interaction or helped interpret it. For example, the fact that the interviewer was asking questions was indicated since it influenced the kind of attention the caregiver could give the child, but the content of the interviewer-mother conversation was usually irrelevant. It was important to attend especially to the interaction between the caregiver and the child at the times that the child was not the caregiver's main focus. For example, was the caregiver oblivious to the child, or was she subtly monitoring the child's activities while giving primary attention to the interviewer? Or did the caregiver give priority to the child over the interviewer, allowing or encouraging the child to interrupt the adult activity?

The absence of an action that might otherwise be expected provided very useful information. In order to note down what the mother did *not* do, it was helpful to keep in mind how other mothers handled similar situations. Focusing on the purpose of the mother's actions facilitated attention to the absence as well as the presence of certain actions. For example, it allowed interpretations such as "The mother is engaged in answering the interviewer's questions and does not interrupt this activity to attend to the child even when the child holds objects up in her line of vision or when the child fiddles with the interviewers' belongings."

The transcript began with a description of the setting in sufficient detail for a reader to visualize the scenario and the position of the cast of characters, including onlookers and other people present. It included a rough map of the household layout indicating the positions of the participants during the observation. Events were marked according to the footage of the incident, to aid in finding the incident again. Descriptions indicated transitions from one activity to another to indicate what brought on an activity (e.g., did the researcher suggest that the mother give the child a snack, or did the mother spontaneously bring out crackers?). Any instructions given to the caregiver were included as well as the toddler's attention to such instructions, especially when the novel objects were brought out.

Sometimes the transcript was segmented into turns taken by the child and the caregivers. However, some interchanges were better communicated without breaking them apart according to child and caregiver. For example, it was more useful to note "the child hands the mother the toy" than to have to break it into "the child offers the toy to the mother" and "the mother receives the toy."

Much of the footage could be summarized briefly simply to provide the context of what occurred between major incidents. Without such summarizing, ethnographic description would take forever, and analysis would be stymied by too much peripheral information. Unimportant detail could be avoided by noting the general direction of events, stating, for example, "While the mother answers questions and monitors the child, the child plays near her feet with his own toys and occasionally glances up at her, holding up a toy and vocalizing." Even with these guidelines, description of the 1½ hours of data took on average 30 hours and 30 typed, single-spaced pages.

DEVELOPING A COMMON LANGUAGE FOR ANALYSES ACROSS FAMILIES AND COMMUNITIES

As the descriptions for each family were nearing completion, the four investigators conferred to develop a common language—a system of classifications—for abstraction of the information. We extended our initial notions of cultural similarities and differences in guided participation to the circumstances observed in each community in order to develop an overall classification scheme that focused more closely on the question of whether children took responsibility for learning with adult support or adults took responsibility for organizing children's learning. This stage of our analysis also involved deciding how to segment the observations to allow for coding comparable units of observation across the different families and communities.

This process entailed extensive dialogue to refine categories in order to capture important nuances and avoid inappropriate value judgments in any community. Each of us had to teach the others to understand the phenomena from the perspective of the community that each represented. For example, we began by contrasting verbal and nonverbal means of communication but felt that "nonverbal" was insufficiently precise for the means that were used in San Pedro and Dhol-Ki-Patti; we eventually ended up distinguishing between nonverbal means involving adjustment of objects or of the partner's hands, gestures, and intense gaze, touch, posture, and timing cues.

CODING OF OBSERVATIONS

This section describes how we selected segments of the stream of events for analysis (novel objects, dressing, and novel object exploration during adult activity), the specific variables that we ended up analyzing and their definitions, and their reliabilities. Figure 2 presents an overview of the variables that were analyzed for this report.[2] The variables are presented and defined in this chapter in the order in which they were introduced in the discussion of cultural universals and variations in the introduction (this order is maintained throughout the *Monograph*). Unless otherwise indicated, the variables were coded in terms of whether they ever occurred in a given episode.

Segmentation: Identifying Activity Episodes

The segmentation of the data involved identifying similar activity episodes across each family's interview: up to five episodes involving novel objects, one episode involving dressing, and one episode involving novel object exploration during adult activity (if there was one). The five novel objects were chosen from the total number presented on the basis of

[2] We do not report a number of other variables that were later dropped owing to overlap with variables that were kept, lack of conceptual clarity, or low reliability.

Coding of Observations

Number of interactional moves by child: 1-3 4-9 10-20 21+
Resp. partners_____ Adult?____Child? age_____

Caregivers' agenda _____
Child's agenda_____

Mutual involvement of caregivers and child?____

Child introduces info/structure?____ Child seeks greater involvement? _____

Talk to child:	10+sntnc	4-9sntnc	1-3sntnc	1-3phrases	Words	None
Child Talk:		4+phrases	1-3phrases	4+words	1-3words	None

Caregiver introduces/orients nature of activity: Verbally Nonverbally Neither
Caregiver simplifies: Verbal Adjust obj./hands Gesture Gaze/Touch/Posture/Timing
Child seeks greater assistance: Verbal Gesture Gaze/Touch/Posture/Timing
Child seeks clarification through gaze?____

Caregivers' explanation: extending to other situations? _____

Caregivers' demonstration	Extensive	Moderate	Brief	None
before child participates	____	____	____	____
during child participation	____	____	____	____

Caregiver directs attention to process? ____ Turns task over to child? ____

Caregiver acts as playmate?____
Ad. caregiver treats child as conversational peer____ Ch. takes conv. peer role____

Caregiver used marked babytalk intonation? ____
Caregiver vocab. lesson: Labels Commentary Expands Requests label Lang. games
Child vocab. lesson: Labels Requests label Lang. games

Mock excitement to motivate child's involvement?_____
Caregiver praise/cheer_____

Caregiver mostly poised ready to help? _____

Child clearly refuses/insists?____ Caregiver overrules child's demand?____

Attention management in presence of competing events

Attn. was:	Simultaneous	Alternating	Unaware
CHILD	(__)_____	(__)_____	(__)_____
CAREGIVERs	(__)_____	(__)_____	(__)_____

Interruption of adult activity for child purposes____

Engagement embedded in group? _____

FIG. 2.—Coding sheet for observations, indicating the format of coding for the variables that were retained through the analysis. (Dropped variables have been deleted.)

having aroused the most reliable interest in all four communities. We also considered analyzing other types of episodes—feeding, social play, and play with the children's own objects. However, differences in procedure across communities made these episodes difficult to compare, and our informal examination of these other episodes suggested that they did not challenge the conclusions to be drawn from the episodes that we did select.

The regular novel objects episodes were child focused, with the caregiver having been given or taking responsibility for helping the child. The caregiver focused attention on the activity of the child and did not supersede this focus with attention to adult-adult interaction independent of the child's activity. In novel object exploration during adult activity, caregivers were involved in adult conversation or other activities but gave some attention to the child.

The reason for including analysis of novel object exploration during adult activity was our impression that some of the children, especially in San Pedro and Dhol-Ki-Patti, were uncomfortable with being the focus of adult attention and became more involved in exploring the novel objects with their caregiver when adults were engaged with each other. Our analyses focus primarily on the child-focused novel objects episodes because we usually had five episodes of this type per family but only one episode for dressing and a highly variable number of episodes of novel object exploration during adult activity. We employed the episodes of dressing and novel object exploration during adult activity to examine the extent to which our novel objects observations resembled guided participation during other types of activity.

The unit of analysis was each episode in which the child was engaged with a caregiver with a specific novel object or in dressing. An episode included four or more interactional moves by the child (either initiated by the child or responsive) toward any responsible partner (excluding the interviewers) and at least one move by the caregiver.[3] There needed to be joint engagement at some point between the child and a caregiver, but there could at times be moves made by one to which the other did not respond, as long as there was at least one move by the caregiver. An episode could involve brief interruptions from intervening activity, such as short periods of adult-oriented conversation during child-oriented novel object episodes, and could stop and start up again later.

[3] In San Pedro and Keçiören, all five novel objects elicited at least this amount of interaction. For two Salt Lake children, one novel object elicited less than this amount of interaction; interactions involving a similar novel object were substituted. In Dhol-Ki-Patti, two of the novel objects routinely did not elicit interest and were dropped, and interactions involving another novel object were also occasionally substituted for one or another of the remaining novel objects when little interaction occurred.

Our analyses included only activities in which the toddler was involved with caregivers—that is, adults or responsible children who direct or supervise the toddler in the episode in question. If the child had several responsible partners, we coded their interactions together (summing across individuals) rather than differentiating each caregiver.

As an aid in identifying episodes, we began by indicating the nature of the partner's and child's agendas in narrative as a way of orienting to the primary purposes that the episode had for the participants before dealing with individual variables. Examples of partners' agendas include getting the child to work an object, keeping the child from interrupting adult conversation, and keeping peace between siblings. Examples of children's agendas include getting access to an object, working a toy, and getting the caregiver's attention.

