

Side by Side: Learning by Observing and Pitching In

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Abstract This article examines cultural practices that support informal learning as children observe and pitch in with everyday activities that are integrated into family and community life. We discuss the social and cultural grounding of this learning tradition, drawing on research carried out in different parts of the world during more than 60 years. Children learn by watching, listening, and attending, often with great concentration, by taking purposeful initiative, and by contributing and collaborating. We try to correct the frequent misconception that this way of learning is essentially a nonverbal process by showing that speech is commonly used, but judiciously, in support of efficient communication rather than for “lessons.” This learning tradition is not in opposition to school learning; children with schooling experience learn this way when they belong and experience community. [informal learning, cultural practices, socialization, observation, family and community learning]

Cultural Practices in Support of Learning

The family- and community-based learning we examine in this article has long been recognized and studied by anthropologists and psychologists, and is often described as “informal,” “observational,” or “practical” (e.g., Fortes 1970; Mead 1970; Pettitt 1946; Philips 1983; Scribner and Cole 1973). Because it is not usually explicitly formulated, its characteristics and patterning tend to be invisible. The term *informal* itself—which is essentially a residual category derived from “formal” education—signals this tendency.

What is called informal learning is often taken to be learning that everyone engages in “naturally,” by virtue of being human; its grounding in sociocultural practices and their social institutions goes unnoticed. Although it is not simply prefabricated in “human nature,” we believe that it is so compatible with everyday cultural life in a wide array of family and community settings that it tends to become “second nature.”

The tendency to conceive of informal learning as natural or simple also reflects a cultural school-centric bias that has impeded understanding of its social and cultural organization (Lave 1982; Strauss 1983). Among highly schooled people, informal ways of learning outside of school through observation and participation are often considered inherently less conceptual or cognitive than formalized school learning. For example, the early formulation

that "informal learners may be limited by their inarticulated practical constructs" (Scribner and Cole 1973:557) eclipses recognition of the tremendous vitality, flexibility, and effectiveness of informal learning processes.

Crucial differences in the social organization of learning and how it is experienced in and out of schools have been discussed and pondered for decades, often in dichotomous terms (e.g., Fine et al. 2000; Greenfield and Lave 1982; Scribner and Cole 1973). Although our intent in this article is to focus on learning by observing and pitching in to everyday activities, we find it useful to point to a number of contrasts with schooling practices to highlight the specific nature of the informal way of educating on which we focus. We do not see them as opposites, nor do we claim that experience with one kind of education precludes or inhibits learning in other ways (Maynard and Martini 2005; Rogoff et al. 2007; Rogoff et al. 2003). In fact, it seems clear that most people learn in many different ways. Further, it would appear that most societies recognize and value different ways of learning even when there is conflict and apparent dominance of one way over another (see, e.g., Cajete 1999; Peshkin 1997; Semali and Kincheloe 1999; Serpell 1999).

Although informal learning is prevalent in many traditional communities where children's everyday lives are highly integrated with the range of activities of the community, informal learning is also common in schooling societies when people engage in activities that are similarly grounded socially and culturally in family and community settings (see Heath 1989, 1998). These practices were more readily recognizable in the recent past in industrialized nations before children were segregated from family work and before schools developed their dominating influence (see Harper 1987; Morelli et al. 2003; Pratt 1948).

This article examines the organization of support for learning that is common when children are integrated in the range of activities of their families and communities. Our aim is to elaborate the characteristics of this form of learning as a panhuman phenomenon that is often overlooked as second nature and relatively undervalued by people with extensive experience in schools. We make use of accounts from many societies where this form of learning is still especially prevalent, in addition to several accounts from societies with extensive schooling, arguing that it occurs everywhere, though in varying extent and undoubtedly with local variations and characteristics.