Novel object exploration during adult activity.—Episodes could be initiated by either the child or the caregiver. For an episode to count as novel object exploration during adult activity, the adult caregiver did not have to be very actively involved in the adult conversation but must at least have been attending to it and following it (e.g., laughing along with jokes, glancing around at appropriate times, inserting appropriate comments). The adult could attend to the child during junctures in adult conversation (e.g., when the interviewer was looking for the next question), but it had to be clear that the caregiver remained in readiness to continue the adult conversation/activity rather than being willing to drop the adult focus. This could be indicated by maintaining a postural openness to the adult activity or by glances to check when she was being addressed. Examples would include a caregiver casually demonstrating an object to the child during adult conversation or responding to a child's whining with a few moves to solve the problem and then returning to adult conversation without extending the interaction with the child.

We included instances during which the caregiver handled the interaction by giving her attention alternately to the child and the adult activity as well as those during which she gave her attention to both simultaneously. The adult could attend heavily to the child during the episode, but not lose track of the adult activity for long stretches; interruptions to attend to the child could not exceed two or three child-focused moves.

We counted the number of episodes of novel object exploration during adult activity in each community and analyzed the one with the longest and most coherent series of moves, giving priority to novel objects that we had coded for child-focused novel objects episodes. The agenda had to be consistent with a use of the object that we would include in regular novel objects episodes—working it, not just handling it or using it to get the child to quit doing something.

Dressing episodes.—Dressing episodes focused on one round of putting

on and taking off an item with sleeves (or, if such an item was not available, one that required putting limbs through other holes). For comparability, priority was given to elicited dressing events over spontaneous ones. Other agendas within a dressing episode (e.g., a game that develops) could be coded, and there could be intervening events before completion of the episode, just as with novel objects.

Definitions of Variables: Universal Processes of Guided Participation

Creating Bridges between Caregiver and Child Understanding

Mutual involvement was coded if both the child and the caregivers attended to each other's moves and provided direction to the activity, by agreeing, initiating, and making at least some elaborations on each other's moves, although not necessarily to an equal extent. One partner could make suggestions and the other follow through, but the latter must also make moves to which the partner responded. The partners did not have to be involved with the same agenda, but the agendas had to fit together.

Caregiver orients child involved introducing new information or structure to the child (at any point in the episode) regarding the overall goals or a key part of the event or what was expected in the situation. Orienting framed a major goal, not just specific little directives for particular actions. The extent of verbal as opposed to nonverbal orienting was analyzed for variation across communities. To count as telling the child what to do, words had to carry information regarding the general agenda, not just a direction to "do it," although they did not need to be complete in themselves (e.g., "Pull it like this" while pulling the jumping-jack string would be coded as both verbal and nonverbal). Sometimes the orienting did not explain what to do but told the child in other ways what kind of activity it was, such as introducing the jar by saying, "What's inside there?" and peering closely into the jar.

Structuring

Caregiver simplifies involved attempts to facilitate the child's efforts by handling part of the task (e.g., holding the jumping jack high to facilitate the child's grasp of the bottom ball), dividing the task into subtasks (e.g., holding the bottom part of the jar while the child worked the lid), or handling complicated moves (e.g., fitting the lid of the pencil box on so that the child could slide it in).

Child introduces information or structure involved ideas volunteered or developed by the child that built or redirected the *joint* activity.

Child seeks clarification included whether children ever attempted to access the caregivers' interpretation of an ambiguous situation using visual social referencing, that is, turning questioningly toward the caregiver to "ask" what to do or how to interpret a situation.

Child seeks involvement involved the child spontaneously trying to take over all or part of the task, with greater involvement than the moment before (indicating "I wanna do it myself").

Child seeks assistance involved the child seeking more help with the task than the child was currently receiving; it is more than expressing frustration *at* the object.

Definitions of Variables: Cultural Variations in Guided Participation

Verbal and Nonverbal Communication

Talk to child was broken down into units of 10 or more sentences, four to nine sentences, one to three sentences, one to three phrases, solitary words, or no words. *Child's talk* was broken down into units of four or more phrases, one to three phrases, four or more words, one to three words, or no words. We coded the total amount of talk to the child by all responsible partners and the highest level of child talk. Sentences contained four or more words but did not need to be grammatically complete; shorter phrases (two or three words) and words were given partial credit. Children's phrases were combinations of words that were beyond holophrases (e.g., not "thank you" but "the boat" or "dat mine") and that contained words that the child could move around. Child talk counted repetitions of the same words or phrases.

Caregiver orients child, caregiver simplifies, and *child seeks assistance* involved the variables described under cultural universals, distinguished in terms of whether the communication occurred verbally or through adjustment of the object or the partner's hands, gestures, or gaze, touch, posture, or timing. We coded only means that specifically added information or guidance, not those just accompanying some other form of communication that carried all the information. For each of these three variables, each episode was coded in terms of whether the means of communication was verbal, through adjustment of objects and partner's hands, gestural, or through gaze, touch, posture, or timing cues:

> Verbal means included words and stylized vocalizations that carried specific information, including sound effects like "bing" to show the springing of the ring's handles or making conventional animal sounds.

> Adjustment of objects and partner's hands included direct joint action that facilitated communication or efforts in a way that appeared central or intended for communication. Putting hands over the child's to help work an object counted as adjustment; distal demonstrations did not.
>
> Gestural means included symbolic action, not direct action, that could be understood by common knowledge or in context as standing for an idea. Gestures could be conventional actions with widely understood local meaning (such as nods, shrugs, bye-bye waves, peek-a-boo gestures, palm-up object requests, and points) or nonconventional but stylized gestures such as suggesting to open something with a twisting motion in the air. Gestures included offers and requests that were smoothly accomplished but excluded simply acting directly on the object (e.g., grabbing something away or reaching directly for an object), and they omitted the first offer of an object to the child at the beginning of an activity.
>
> Gaze, touch, posture, and timing cues included intent gaze and touch, posture, or timing cues that carried communicative force and did not have an equally convincing noncommunicative explanation. Gaze involved intent eye contact or visual expressions (e.g., raised brows) that were not conventional gestures, such as a questioning glance, a stern gaze, pointing with the eyes at an event to be noticed, underlining a point with intensity of gaze, winking, or sticking one's face in the other's face so as to be able to communicate with the eyes. Just glancing, making eye contact, or monitoring that did not seem to have a message in itself or that was a necessary part of a game did not count. Touch, posture, and timing cues included shifts in touching the other person, posture, and timing changes, such as nudging the child's elbow to indicate when to do something, moving an object with exaggerated motion to draw attention to critical features of a process, or meaningful added intensity or suspenseful timing of gestures (e.g., an especially firm and marked offer of the jumping-jack string, highlighting the directive to "use it" with force and clarity of motion).

Child seeks clarification, described under universals in guided participation, was also analyzed to examine cultural variation in this form of nonverbal communication (visual social referencing).

Explanation and Demonstration

Caregiver extending to other situations explained a situation by referring to another context in a meaningful way that was not explicitly called for by the usual name or use of the object. This included making analogies ("This is like your nesting boxes"), referring to an object or an event with a label

that put the whole thing into a certain frame of action (e.g., pointing out that the jumping jack was "dancing"), or acting out a familiar scenario to clarify the event (e.g., saying "Peekaboo" when the puppet popped out or moving the child's legs in imitation of the jumping jack's).

Caregiver's demonstration before and during child participation (coded as extensive, moderate, brief, or none) could include either joint action with the caregiver mainly responsible or symbolic demonstrations to the child (e.g., indicating the action without the object). "Before participation" meant before the toddler started working the object even in a rudimentary way. "Extensive" demonstration involved many demonstrations or several complex ones, to the extent that it was difficult to imagine anything else the caregiver could do to demonstrate (compared with the range exhibited before or during child participation in that activity across the four communities); "moderate" demonstration involved situations in which several good demonstrations were given but one could imagine more or more elaborate ones; "brief" demonstration was abbreviated or cursory or involved few instances. For dressing, there had to be an instructional aspect to the activity (e.g., showing the child how to free his or her hand to get it in a sleeve by demonstrating how to transfer an object to the other hand), or the caregiver could provide assistance to a child who was managing the activity.

Caregiver directs attention to process provided a general marker indicating that the child should pay attention to some (otherwise unspecified) process of an ongoing event, by saying "Look," "Watch," or "See?" or using cues that tell the child no more than "Look now," such as by moving an object right in front of the child's face. This category excluded efforts that were simply attempts to recruit the child's interest and involvement in the activity.

Turns task over to child meant spontaneously handing over the whole task to the child or urging a hesitant child to try, indicating "You're ready to do this now," after the task was offered to the child for the first time.

Adult-Child Roles in Teaching and Learning

Caregiver acts as playmate involved entering into equal status through mutual involvement in play, not just being excited, using a playful voice, or directing the child to play. The caregiver needed to take on a peer role verbally or in actions, entering into games such as tickle and chase, pretend role play, or peek-a-boo as a partner in play.

Adult converses with child as peer and *child converses with adult as peer* attempted to capture whether the child was ever treated or ever acted as a person of equal status with valuable opinions and ideas rather than as a subordinate who may receive directives, request clarification, or indicate

understanding but not initiate or direct conversation. Caregiver-child peer conversation involved the child in reciprocal verbal dialogue in conditions other than those necessary for the action under way. The caregiver's role had to include talk; the child's could include talk, protowords, or nods.

The adult could invite the child to participate in conversation or participate in the child's initiations (e.g., asking the child's opinion, asking the child a question with a known answer in order to encourage conversation, pausing in a series of small-talk questions to encourage the child to take conversational turns, or responding to the child's comments or vocalizations as if they were conversational turns). It was not considered peer conversation if the caregiver simply suggested an action by asking, "Do you want to do this yourself?" and the child simply took the object. The adult's move needed to call for or expect a vocal or symbolic response (e.g., if the caregiver asked the child's opinion of something—"Is it pretty?"—and paused for a conversational response from the child).

The child could initiate peer conversation (e.g., offering small talk or opinions, interrupting adult conversation for child comments, asking questions that were not necessary for carrying out an activity that an adult had suggested or approved) or direct the action verbally in ways that were not simply responsive to adults' directives (i.e., going beyond simply clarifying what an adult just asked the child to do). Unobtrusively expressing interest in something or vocalizing to get an adult's attention was not coded as taking a peer role.

Caregiver uses babytalk intonation involved any modification of pitch or intonation or specialized vocabulary not acceptable for use with local adults. Simplified, short sentences and pet names were not by themselves babytalk.

Caregiver vocabulary lesson (labels, commentary, expands, requests label, language games) and *child vocabulary lesson* (labels, requests label, language games) focused on teaching language beyond simply ensuring communication. They called attention to features of language, teaching the meanings of words and testing the child's knowledge, deliberately or not. The score for each episode ranged from 0 to 5 for *caregiver vocabulary lesson* and from 0 to 3 for *child vocabulary lesson*, depending on how many of the following categories were exhibited at all during the episode:

"Labels objects or events" focused on teaching labels of objects (e.g., "That's his *eyes*" or "Boat!") or events ("See, the baby's *sitting*"). Labeling did not simply explain an action or announce an event; it focused on teaching vocabulary. Labeling by the toddler could be a response to a request, but not just parroting a caregiver's label.

"Running commentary" was descriptive narration of events, apparently addressed to the toddler or to an invisible audience, with no obvi-

ous purpose besides providing a play-by-play account or an interpretation, much like a sports commentator. It included rhetorical questions not directly requesting information but providing interpretation (e.g., "You wanna put it in there?" after the toddler had already done so or had already made that intention clear).

"Expands or mimics child utterance" repeated the child's words or vocalizations or expanded them with improvement in pronunciation or wording (e.g., the child says, "Peh-ees," and the father echoes, "Pennies," or the child says, "Dat eyes," and the mother expands, "That's the eyes").

"Requests label" included the caregiver's requests for labels already known to the caregiver, in the form of test questions, or the child's requests for labels.

"Language games" involved word games (e.g., "What does a doggie say?") or games that tested verbal comprehension with questions that had obvious answers (e.g., "Is that the *eyes*?" or "Did you kiss the baby?" just after the child kissed the doll) if the adult waited for or requested an affirmation. The toddler was coded for provision of the requested communication.

Mock excitement invited or motivated the child to participate in an activity by means of exaggerated expressions of interest to try to engage or persuade the child. It was not real excitement or enthusiasm but pretend excitement to get the child's attention or to motivate the child.

Caregiver praise motivated the child through applause, congratulations, and other signs of praise for the child's achievement or for personal qualities such as cuteness. It focused on the child, not the event, conveying "how smart" or "how cute," either implicitly or explicitly. It was not simply feedback such as a flat "There you go" to mark completion of a task.

Caregiver poised ready to help indicated responsiveness to children's leadership in the activities. It was coded when the caregiver generally (not just occasionally) was alert and in a posture of readiness to assist the child, with body or hands held ready to aid the child at times other than when the caregiver was assisting the child. Evidence included holding the hands "in gear" or at attention rather than lax, small motions of the hands in anticipation of the child needing help or support, supporting an object in readiness to help the child, sitting in a posture of readiness to assist responsively, or reacting instantly when the child subtly indicated a need for help.

Caregiver overrules child was coded if the child refused or insisted and if the caregiver ever insisted on some aspect of the agenda (whether the caregiver's effort was successful or not). The child had to evidence clear refusal (not just lack of attention) or clear insistence (going beyond polite persistence). Caregiver insistence or refusal involved superseding the child's will, not just coaxing. Any tug of war indicated that both partners insisted.

Learning through Observation

Coding attention to competing events involved first deciding whether there was an event competing with the child's or the caregiver's focus of attention and then deciding whether the person in question attended to both events simultaneously, alternated rapidly between them, or seemed unaware of the competing event.

"Competing events" involved any extraneous event that was not part of the person's ongoing focus of attention. For the caregiver, only events in which the main or secondary focus involved the target child were coded. Competing events included bids for the person's attention away from the focus at hand, unrelated ongoing events that an alert person might monitor, or spontaneous management of attention to competing foci. Examples of competing events included such social events as another child bidding for a mother's attention, a phone call, a passerby or traveling salesperson calling out, or ongoing conversation external to the child's or caregiver's main focus as well as such nonsocial events as something falling or an unexpected airplane overhead. They were events that one might expect the person to monitor or to acknowledge, not just ongoing events that it would be strange for a person to attend or reply to (e.g., routine events in this setting or events that one should try to ignore).

Competing events needed to be extraneous to the main focus. If a person was putting aside an object to facilitate the main event, this was considered part of the main event. Onlookers chiming in with comments or laughter in ways that fit with what the child and caregiver were already doing, as echoes, would not be competing events; extraneous laughter or comments from an onlooker would be. Several people collaborating in the *same* activity (e.g., all helping the child with a toy at once) would not involve competing events unless they offered the child or the caregiver differing foci of attention at the same time. For example, a situation in which a mother needed to manage an older child who was interested in grabbing the novel object from the toddler would involve a competing event if the mother had to attend to two agendas at once or implement two strategies at once.

The attention management pattern was coded whenever there was a competing event, by first jotting down a shorthand description of the event under its category (attending to two events simultaneously, attending to two events alternately, or appearing unaware of a competing event) and, after the episode ended, judging the prevalence of each attentional category. The judgment of prevalence was used in order to control for differences among the communities and families in the number of competing events.[4] We used

[4] The few episodes that contained *no* competing events were eliminated from coding. They represented a very small proportion of the total episodes in all four communities:

the following scale to indicate what attentional category best characterized each episode:

4 = overwhelmingly prevalent, with very strong or frequent instances (but there could be an example or two of other categories);
3 = primary pattern of attention, more than any other category but not overwhelming;
2 = tied for first place with some other category (or both others);
1 = some of the category, but not as much as some other category; and
0 = none.

We took into account how long or often a particular category of attention occurred relative to the others as well as how effortful or compelling it was.

Attending to several events simultaneously involved active, uninterrupted attention to several activities. It did not necessarily involve simultaneous action, but simultaneous *attention*, which could be indicated by a reply to a competing event, by carrying out what was suggested, or by brief monitoring (e.g., the mother conversed with the interviewer at the same time as she assisted the child with an object; the child worked an object with the mother while interacting with another child; the mother used peripheral attention or sweeping eye movements like an air traffic controller to update several sources of information continually without seeming to lose track of any of them). It required evidence that two events were actively managed at once, with monitoring, directing, or responding to several sources simultaneously, not just placing one activity on hold while attending to the other event. It involved skilled action requiring continued attention or skillful participation, not automatic action or pliantly being acted on (e.g., just holding or fiddling with an object in a nonchallenging way, such as absently flipping the jumping jack or submitting to being dressed). In simultaneous attending, each activity would be uninterrupted by the other, with each line of attention maintained as smoothly as if there were no other focus. An example was provided by a San Pedro 20-month-old who repeatedly kept track of two or three competing events through the jar episode:

> María watched her mother present the jar to explore while María simultaneously handed another toy over to her cousin; she monitored her mother demonstrating the jumping jack while she extracted the peewee doll from the jar; she noticed everything the interviewers did without breaking her activity with the jar; she monitored her cousin subtly taking various objects while she admired the peewee doll and skillfully put it in the jar; and on and on.

zero in San Pedro; three episodes for children and three for caregivers in Salt Lake; two for caregivers in Dhol-Ki-Patti; and six for caregivers in Keçiören.

Attending to several events alternately meant that, while attending to one focus, the person appeared interrupted or momentarily oblivious to others, alternating back and forth between the two (not just shifting away from the original focus without returning, which would not be coded at all). Alternating involved registering what was going on, noticing competing events, being alert to several foci of activity so that both activities were kept going, but nothing *demanding* being done in the secondary activity while attention was directed toward the primary activity; the secondary activity was put on hold. For example, a mother might stop mid-sentence in an adult conversation to answer a child's request and then return to the adult conversation.

Unaware was coded if the person appeared to be unaware of a competing event that one would expect a person to monitor or to which one would expect him or her to respond. It was coded only if there was something attention grabbing or unusual about the event to which a person would be expected to attend. If the person could be trying *not* to pay attention to an event (e.g., suppressing attention to a passing truck or a sibling interruption) or was not giving frequent evidence of attending to an ongoing, lengthy background activity, then the competing event was not coded since the attention management pattern was ambiguous.