Learning by Observing and Pitching In

Children's keen observation and contributions to shared endeavors, together with a vital embeddedness in everyday life, were the first characteristics of this way of learning that came to the attention of researchers describing educational practices of non-Western people. Descriptions abound of how children learn through observing and participating directly in their shared social and cultural world by "using their eyes," intensely watching and perceiving (e.g., Briggs 1970; Cazden and John 1971; Chisholm 1996; Driver and Driver 1963;

Fortes 1970; Heath 1989; Levy 1973; Maurer 1977; Modiano 1974; Paradise 1991; Pettitt 1946; Philips 1983; Rogoff 1990; Romney and Romney 1966; Singleton 1998; Wilbert 1979).

Recently, several articles from our research group have argued that this form of learning can be seen as an integrated learning tradition, with several key defining features. We initially referred to this learning tradition as "intent participation" and contrasted it with a tradition that is often seen in schools: "assembly-line instruction" (Rogoff et al. 2003). A subsequent article revised the label to "intent community participation" to emphasize the integration of learners in the range of activities of the community, a feature of this learning tradition that was otherwise sometimes lost on readers (Rogoff et al. 2007).

Here, we refer to this approach as learning by "observing and pitching in," using these active verbs to capture what we had been trying to convey by pairing *intent* with *participation*. Various audiences had difficulty with the term *intent*, which sometimes was taken to mean more intentional involvement than we had in mind. We want to convey an intensity and purposefulness of participation, beyond simply being present. This could involve studious attention to surrounding events, but it could also involve a general alertness to the patterns of everyday life in which one is involved. In any case, these "drafts" of a label attempt to convey the idea that observation is an active process, accompanying or in anticipation of contributing to events of importance in the family and community.

In this article we emphasize that this way of learning is representative of educational practices that we believe are panhuman—a cultural tradition of humanity, although in some societies and locales it is especially prevalent. We argue that this informal learning through observing and pitching into family and community settings is a highly elaborate educational practice used in non-Western as well as Western societies, industrial as well as nonindustrial and postindustrial communities.

The description and analysis provided in this article identifies central features of this manner of fostering learning. It differs from prior articles in focusing especially on the importance of learners' "belonging" in the community and the activities in which they participate, and on their active agency and initiative in learning and contributing to the consequential activities in which they participate. In this emphasis, we agree with the importance placed on legitimacy by Lave and Wenger (1990) when they discussed "legitimate peripheral participation." The social experience of the individual when learning in such family and community settings appears to be an experience of involvement, of belonging in a specific community, with personal and emotional commitment grounded in a socially and culturally defined past, present, and future (see, e.g., Corbett 2004).

The family and community-based learning described in this article differs from formal apprenticeship learning as described for instance in Lave's earlier work on apprenticeship (1977, 1982). A crucial difference is that learning by observing and pitching in is an integral part of the wide range of everyday activities that take place in family and community set-

tings. Apprenticeship learning shares an emphasis on modeling and a learner's capacity to observe, as well as learner-generated motivation, but apprenticeship nevertheless is usually a formalized relationship between expert and learner involving a workshop or other clearly circumscribed setting where training in a specialized area of knowledge takes place. In apprenticeship learning, knowledge passes from expert to novice in a relatively prescribed way, and their roles as knowledgeable expert and learner are strictly defined. In comparison, learning in family and community settings has a more flexibly defined interactional and collective organization in which learner and expert can sometimes interchange their roles (Haan 1999; Paradise and Haan in press; Rogoff et al. 2003).

We conceive of learning through observing and pitching in as a coherent integrated set of coordinated practices. We describe this informal learning from a holistic perspective to examine its logic—how it makes sense as a coherent set of educational practices. The acts, attitudes, and orientations of learning, as well as the social and physical contexts in which it takes place, are interdependently related aspects, not a collection of separate and separable behaviors or factors.

Throughout the description we point to some crucial differences between these educational practices and those of prototypical school learning in industrialized Western societies. These differences are rooted in an underlying crucial contrast in contexts. As Bruner notes, “the important thing about school . . . is that it *is* removed from immediate context of socially relevant action” (1961:62).

The coordinated aspects of family and community learning that we examine below correspond to an integrated context of socially and culturally relevant action that can be grasped by participating learners. Foremost in this process is integration in family and community life.