Interruption of adult activity for child purposes involved the child obtrusively attempting to interrupt adult activity for the child's own purposes. The child could use intrusive vocalization or insistent tapping on an adult to attempt to break in or force the adult to look in a particular direction (by grabbing the adult's chin or sticking his or her face in the adult's face). Interruption did not include times that the child was simply being persistent in a polite request or trying to let an adult know something for the adult's purposes.

Engagement embedded in group meant that the toddler's involvement encompassed the overall complex, extradyadic engagements of a group. The code indicates the child's involvement with several people in complex shared activity; it is not an index of whether a group was present (a group was always present in our visits, including a caregiver, a child, two visitors, and often other kin or neighbors). We excluded dyadic focus in which the toddler's engagement was with one other person or several people successively, in what amounts to alternating dyadic focus. Being embedded in a group necessarily involved some common agenda, not just several people fighting over the same toy. Being an audience to an event involving several people was seldom a case of being embedded in a group, although an involved, observing child could be embedded in a group if there was a feel that the child was moving with the group. *Engagement embedded in group* was meant

to capture the kind of coherent involvement in which more than two people may be involved—a kind of complex dance. In order to reach adequate reliability, we limited ourselves to coding substantial instances that were sustained or would serve as good examples of this category.

An example of being embedded in group activity was provided in the excerpt involving María given above. María *could* have interacted successively with her mother and then with her cousin, in what would have amounted to interactions with multiple dyads—instead, she appeared embedded in a group event. She smoothly coordinated her monitoring and protective efforts toward her encroaching cousin with her engagement with her mother regarding the novel objects. Her involvements in this episode could not have been disentangled into successive dyadic involvements but appeared rather to be a complex, multiway intertwining with the participants in the whole event.

Reliability of Coding

For the data from San Pedro and Salt Lake, reliability estimates were calculated between the two authors who were familiar with both communities for 100% of the San Pedro episodes and 61% of the Salt Lake episodes. Since we did not have second coders available for examining the reliability of coding for the Dhol-Ki-Patti and Keçiören data, we employed systematic cross-coded reliabilities on the Salt Lake data by the authors coding the Dhol-Ki-Patti and Keçiören data as proxy reliability estimates for those two communities. After achieving initial agreement between the four investigators on the Salt Lake data, we continued to code and discuss agreement on the Salt Lake data on a weekly basis in order to ensure against drift in coding definitions while the data for the other three communities were coded. With this extensive discussion throughout coding and our impression that there was very little drift, we feel confident that this proxy reliability strategy effectively represents the reliability with which the Dhol-Ki-Patti and Keçiören data were coded. The only difficulties resulting from this strategy occurred with a few variables (described below) that were very infrequent in the Salt Lake data, making assessment of proxy reliability impossible. The proxy codings used for estimating reliability are based on 61% of the Salt Lake episodes for Dhol-Ki-Patti and 63% of the Salt Lake episodes for Keçiören.

Reliability estimates were calculated for each individual episode, including novel objects, dressing, and novel object exploration during adult activity. This is more conservative than necessary for the novel objects data, as the results deal with averages across the novel objects. However, focusing on individual episodes occurs during our discussion of dressing and novel

object exploration during adult activity. The only critical variables that were insufficiently reliable at the individual episode level were some of those involved in attention management. Hence, for these variables only, we calculated reliability estimates for novel objects on the average values rather than the individual episodes. In the one instance that was not sufficiently reliable at the individual episode level (the Keçiören proxy reliability for attending simultaneously), we do not discuss results obtained on this variable for dressing and novel object exploration during adult activity.

The estimates of reliability for the interval or scale variables were calculated using Pearson correlations, with a cutoff of .80 for an acceptable level of agreement. The r values ranged from .82 to 1.0, with a median r value of .96, for all such variables: talk to child, child's talk, caregivers' demonstration before child participates, caregivers' demonstration during child participation, caregiver vocabulary lesson, child vocabulary lesson, attending to several events simultaneously, attending to several events alternately, and unaware.

Reliabilities for categorical variables were calculated using kappa, for which .60 is an acceptable value (Gelfand & Hartmann, 1975). The κ values varied from .60 to 1.0, with a median of .86 for all the remaining variables listed in Figure 2 above, with the following exceptions. Six Dhol-Ki-Patti and Keçiören values were too low for inclusion in analyses (sometimes because rarity of occurrence in the Salt Lake data made estimation of proxy reliabilities difficult): mutual involvement in Dhol-Ki-Patti; child introduces information or structure in Keçiören; child seeks clarification in Dhol-Ki-Patti and Keçiören; caregiver overrules child in Dhol-Ki-Patti; and interruption of adult activity for child purposes in Keçiören. In addition, there were three values in Keçiören that were low but judged worth keeping because the disagreements were in a direction that would not jeopardize interpretation of the findings: caregiver uses babytalk intonation and caregiver overrules child (κ's = .58 and .49, with Göncü's codings systematically more conservative, assuring that the findings in Keçiören of a great extent of babytalk and of caregiver overruling are conservative results) and caregiver poised ready to help (κ = .59, with no systematic bias apparent and results clear-cut).

Further evidence of reliability can be derived from the similarity of our own conclusions to those drawn by Pablo Chavajay in his independent analyses of a portion of the San Pedro and Salt Lake data, which are included as an afterword to this *Monograph*. Chavajay, a native of San Pedro with an advanced degree from the University of San Carlos, had just arrived in the United States and spoke little English. He wrote his conclusions on the basis of independent viewing and description of four of the families from San Pedro and four from Salt Lake before he was informed of our questions or conclusions. As an experiment, we had asked Chavajay to carry

out the same description process as we had and to make comparisons of the families in the two communities; the only orientation that we provided was the information that we were interested in children's learning and caregiver-child communication. (We provided assistance in translating the Salt Lake families' words, as he did for us with the Mayan statements in San Pedro.) We expected the process to yield interesting systematic differences both at the level of description and at the level of conclusions, which we intended to use as a window on cultural variation in interpretation of these events. However, Chavajay's transcripts and conclusions were extremely similar to our own, foiling the idea of using them to elucidate cultural variation but adding greatly to our confidence in the reliability of our observations and our conclusions.

GRAPHIC AND STATISTICAL ANALYSIS AND COMMUNICATION OF PATTERNS

Using the common language and classifications developed to handle the data analysis, the codings of each family were graphed in arrays like those presented in Chapters V and VI below, representing the distribution of all families' approaches within each community (median, central tendencies, range, and outliers) as well as the mean values. These arrays were used to check distributions within variables to be sure that we understood them as well as to examine patterns across variables. Inspection of patterns in the graphic arrays allowed us to consolidate or eliminate redundant variables and to abandon ambiguous variables.

Once we felt that we understood the pattern of community differences through examining the graphs, we checked our understanding further through statistical means (e.g., correlations and t tests) that also provide a reference criterion for communicating with readers about differences and similarities in patterns. The general understandings that we derived from the patterns in the graphs and the statistical analyses were checked and amplified through referring back to the videotapes and descriptions of both representative and anomalous families.

Our statistical analyses should be regarded merely as a tool supplementing the ethnographic and graphic analyses. They were not a means of discovery or confirmation—as were the descriptive and graphic analyses—but were simply used to check our conclusions and communicate them. They did allow us to drop some variables that were seen (through correlations) to be redundant or unreliable and to systematize our graphic analyses further. But they were not where we "found" our findings; the patterns that we describe derive from disciplined examination of data by informed people using statistics as just one of several tools.

Our statistical analyses of similarities and variations in guided participation focused on the episodes involving novel objects since we have five observations on each family for this activity, except in Dhol-Ki-Patti, where the number of novel object observations ranged from two to four per family (for reasons that we discuss in Chap. V). The analyses for novel objects are based on proportions averaged across the novel object observations. We considered the patterns observed in the two other kinds of episodes (dressing and novel object exploration during adult activity) in a more exploratory fashion because for each family there are at most one episode of dressing and one of novel object exploration during adult activity. However, examination of patterns in these situations allows an exploration of whether the patterns observed in guided participation across the two communities are limited to situations like the novel objects episodes, where caregivers were asked to help the children with objects, or whether the same patterns appear in other circumstances.

Although we considered several ways of lumping variables or communities together, we opted to use simple t tests for the main analyses rather than multivariate or four-community tests, even though there are a number of variables.[5] We did consider using Hotelling's t tests to perform multivariate tests, as some of our variables fall in clusters; however, we felt that the multivariate tests would obscure the results by lumping things together. Since the variables were conceptually motivated and distinguished, composites would not be of interest (for a similar approach, see Hoff-Ginsberg, 1991; for a discussion of situations in which multiple univariate analyses are called for rather than multivariate analyses, see Huberty & Morris, 1989). The different analyses that we performed are not assumed to be unrelated; rather, they provide the opportunity to examine converging evidence regarding the conceptual issues they represent, through examining each variable's role in the pattern rather than using composites.