Integration in Family and Community Life

One of the first accounts of the system of education through observing and pitching in was provided by Fortes, who in 1938 noted that among the Tallensi people of Africa, the process of education “is intelligible when it is recognized that the social sphere of adult and child is unitary and undivided” (1970:18). Fortes noted that for Tale adults and children,

The social sphere is differentiated only in terms of relative capacity. All participate in the same culture, the same round of life, but in varying degrees, corresponding to the stage of physical and mental development. Nothing in the universe of adult behaviour is hidden from children or barred to them. They are actively and responsibly part of the social structure, of the economic system, the ritual and ideological system. Psychological effects of fundamental importance for Tale education follow from this. For it means that the child is from the beginning oriented towards the same reality as its parents and has the same physical and social material upon which to direct its cognitive and instinctual endowment. [1970:18–19]

Fortes pointed out that children's "training in duty and skill is always socially productive and therefore psychologically worthwhile to [them]; it can never become artificial or boring" (1970:58).

The unity of the social sphere, the interest of children in the world of adult activities, and the rapidity with which each advance in educational achievement is socially utilized constitute a ring of incentives which help to explain the eagerness of Yucatec children to grow up and take their full place in adult life. [Fortes 1970:43]

More recently, Gaskins described how Yucatec Mayan children's "engagement in their world" is based in great part on the primacy of adult activities.

Unlike children in many industrialized cultures where economic production has been removed from the home, Yucatec Mayan children's daily activities are primarily structured by adult work activities. These in turn revolve around the immediate work needs of the household and the families' participation in social and religious events within the household and the larger community. Children are legitimate cultural participants through this avenue, even as they are learning how to participate appropriately. [Gaskins 1999:33]

In Margaret Mead's discussion (1970) of contrasts of traditional educational practices with those of Western societies, she noted the taken-for-granted expectations concerning children's interest in learning, and that children participate in the same social and cultural realities as other members of their community, in essentially the same way. Mead underscored the quality and weight of this shared everyday life in its impact on how people organize and conceive of learning, by presenting a stark contrast with the organization of learning in schooling societies.

There are several striking differences . . . but perhaps the most important one is the shift from the need for an individual to learn something which everyone agrees he would wish to know, to the will of some individual to teach something that it is not agreed that anyone has any desire to know. [Mead 1970:3]

In the family and community settings referred to above, children participate in the same activities of the everyday life of the community as do adults, contributing in real ways as they learn about their shared economic and social reality. Their motivation derives from their integration in the same economically and socially valued activities that other members of the community are involved in. Their useful and purposeful integration into the social sphere of work and community life allows for an underlying coherence and groundedness of the educational experience, which was pointed to as a defining characteristic of this way of organizing learning by Rogoff and colleagues (2003, 2007). In this way of organizing learning, they argued, children also display a highly developed capacity for careful and alert

observation and self-sustained personal motivation. They collaborate as members of the community, taking initiative and responsibility.

Sharing the social and cultural fabric of everyday life provides children with implicit self-evident goals and purposes of learning, grasped as part of the activity being carried out in everyday family and community contexts. Whereas school lessons tend to treat learning as a goal in itself, relatively removed from productive or valued endeavors of importance for which such lessons are preparation, learning by observing and pitching in is solidly embedded in these endeavors and is closely associated with accomplishing goals that are clearly relevant to the family and community. In learning by observing and pitching in, learners assume a major responsibility for learning, in which they may find their own approaches to learning, rather than following a predetermined lockstep ordering of information separate from involvement in the overall process.

Learning that is contextually embedded in this way contrasts with the prototypical school learning strategy of breaking a skill down into simple steps and having the learners practice the steps, often with little or no chance to see how the steps fit together or the overall purpose of the activity. Many children, for example, learn to decode squiggles of ink without full awareness that reading has a purpose beyond decoding, a purpose that makes practicing the simpler aspects make sense. Breaking down a skill into simple steps to be followed without clear reference to or integration within the larger process corresponds to a process of transmission of information that Hall describes as "the 'building block' approach" (1991:39). He compared the building block approach with learning through inhabiting a "sea of information" where people extract meaning from their involvements in their world.