We focus our analyses on variables that are conceptually motivated, with specific predictions and examination of how the variables together inform each other, and we use more conservative significance levels to interpret purely exploratory analyses (e.g., gender and age differences are not reported unless $p < .01$). In addition, our t tests employ separate estimates of variance, which is a conservative approach, because we do not want to assume that the population variances of our samples are equal. (This procedure reduces the degrees of freedom when the variances of the two samples are quite different, which is why the degrees of freedom differ from one t test to another.)

[5] ANOVAs were used to explore the possibility of toddlers' age and gender differences within communities; in the case of one variable in which toddlers' age had a strong relation to the finding, the results are presented in ANOVA form.

We decided against putting all four communities into one analysis of variance design because we wanted to be able to examine specific patterns of community differences for which we had predictions. Although applying planned comparisons was another alternative that we considered, we decided that our goal of examining patterns across variables within communities would not be well served if we put all the communities into one analysis for each variable. Planned comparisons across the four communities would focus on each variable rather than on the coherence of patterns among them in each community. In addition, *t* tests seemed more appropriate because the comparison of San Pedro and Salt Lake was for us logically and chronologically prior to the examination of the other two communities; although we expected Dhol-Ki-Patti to resemble San Pedro and Keçiören to resemble Salt Lake, we wanted to be more open to areas in which they did not follow the pattern of the San Pedro/Salt Lake contrast.

Hence, we first analyzed the differences between San Pedro and Salt Lake and treated the other two communities as follow-up analyses of the generality of the findings. The analyses for Dhol-Ki-Patti involve examination of similarities with San Pedro and differences with Salt Lake, with statistical tests focusing on the differences with Salt Lake and occasionally employed to compare Dhol-Ki-Patti with San Pedro if the pattern was discrepant. Similarly, the analyses for Keçiören involved examination of similarities with Salt Lake and differences with San Pedro, with statistical tests primarily used to test the differences with San Pedro and occasionally with Salt Lake. The next three chapters describe our findings, using parallel organization first to examine the patterns in San Pedro and Salt Lake and then to determine whether the patterns extend to another non-middle-class community, Dhol-Ki-Patti, and to another middle-class community, Keçiören.

In the chapters that follow, we present the data by means of narratives, graphs, and statistics that aid in describing the patterns and qualifying our statements. Readers who are familiar with psychological research are likely to find the statistics to be consistent with the kind used in the literature (although we opted for more descriptive than composite statistical approaches). What differs in our methods from those typically used in psychological research is the systematic testing of our ideas through ethnographic description and graphic techniques.

Although getting a "sense" of the data through piloting and examination of preliminary graphs is seen as desirable in psychological research, it is our impression that close analyses of the *meaning* of the events observed and of the *distribution of individual cases* are given insufficient systematic attention and are often overlooked. One of our purposes in this *Monograph* is to provide a model for those who are interested in making more systematic use of the meaning of events in individual cases and of systematic ways

to classify and examine the distribution of cases to arrive at abstractions of patterns that fit the cases observed. For the process of coming to understand the patterns that we discuss in this *Monograph*, it was essential to examine the ideas through narrative case descriptions to arrive at classifications that did justice to the meanings available in each case and to examine the patterns of these classifications through graphic arrays of distributions. Our technique amounts to a combination of qualitative and quantitative approaches, using the analytic tools of various disciplines (anthropology and sociology in addition to psychology) to help discern the patterns and examine their coherence.[6]

The results chapters provide an indication of the narrative case descriptions through the use of illustrations of particular phenomena. The narrative descriptions in their complete form, however, are far more than illustrations—they cover the whole corpus of our observations of the visits to each family, before the information was segmented into episodes and classifications made of the phenomena that appeared central on the basis of the ethnographic analyses. These extensive ethnographic descriptions were the step in the analysis that yielded a segmentation and a classification that we regard as representing crucial features of the observations, true to the larger picture of these families and these communities. They were also used to make sense of the patterns and anomalies that appeared in the graphic and statistical analyses.

The graphic analyses that we employed are indicated in Chapters V and VI, where graphs are provided that show the distributions of families on key variables in order to relate the patterns observed in Dhol-Ki-Patti and Keçiören, respectively, to the patterns presented in Chapter IV for San Pedro and Salt Lake. The graphs presented in the *Monograph* are used to communicate the patterns to the readers; the original use of the graphs was much more extensive. They were a key tool in testing the patterns across variables and across communities in a way that represented the distribution of individual families in each community (through the use of medians, central tendencies, ranges, and outliers) as well as the average values for each community (the means).

Of course, a document like this *Monograph* does not present the details of every step in the analysis but rather summarizes what was learned from

[6] It has been our experience during the review process that this *Monograph* underwent that researchers find our approach to be rather conventional with regard to the analytic tool with which they are familiar (statistics, graphs, ethnography). That is a good sign, as it indicates that the tools are being used in ways that fit their usual practice; however, our hope is that readers can see past the use of the specific tool with which they are most familiar to consider how these tools can be combined in a systematic and scholarly way, advancing understanding in ways that move across the disciplines to achieve a broader view.

the steps along the way. However, we hope that the presentation of results helps the reader understand not only the pattern of findings but also the pattern-analysis process, which consisted of detective work to search for and abstract patterns to which individual cases contribute, using descriptive narratives, graphic arrays, and statistical analyses all as tools to search for converging evidence in a systematic manner.

tions, a number similar to that obtained in the Salt Lake sample (difference N.S.).

As in the other communities, the Dhol-Ki-Patti toddlers usually had at least one adult partner—typically the mother, although in two cases fathers were the only adult partners. In 24% of the novel object episodes, toddlers had child partners as well as adult partners (significantly more than the Salt Lake toddlers, who had child partners in 3% of the episodes, $t = 2.1$, $p < .05$). This pattern of having both adult and child partners was similar to that observed in San Pedro. In a few cases, only child partners were involved in the Dhol-Ki-Patti episodes (although an adult was present), unlike either the San Pedro or the Salt Lake sample. The fact that neighbors and kin were always around during these sessions and comfortably participated in them (offering suggestions or advice to caregivers, answering questions on their behalf, and so on) reflected the familiar involvement of neighbors and kin in each other's lives (Mistry, Rogoff, & Göncü, 1987).

Descriptive Data and Graphs

Means and standard deviations involved in the similarities and differences between communities that are described in the following sections appear in Tables 1–4. We present graphs accompanying the key discussions of differences that also show the means (marked by a black square; for an example, see Fig. 12). The graphs are intended to make the patterns easier

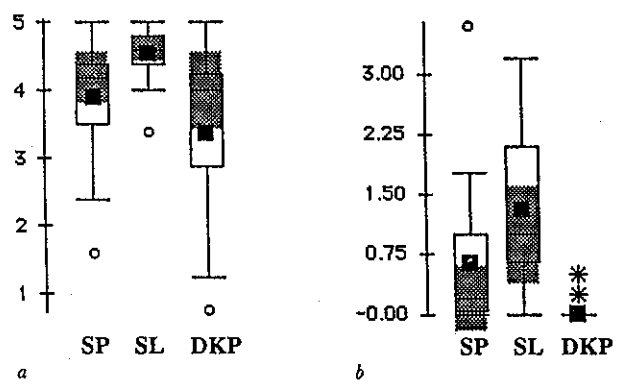

FIG. 12.—Amount of talk by adults to child (*a*) and by child (*b*) in San Pedro (SP), Salt Lake (SL), and Dhol-Ki-Patti (DKP). For an explanation of the symbols, see the text. Rating scale of amount of talk to child: (3) = 1–3 sentences; 4 = 4–9 sentences; 5 = 10+ sentences. Rating scale of amount of talk by child: 0 = no words; 1 = 1–3 words; 2 = 4+ words; 3 = 1–3 phrases; 4 = 4+ phrases.

to follow and are a key tool used by the research team to understand the patterns. (We used such graphs for every variable.)

The graphs show box plots from the data analysis program that we used (DataDesk). In addition to indicating mean values (which we have added to the DataDesk plots), the box plots in the graphs provide a great deal of information on the distribution of individual families: the median (the horizontal line across the box), the middle half of the data between the 25th and the 75th percentiles (the outlined central box), the range of the main body of the data (the whiskers extending above and below the box), and outliers (plotted with circles or, if extreme, with an asterisk). The box plots also show the 95% confidence intervals for comparing medians (the shaded area); these are constructed so that, if the shaded areas of two communities do not overlap, the corresponding medians are discernibly different at approximately the 5% significance level. We used the confidence interval information to inform our comparisons of means, reported in the sections below using t tests.

Cultural Similarities in Guided Participation

Creating Bridges

Data on the extent of mutual engagement could not be analyzed owing to the low reliability of codings on this variable. However, as in other communities, Dhol-Ki-Patti caregivers provided bridging by orienting the toddlers to the activity. Caregivers provided orientation in 91% of the episodes, an extent that did not differ from Salt Lake (where it also occurred in 91% of the episodes).

Structuring

As in the other communities, caregivers and toddlers jointly structured their involvement in the interactions. Most Dhol-Ki-Patti caregivers (73%) used one or another means of simplifying the task for the toddlers (not significantly different from the 87% of Salt Lake caregivers or the 93% of San Pedro caregivers who did so).

Most toddlers also used one or another means to structure their involvement in the activity. Similar to the Salt Lake and the San Pedro samples, in 24% of the episodes the Dhol-Ki-Patti toddlers introduced information or structure to the activity (compared to 29% of episodes in Salt Lake, N.S.); in 80% of the episodes they sought involvement (compared to 79% in Salt Lake, N.S.); and in 38% they sought assistance (compared to 33% in Salt Lake, N.S.).

REFERENCES

Adamson, L. B., & Bakeman, R. (1982, March). *Encoding videotaped interactions: From counts to context.* Paper presented at the International Conference on Infant Studies, Austin, TX.

Als, H., Tronick, E., & Brazelton, T. B. (1979). Analysis of face-to-face interaction in infant-adult dyads. In M. E. Lamb, S. J. Suomi, & G. R. Stephenson (Eds.), *Social interaction analysis: Methodological issues.* Madison: University of Wisconsin Press.

Altman, I., & Rogoff, B. (1987). World views in psychology: Trait, interactional, organismic, and transactional perspectives. In D. Stokols & I. Altman (Eds.), *Handbook of environmental psychology* (Vol. 1). New York: Wiley.

Balamir-Bazoglu, N. (1982). *Kirsal Turkiye'de egitim ve toplum yapisi* [Rural structure and education in Turkey] (Publication No. T6-0682). Ankara: Middle East Technical University Press.

Barnhardt, C. (1982, December). *Tuning-in: Athabascan teachers and Athabascan students.* Paper presented at the meeting of the American Anthropological Association, Washington, DC.

Benedict, R. (1955). Continuities and discontinuities in cultural conditioning. In M. Mead & M. Wolfenstein (Eds.), *Childhood in contemporary cultures.* Chicago: University of Chicago Press.

Berry, J. W. (1969). On cross-cultural comparability. *International Journal of Psychology,* 4, 119–128.

Blount, B. G. (1972). Parental speech and language acquisition: Some Luo and Samoan examples. *Anthropological Linguistics,* 14, 119–130.

Brazelton, T. B. (1977). Implications of infant development among the Mayan Indians of Mexico. In P. H. Leiderman, S. R. Tulkin, & A. Rosenfeld (Eds.), *Culture and infancy.* New York: Academic.

Brazelton, T. B. (1983). Precursors for the development of emotions in early infancy. In R. Plutchik & H. Kellerman (Eds.), *Emotion: Theory, research, and experience* (Vol. 2). New York: Academic.

Bremme, D., & Erickson, F. (1977). Relationships among verbal and non-verbal classroom behaviors. *Theory into Practice,* 5, 153–161.

Briggs, J. L. (1991). Expecting the unexpected: Canadian Inuit training for an experimental lifestyle. *Ethos,* 19, 259–287.

Cazden, C. B. (1979). *Classroom discourse.* Portsmouth, NH: Heinemann Educational.

Cazden, C. B., Cox, M., Dickinson, D., Steinberg, Z., & Stone, C. (1979). "You all gonna hafta listen": Peer teaching in a primary classroom. In W. A. Collins (Ed.), *Children's language and communication: 12th Annual Minnesota Symposium on Child Psychology.* Hillsdale, NJ: Erlbaum.

Cazden, C. B., & John, V. P. (1971). Learning in American Indian children. In M. L. Wax, S. Diamond, & F. O. Gearing (Eds.), *Anthropological perspectives on education.* New York: Basic.

Cicourel, A. (1974). *Cognitive sociology.* New York: Free Press.

Cole, M. (1985). The zone of proximal development: Where culture and cognition create each other. In J. V. Wertsch (Ed.), *Culture, communication, and cognition: Vygotskian perspectives.* Cambridge: Cambridge University Press.

Cole, M., & Griffin, P. (1980). Cultural amplifiers reconsidered. In D. R. Olson (Ed.), *The social foundations of language and thought.* New York: Norton.

Collier, J., Jr. (1988). Survival at Rough Rock: A historical overview of Rough Rock Demonstration School. *Anthropology and Education Quarterly,* 19, 253–269.

Coy, M. W. (1989). Being what we pretend to be: The usefulness of apprenticeship as a field method. In M. W. Coy (Ed.), *Apprenticeship: From theory to method and back again.* Albany: State University of New York Press.

Dewey, J. (1916). *Democracy and education.* New York: Macmillan.

Deyhle, D. (1991). Empowerment and cultural conflict: Navajo parents and the schooling of their children. *Qualitative Studies in Education,* 4, 277–297.

Dixon, S. D., Levine, R. A., Richman, A., & Brazelton, T. B. (1984). Mother-child interaction around a teaching task: An African-American comparison. *Child Development,* 55, 1252–1264.

Doshi, S. L. (1978). *Processes of tribal unifications and integration.* Delhi: Concept.

Dumont, R., & Wax, M. (1969). Cherokee School Society and the intercultural classroom. *Human Organization,* 28, 219–225.

Duranti, A., & Ochs, E. (1986). Literacy instruction in a Samoan village. In B. B. Schieffelin & P. Gilmore (Eds.), *The acquisition of literacy: Ethnographic perspectives.* Norwood, NJ: Ablex.

Edwards, P. A. (1989). Supporting lower SES mothers' attempts to provide scaffolding for book reading. In J. Allen & J. M. Mason (Eds.), *Risk makers, risk takers, risk breakers.* Portsmouth, NH: Heinemann Educational.

Ellis, S., & Gauvain, M. (1992). Social and cultural influences on children's collaborative interactions. In L. T. Winegar & J. Valsiner (Eds.), *Children's development within social context.* Hillsdale, NJ: Erlbaum.

Erickson, F., & Mohatt, G. (1976). Cultural organization of participation structures in two classrooms of Indian students. In G. Spindler (Ed.), *Doing the ethnography of schooling.* New York: Holt, Rinehart & Winston.

Farran, D. (1982). Mother-child interaction, language development, and the school performance of poverty children. In L. Feagans & D. C. Farran (Eds.), *The language of children reared in poverty.* New York: Academic.

Feinman, S. (1982). Social referencing in infancy. *Merrill-Palmer Quarterly,* 28, 445–470.

Fernald, A. (1984). The perceptual and affective salience of mothers' speech to infants. In L. Feagans, C. Garvey, & R. Golinkoff (Eds.), *The origins and growth of communication.* Norwood, NJ: Ablex.

Field, T. M., Sostek, A. M., Vietze, P., & Leiderman, P. H. (Eds.). (1981). *Culture and early interactions.* Hillsdale, NJ: Erlbaum.

Fortes, M. (1970). Social and psychological aspects of education in Taleland. In J. Middleton (Ed.), *From child to adult.* New York: National History Press. (Original work published 1938)

Fox, B. A. (1988). Interaction as a diagnostic resource in tutoring (Technical Report No. 88-3). Boulder: Institute of Cognitive Science, University of Colorado.

Freed, R. S., & Freed, S. A. (1981). *Enculturation and education in Shanti Nagar* (Anthropo-

logical Papers of the American Museum of Natural History, Vol. 57, Pt. 2). New York: American Museum of Natural History.
Garcia, E. (1987). Interactional style of teachers and parents during bilingual instruction. *Ethnolinguistic Issues in Education*, **21**, 39–51.
Gardner, W. P., & Rogoff, B. (1982). The role of instruction in memory development: Some methodological choices. *Quarterly Newsletter of the Laboratory for Comparative Human Cognition*, **4**, 6–12.
Gaskins, S., & Lucy, J. A. (1987, May). *The role of children in the production of adult culture: A Yucatec case.* Paper presented at the meeting of the American Ethnological Society, San Antonio, TX.
Gelfand, D. M., & Hartmann, D. P. (1975). *Child behavior analysis and therapy.* New York: Pergamon.
Gerez, T. de. (1984). *My song is a piece of jade: Poems of ancient Mexico in English and Spanish.* Boston: Little, Brown.
Goetz, J. P., & LeCompte, M. D. (1984). *Ethnography and qualitative design in educational research.* Orlando, FL: Academic.
Göncü, A., Mistry, J., & Mosier, C. (in progress). *Cultural variation in toddlers' play.*
Goody, E. N. (1978). Towards a theory of questions. In E. N. Goody (Ed.), *Questions and politeness.* Cambridge: Cambridge University Press.
Government of Rajasthan. (1988). *Draft annual plan for tribal development in Rajasthan, 1989–90* (Vol. 1). Udaipur: Tribal Area Development Department, Government of Rajasthan.
Green, J., & Wallat, C. (1979). What is an instructional context? An exploratory analysis of conversational shifts across time. In O. K. Garnica & M. I. King (Eds.), *Language, children, and society.* Oxford: Pergamon.
Greenfield, P. M. (1984). A theory of the teacher in the learning activities of everyday life. In B. Rogoff & J. Lave (Eds.), *Everyday cognition: Its development in social context.* Cambridge, MA: Harvard University Press.
Greenfield, P. M., & Lave, J. (1982). Cognitive aspects of informal education. In D. Wagner & H. Stevenson (Eds.), *Cultural perspectives on child development.* San Francisco: Freeman.
Grossmann, K. E. (1981, April). *Infant and social environmental interaction: Epistemological considerations behind the ethological approach.* Paper presented at the meeting of the Society for Research in Child Development, Boston.
Guba, E. G., & Lincoln, Y. S. (1982). Epistemological and methodological bases of naturalistic inquiry. *Educational Communication and Technology Journal*, **30**, 233–252.
Gundlach, R., McLane, J. B., Stott, F. M., & McNamee, G. D. (1985). The social foundations of children's early writing development. In M. Farr (Ed.), *Advances in writing research* (Vol. 1). Norwood, NJ: Ablex.
Haight, W. (1991, April). *Parents' ideas about pretend play.* Paper presented at the meeting of the Society for Research in Child Development, Seattle.
Harkness, S., & Super, C. M. (1977). Why African children are so hard to test. In L. L. Adler (Ed.), *Issues in cross-cultural research. Annals of the New York Academy of Sciences*, 285, 326–331.
Heath, S. B. (1982). What no bedtime story means: Narrative skills at home and school. *Language in Society*, **11**, 49–76.
Heath, S. B. (1983). *Ways with words: Language, life, and work in communities and classrooms.* Cambridge: Cambridge University Press.
Heath, S. B. (1989). The learner as cultural member. In M. L. Rice & R. L. Schiefelbusch (Eds.), *The teachability of language.* Baltimore: Paul H. Brookes.