In the following sections we examine some salient characteristics of learning by observing and pitching in to family and community endeavors. We indicate how they fit together as a coherent set of practices and philosophy that constitute an educational system corresponding to the integrated social sphere described above. We focus on the opportunity and expectation for learners to pay attention, to concentrate, and to take initiative in activities whose purpose is consequential, with or without explicit guidance. In the process, speech is usually used judiciously to serve the activity at hand rather than in a didactic lesson. Learners' efforts provide valued contributions. We also present some analyses of learning through observing and pitching in, in societies where schooling has been prevalent for generations. To conclude, we highlight the importance of belonging to the community and of participating in the activities of importance to the community, for the tradition of learning by observing and pitching in.

Watching, Listening, Attending

Perhaps the most defining feature of this way of learning, and the reason why it has frequently been described as "observational," is that children participate with keen attention to

ongoing events. "Learning by looking" is how Cazden and John (1971) described Native North American children's cultural learning orientation. Although the visual aspect of this attention is usually emphasized, it is a perceptual focusing that includes all of the senses. Of course, the skilled use of visual and other forms of keen attention depends on the children's presence in the activities to be observed.

In her discussion of learning practices in different parts of the world, Lee (1967) provided several examples from autobiographies of Native Americans that illustrate this emphasis on developing high levels of perceptual alertness and acuity.

Charles Eastman or Ohiyesa describes the mother among the Santee Dakota. He says she takes her child out, before the child begins to talk and points to a bird, points to a rock, points or focuses the child's attention on some object. She does not give the child the name of the object, she does not talk about the object to the child; she just teaches him to concentrate, or encourages him to concentrate. Later, when speech has begun the mother takes the child out again and names that which the child has experienced without the label. [Lee 1967:57]

This example manifests not only the focus on the development of keen perception but also refers to several other key aspects of learning by observing and pitching in to family and community events—including the role of the teacher or guide, the emphasis on direct experience and concentration, and the use of speech—aspects that will be taken up below.

Two other examples from autobiographies show how adults foster a strong emphasis on keen perception and knowing through direct personal experience, incorporated in everyday social life.

Luther Standing Bear tells of how when children first learned to sit by themselves, they were taught to sit still so that in this stillness they could concentrate on whatever their senses picked up. They would sit still and smell; they would sit still and look when there was nothing to see or nothing seemed to be visible or audible. He tells about some of the things which eventually the children had to notice at a moment's notice. When there would be a group of children, an adult would suddenly make a high noise, "Ahhh," which would stop all activity. Then the children would start attending with all their senses. There were many things to listen to. When darkness came there could be howling of wolves, whose cries always portended a snowstorm . . . If they were challenged to look, they would notice whether a stone which must have been in a certain position before, has now been overturned. [Lee 1967:57, 58]

Ohiyesa (Eastman) . . . tells how when he was about five or six he would leave at day-break . . . his uncle was there and all he said was "Look carefully at everything you see." He was gone the entire day. . . . In the afternoon when he returned his uncle . . . would question him, saying, "On which side of the tree did the bark grow the thickest?" The small boy had not been told to look at the tree or the bark but he had been told to look closely, and he had been taught to be alert—to look and listen fully—in order to answer any question he might be asked. [Lee 1967:58]

The emphasis on keen perception does not imply that such learning is solely "nonverbal." Indeed, in the previous examples, language clearly has a place in the learning. However, it is used to encourage careful and accurate observation and for communication of information in support of direct perceptual experience available in ongoing events.

Conversations encouraging observation exact an active orientation on the part of the learner. As the following example from Lee shows, Hakada, a Native American boy who had spent time at a lake, was prodded to take a more active approach that depended not only on perceptual acuity but a willingness to "think hard."

When he returned, his uncle asked, "Were there any fish in the lake?" The boy replies, "Yes." How does he know? Well, he has seen them leap up out of the water. His uncle is not satisfied; this is a lazy answer. He then asks, "Is there any other way of knowing? Did you notice those lines on the bottom of the lake? Did you notice those groupings of pebbles on the bottom? . . . The boy has been a little lazy; he has seen all but he has not put his mind on what he has seen. The uncle teaches him to exert his being, to look carefully and to think hard. [Lee 1967:60]

In these examples the purpose of the questioning appeared to be to stimulate keen observation and provide cues as to what should be observed, how, and why.

Another way to describe this perceptual orientation is in terms of the intent to "get close," as reflected in the Mayan Tseltal word for "learn." Maurer notes this:

In fact, 'nopel' (to learn) comes from the root 'nop' (to get close to) and it supposes full activity on the part of the student, who **actively gets close** with his senses to the surroundings, in order to know them. He observes in detail the plants, the animals, the inanimate beings, the behavior of the adults. [1977:94; bolding in original, authors' translation]

This emphasis on keen attention is found not only in reports of traditional learning practices in Middle and North America, but in many other parts of the world in communities where children are integrated in community life. For example, in their description of the socialization of African Nso children in Northwest Cameroon, Nsamenang and Lamb noted that "children are expected to observe the performance of tasks and to imitate and rehearse them" (1994:141). In Tahiti, a man described his early learning:

"I can make [an earth oven] and cook in an earth oven because I saw my 'grandfather' make them every day. I would sit next to him, and I understood how to do it. . . . I just looked at the way things were done, and when I got to be thirteen years old, I understood how to do the work. . . . He taught me a little bit, but most of the time, *it was by my own eyes that I would see* how to do the work." [Levy 1973:451, emphasis added]

All the men believe that they learned their skills by themselves, by watching, with occasional corrective comments from an elder. [Levy 1973:452]

Observing with Intense Concentration

Learning through observing and contributing in family and community life is often based on intense concentration by the observer, negating the common assumption that observation is a passive way of learning, contrasting with hands-on participation or discovery. In the side-by-side involvement of children with others in purposeful activities, both children and adults are active participants in shared endeavors with mutual balancing of roles and active concentration by the observers (Haan 1999; and Paradise and Haan in press; Rogoff 1994).

The act of observing is often pursued with concentrated energy, attuned in keen perception for finding out about the activity, to be able to participate. Children's participation may be ongoing, as they pitch in to help, or it may be immanent, in the sense of observing with an expectation of being ready to carry out an aspect of the activity observed, either immediately or at a later time.

Such intense focused attention does not exclude learning through less studious observation. In the tradition of learning by participating to contribute in communities, children also learn from ongoing awareness of rhythms and smells and patterns of activities that take place repeatedly, in a manner resembling osmosis. This learning through a generalized awareness is similar to what Ingold describes as "a process of *enskillment*, in which learning is inseparable from doing, and in which both are embedded in the context of a practical engagement in the world" (1994:463). Practical engagement and presencing in everyday life may provide the commonsense familiarity that is also key to informal learning in family and community settings. Still, this less focused form of attention also involves alertness to the patterns.

The descriptions available refer frequently to the centrality of an intensely directed attention that reflects high levels of physical, emotional, social, and cognitive involvement, even when there is no apparent movement or speech on the part of the learner. Maurer describes Mexican Mayan Tzeltal children's noteworthy spirit of observation. "Even a young child can stay for long periods of time in almost absolute immobility, watching attentively what the adults are doing" (1977:94). Among Mazahua people of Central Mexico, very young children, even babies, can often be seen holding themselves stock-still while intently watching a person or activity, almost without blinking, completely absorbed even though in the middle of a noisy and extremely busy marketplace (Paradise 1985:156).

Such focused intensity of attention was apparent as some Tz'utujil Mayan toddlers observed their mothers engaging with novel objects, with an eagerness to watch that could be detected in the tension in their fingers as they kept themselves from interrupting their mother showing them how the object worked. For example, one toddler stood watching his mother intently, bending forward to observe her demonstration of an object, with his arms held

straight behind him, taut fingers revealing his effort to suppress the impulse to touch, so that he could gain information by observing (Rogoff, unpublished data). Many Mayan toddlers were so alert to what was occurring around them that the researcher had difficulty surreptitiously demonstrating the novel objects to their mothers without the toddlers observing (Rogoff et al. 1993).