Henry, J. (1955). Culture, education, and communications theory. In G. D. Spindler (Ed.), *Education and anthropology.* Stanford, CA: Stanford University Press.
Hilger, Sister M. I. (1966). *Field guide to the ethnological study of child life.* New Haven, CT: Human Relations Area Files Press.
Hoff-Ginsberg, E. (1991). Mother-child conversation in different social classes and communicative settings. *Child Development*, **62**, 782–796.
Howard, A. (1970). *Learning to be Rotuman.* New York: Teachers College Press.
Huberty, C. J., & Morris, J. D. (1989). Multivariate analysis vs. multiple univariate analyses. *Psychological Bulletin*, **105**, 302–308.
Jacob, E. (1987). Qualitative research traditions: A review. *Review of Educational Research*, **57**, 1–50.
John-Steiner, V. (1984). Learning styles among Pueblo children. *Quarterly Newsletter of the Laboratory of Comparative Human Cognition*, **6**, 57–62.
Jordan, C. (1977, February). *Maternal teaching, peer teaching, and school adaptation in an urban Hawaiian population.* Paper presented at the meeting of the Society for Cross-Cultural Research, East Lansing, MI.
Kasten, W. C. (1992). Bridging the horizon: American Indian beliefs and whole language learning. *Anthropology and Education Quarterly*, **23**, 108–119.
Kenyatta, J. (1953). *Facing Mount Kenya: The tribal life of the Gikuyu.* London: Secker & Warburg.
Kojima, H. (1986). Child rearing concepts as a belief-value system of the society and the individual. In H. Stevenson, H. Azuma, & K. Hakuta (Eds.), *Child development and education in Japan.* New York: Freeman.
Kreppner, K., Paulsen, S., & Schuetze, Y. (1982). Infant and family development: From triads to tetrads. *Human Development*, **25**, 373–391.
Laboratory of Comparative Human Cognition. (1983). Culture and cognitive development. In W. Kessen (Ed.), P. H. Mussen (Series Ed.), *Handbook of child psychology: Vol. 1. History, theory, and methods.* New York: Wiley.
Lamphere, L. (1977). *To run after them: Cultural and social bases of cooperation in a Navajo community.* Tucson: University of Arizona Press.
Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation.* Cambridge: Cambridge University Press.
LeCompte, M. D., & Goetz, J. P. (1982). Problems of reliability and validity in ethnographic research. *Review of Educational Research*, **52**, 31–60.
Lee, D. D. (1976). *Valuing the self: What we can learn from other cultures.* Englewood Cliffs, NJ: Prentice-Hall.
Leiderman, P. H., Tulkin, S. R., & Rosenfeld, A. (Eds.). (1977). *Culture and infancy: Variations in the human experience.* New York: Academic.
Leont'ev, A. N. (1981). The problem of activity in psychology. In J. V. Wertsch (Ed.), *The concept of activity in Soviet psychology.* Armonk, NY: Sharpe.
Levin, P. F. (1990). Culturally contextualized apprenticeship: Teaching and learning through helping in Hawaiian families. *Quarterly Newsletter of the Laboratory for Comparative Human Cognition*, **12**, 80–86.
Luria, A. R. (1987). Afterword to the Russian edition. In R. W. Rieber & A. S. Carton (Eds.), *The collected works of L. S. Vygotsky: Vol. 1. Problems of general psychology.* New York: Plenum.
Maim, R. S. (1978). Religious attributes of Bhils. *Tribe* (Maniklal Verma Tribal Research and Training Institute, Udaipur, Rajasthan), **10**, 109–122.
Mann, K. (1988). *Status of Bhil women—a study of continuity and change.* New Delhi: Discovery.

Martini, M., & Kirkpatrick, J. (1981). Early interactions in the Marquesas Islands. In T. M. Fields, A. M. Sostek, P. Vietze, & P. H. Leiderman (Eds.), *Culture and early interactions*. Hillsdale, NJ: Erlbaum.

McDermott, R. P., Gospodinoff, K., & Aron, J. (1978). Criteria for an ethnographically adequate description of concerted activities and their contexts. *Semiotica*, 24, 245–275.

Mehan, H. (1979). *Learning lessons*. Cambridge, MA: Harvard University Press.

Mehan, H., et al. (1976). *Texts of classroom discourse* (Report No. 67a). La Jolla: Center for Human Information Processing, University of California, San Diego.

Mehan, H., & Riel, M. M. (in press). Teachers' and students' instructional strategies. In L. L. Adler (Ed.), *Issues in cross-cultural research*. New York: Academic.

Michaels, S., & Cazden, C. B. (1986). Teacher/child collaboration as oral preparation for literacy. In B. B. Schieffelin & P. Gilmore (Eds.), *The acquisition of literacy: Ethnographic perspectives*. Norwood, NJ: Ablex.

Miles, M. B., & Huberman, A. M. (1984). *Qualitative data analysis*. Beverly Hills, CA: Sage.

Mistry, J., Göncü, A., & Rogoff, B. (1988, April). *Cultural variations in role relations in the socialization of toddlers*. Paper presented at the International Conference of Infant Studies, Washington, DC.

Moll, L. C., & Greenberg, J. B. (1990). Creating zones of possibilities: Combining social contexts for instruction. In L. C. Moll (Ed.), *Vygotsky and education: Instructional implications and applications of sociohistorical psychology*. Cambridge: Cambridge University Press.

Moore, D. T. (1981). Discovering the pedagogy of experience. *Harvard Educational Review*, 2, 286–300.

Morelli, G., Rogoff, B., & Angelillo, C. (1992, September). *Cultural variation in young children's opportunities for involvement in adult activities*. Paper presented at the Conference for Socio-Cultural Research, Madrid.

Morelli, G. A., Rogoff, B., Oppenheim, D., & Goldsmith, D. (1992). Cultural variation in infants' sleeping arrangements: Questions of independence. *Developmental Psychology*, 28, 604–613.

Mosier, C., Rogoff, B., & Chavajay, P. (1992, September). *Uniqueness of infants' role in the family: Cultural issues of independence and interdependence*. Paper presented at the meeting of the Society for Socio-Cultural Studies, Madrid.

Nash, M. (1967). *Machine age Maya*. Chicago: University of Chicago Press.

Newman, D., Griffin, P., & Cole, M. (1989). *The construction zone: Working for cognitive change in school*. Cambridge: Cambridge University Press.

Newson, J. (1977). An intersubjective approach to the systematic description of mother-infant interaction. In H. R. Schaffer (Ed.), *Studies in mother-infant interaction*. New York: Academic.

Niehardt, J. G. (1932). *Black Elk speaks*. New York: Pocket.

Ochs, E. (1988). *Culture and language development: Language acquisition and language socialization in a Samoan village*. Cambridge: Cambridge University Press.

Ochs, E., & Schieffelin, B. B. (1984). Language acquisition and socialization: Three developmental stories and their implications. In R. Schweder & R. LeVine (Eds.), *Culture and its acquisition*. Chicago: University of Chicago Press.

Panel on Youth of the President's Science Advisory Committee. (1974). *Youth: Transition to adulthood*. Chicago: University of Chicago Press.

Paradise, R. (1991). El conocimiento cultural en el aula: Niños indígenas y su orientación hacia la observación [Cultural knowledge in the classroom: Indigenous children and their orientation toward observation]. *Infancia y Aprendizaje*, 55, 73–85.

Peak, L. (1986). Training learning skills and attitudes in Japanese early educational settings. In W. Fowler (Ed.), *Early experience and the development of competence*. San Francisco: Jossey-Bass.

Pepper, S. C. (1942). *World hypotheses: A study in evidence*. Berkeley: University of California Press.

Pewewardy, C., & Bushey, M. (1992). A family of learners and storytellers. *Native Peoples*, 5, 56–60.

Richman, A. L., LeVine, R. A., New, R. S., Howrigan, G. A., Welles-Nystrom, B., & LeVine, S. E. (1988). Maternal behavior to infants in five cultures. In R. A. LeVine, P. M. Miller, & M. M. West (Eds.), *Parental behavior in diverse societies*. San Francisco: Jossey-Bass.

Richman, A. L., Miller, P. M., & Solomon, M. J. (1988). The socialization of infants in suburban Boston. In R. A. LeVine, P. M. Miller, & M. M. West (Eds.), *Parental behavior in diverse societies*. San Francisco: Jossey-Bass.

Rogoff, B. (1976). *A life cycle ethnography: San Pedro la Laguna, a Highland Maya community*. Unpublished manuscript, Harvard University and the Institute of Nutrition of Central America and Panama.

Rogoff, B. (1981a). Adults and peers as agents of socialization: A Highland Guatemalan profile. *Ethos*, 9, 18–36.

Rogoff, B. (1981b). Schooling and the development of cognitive skills. In H. C. Triandis & A. Heron (Eds.), *Handbook of cross-cultural psychology* (Vol. 4). Rockleigh, NJ: Allyn & Bacon.

Rogoff, B. (1982a). Integrating context and cognitive development. In M. E. Lamb & A. L. Brown (Eds.), *Advances in developmental psychology* (Vol. 2). Hillsdale, NJ: Erlbaum.

Rogoff, B. (1982b). Mode of instruction and memory test performance. *International Journal of Behavioral Development*, 5, 33–48.

Rogoff, B. (1986). Adult assistance of children's learning. In T. E. Raphael (Ed.), *The contexts of school based literacy*. New York: Random.

Rogoff, B. (1990). *Apprenticeship in thinking: Cognitive development in social context*. New York: Oxford University Press.

Rogoff, B. (in press). Observing sociocultural activity on three planes: Participatory appropriation, guided participation, apprenticeship. In A. Alvarez, P. del Rio, & J. V. Wertsch (Eds.), *Perspectives on sociocultural research*. Cambridge: Cambridge University Press.

Rogoff, B., & Gardner, W. P. (1984). Adult guidance of cognitive development. In B. Rogoff & J. Lave (Eds.), *Everyday cognition: Its development in social context*. Cambridge, MA: Harvard University Press.

Rogoff, B., & Gauvain, M. (1986). A method for the analysis of patterns, illustrated with data on mother-child instructional interaction. In J. Valsiner (Ed.), *The role of the individual subject in scientific psychology*. New York: Plenum.

Rogoff, B., Gauvain, M., & Ellis, S. (1984). Development viewed in its cultural context. In M. H. Bornstein & M. E. Lamb (Eds.), *Developmental psychology*. Hillsdale, NJ: Erlbaum.

Rogoff, B., Mistry, J., Göncü, A., & Mosier, C. (1991). Cultural variation in the role relations of toddlers and their families. In M. H. Bornstein (Ed.), *Cultural approaches to parenting*. Hillsdale, NJ: Erlbaum.

Rogoff, B., Mosier, C., Mistry, J., & Göncü, A. (in press). Toddlers' guided participation with their caregivers in cultural activity. In E. Forman, N. Minick, & A. Stone (Eds.), *Contexts for learning: Sociocultural dynamics in children's development*. New York: Oxford University Press.

Rogoff, B., Sellers, M. J., Pirotta, S., Fox, N., & White, S. H. (1975). Age of assignment of roles and responsibilities to children: A cross-cultural survey. *Human Development*, 18, 353–369.

Ruddle, K., & Chesterfield, R. (1978). Traditional skill training and labor in rural societies. *Journal of Developing Areas*, 12, 389–398.

Schieffelin, B. B. (1991). *The give and take of everyday life: Language socialization of Kaluli children*. Cambridge: Cambridge University Press.

Schieffelin, B. B., & Eisenberg, A. R. (1984). Cultural variation in children's conversations. In R. Schiefelbusch & J. Pickar (Eds.), *The acquisition of communicative competence*. Baltimore: University Park Press.

Scribner, S. (1974). Developmental aspects of categorized recall in a West African society. *Cognitive Psychology*, 6, 475–494.

Scribner, S., & Cole, M. (1973). Cognitive consequences of formal and informal education. *Science*, 182, 553–559.

Scribner, S., & Cole, M. (1981). *The psychology of literacy*. Cambridge, MA: Harvard University Press.

Shotter, J. (1978). The cultural context of communication studies: Theoretical and methodological issues. In A. Lock (Ed.), *Action, gesture, and symbol: The emergence of language*. New York: Academic.

Sorce, J. F., Emde, R. N., Campos, J., & Klinnert, M. D. (1985). Maternal emotional signaling: Its effect on the visual cliff behavior of 1-year-olds. *Developmental Psychology*, 21, 195–200.

Sorenson, E. R. (1979). Early tactile communication and the patterning of human organization: A New Guinea case study. In M. Bullowa (Ed.), *Before speech: The beginning of interpersonal communication*. Cambridge: Cambridge University Press.

Sostek, A. M., Vietze, P., Zaslow, M., Kreiss, L., van der Waals, F., & Rubenstein, D. (1981). Social context in caregiver-infant interaction: A film study of Fais and the United States. In T. M. Field, A. M. Sostek, P. Vietze, & P. H. Leiderman (Eds.), *Culture and early interactions*. Hillsdale, NJ: Erlbaum.

Taylor, D. (1983). *Family literacy*. Portsmouth, NH: Heinemann Educational.

Tharp, R. G. (1989). Psychocultural variables and constants: Effects on teaching and learning in schools. *American Psychologist*, 44, 349–359.

Tharp, R. G., & Gallimore, R. (1988). *Rousing minds to life: Teaching, learning, and schooling in social context*. Cambridge: Cambridge University Press.

Trevarthen, C. (1988). Universal co-operative motives: How infants begin to know the language and culture of their parents. In G. Jahoda & I. M. Lewis (Eds.), *Acquiring culture: Cross-cultural studies in child development*. London: Croom Helm.

Trevarthen, C., Hubley, P., & Sheeran, L. (1975). Les activités innés du nourrisson [Innate activities of the newborn]. *La Recherche*, 6, 447–458.

Tukey, J. W. (1977). *Exploratory data analysis*. Reading, MA: Addison-Wesley.

Uzgiris, I. C., & Fafouti-Milenkovic, M. (1985). Over het verband tussen methode en theorie bij onderzoek naarouder-kind interaktie [The tie between methodology and theory in the study of parent-infant interaction]. In J. deWit, H. J. Groenendaal, & J. M. vanMeel (Eds.), *Psychologen over het kind* [Psychology of the child] (Vol. 8). Lisse: Swets & Zeitlinger.

Vogt, L. A., Jordan, C., & Tharp, R. G. (1987). Explaining school failure, producing school success: Two cases. *Anthropology and Education Quarterly*, 18, 276–286.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Ward, M. C. (1971). *Them children: A study in language learning*. New York: Holt, Rinehart & Winston.

Watson-Gegeo, K. A., & Gegeo, D. W. (1986a). Communicative routines in Kwara'ae children's language socialization (Final report). Washington, DC: National Science Foundation.

Watson-Gegeo, K. A., & Gegeo, D. W. (1986b). The social world of Kwara'ae children: Acquisition of language and values. In J. Cook-Gumperz, W. Corsaro, & J. Streeck (Eds.), *Children's worlds and children's language*. The Hague: Mouton.

Weisner, T. S., & Gallimore, R. (1977). My brother's keeper: Child and sibling caretaking. *Current Anthropology*, 18, 169–190.

Wellman, B., & Sim, S. (1990, February). Integrating textual and statistical methods in the social sciences. *Cultural Anthropology Newsletter*, 2, 1–3, 10–11.

Wells, G., Chang, G. L. M., & Maher, A. (1990). Creating classroom communities of literate thinkers. In S. Sharan (Ed.), *Cooperative learning: Theory and research*. New York: Praeger.

Werner, H. (1954). *Comparative psychology of mental development*. New York: International Universities Press.

Wertsch, J. V. (1979). From social interaction to higher psychological processes. *Human Development*, 22, 1–22.

Wertsch, J. V. (1984). The zone of proximal development: Some conceptual issues. In B. Rogoff & J. V. Wertsch (Eds.), *Children's learning in the "zone of proximal development."* San Francisco: Jossey-Bass.

Whiting, B. B., & Edwards, C. P. (1988). *Children of different worlds: The formation of social behavior*. Cambridge, MA: Harvard University Press.

Whiting, J. W. M. (1981). Environmental constraints on infant care practices. In R. H. Munroe, R. L. Munroe, & B. B. Whiting (Eds.), *Handbook of cross-cultural human development*. New York: Garland.

Whiting, J. W. M., Child, I. L., Lambert, W. W., Fischer, A. M., Fischer, J. L., Nydegger, C., Nydegger, W., Maretzki, H., Maretzki, T., Minturn, L., Romney, A. K., & Romney, R. (1966). *Field guide for a study of socialization*. New York: Wiley.