The effectiveness of this early observing and presencing is evident when quite young children show impressive skill as they take part in local activities. Wilbert noted that among South American Warao canoe makers, "By the time a child can hold a paddle in his hands, he has observed his elders on so many occasions that paddle shaft and handle slide into the small fists almost naturally" (1979:317).

Children's keen observation and participation imply more than simple, casual presence. Their presence is characterized by an openness that indicates active cognitive, social, and emotional participation in what is being learned, and an awareness of the relevance of many aspects of ongoing events, even when they are otherwise engaged.

Social and emotional involvement, in addition to cognitive engagement, are central to learning by observing and pitching in. Scribner and Cole identified the "fusing of emotional and intellectual domains" (1973:555) as a basic characteristic of informal learning. This phenomenon is well captured by the experience of Native American Pueblo students, when asked

How do you listen when your grandparents talk to you or when you are in the *kiva*?
 "With all my heart and everything I have," answered one student, in an epiphany of intensity and commitment. [Peshkin 1997:105]

The same students contrasted this intensity of learning in community life with their experience in schools.

Pueblo students believe that teaching and learning at school and community not only occur in physically separate places, but also are truly separate processes, as epitomized in a student's reflection on each setting: "With school, basically, all you have to do is try. You don't have to feel it in your heart." [Peshkin 1997:106]

The Pueblo students "overwhelmingly concluded that they were seriously attentive both comparatively and absolutely at home, but not, they realized, at school. *It was as if a different person were present in each setting*" (Peshkin 1997:105).

With focused attention in family and community life children notice the activity not only because it happens to be within perceptual range. They also pursue the opportunity for understanding and knowing, with an orientation that, finally, depends on their initiative and desire to learn.

Learners' Initiative and Purpose

Children's full participation in the everyday life of the community alongside adults corresponds to and helps explain the kind of motivation and learner initiative that is associated with keen observation. In societies for which learning by observation is the norm, it appears that learning in general is infused with personal readiness to be involved and responsible. John, for instance, notes Navajo children's propensity for "quiet, persistent exploration" (1972:338).

This motivation appears to be based on an implicit understanding of the purpose, relevance and value, to themselves as well as to their community, of what is being learned. Consider Fortes's observations regarding Tale children's interest in learning and its relatedness to their integration as fully participating members of their community (1970:19).

The interests, motives, and purposes of [Tale] children are identical with those of adults, but at a much simpler level of organization. Hence the children need not be coerced to take a share in economic and social activities. They are eager to do so. [Fortes 1970:19]

Learning becomes purposive. Every advance in knowledge or skill is pragmatic, directed to achieve a result there and then, as well as adding to a previous level of adequacy. [Fortes 1970:38]

In any given social situation everybody takes it for granted that any person participating either already knows, or wants to know, how to behave in a manner appropriate to the situation and in accordance to his level of maturity. An effort to learn is thus evoked as an adaptation to the demands of a real situation. [Fortes 1970:35]

From a very early age—before they can walk or talk—until adulthood children show a marked and explicit interest in the activities of their parents and older siblings and other adults with whom they come in contact. [Fortes 1970:39]

Mead (1970) commented on the "striking" difference between the kinds of teaching and learning that occur in traditional societies in which children desire to know ("steal" knowledge), as compared to modern schooling societies in which adults wish to teach "proselytize"). Mead considered it a "sorry" addition that "the emphasis has shifted from learning to teaching, from the doing to the one who causes it to be done, from spontaneity to coercion, [and] from freedom to power" (1970:12).

Learning through observation and participation in family and community settings depends on a capacity to take initiative in finding and creating activities from which to learn, and the ability to take a responsible respectful attitude toward the everyday activities in which one participates and from which one learns. With strong personal motivation, solidly based on the self-evident value of what is being learned, children can hone a capacity for keen

perception and become intensely and tenaciously involved in the economic and other activities that are a large part of the everyday world they inhabit.

This eagerness appears in the involvement of a four- or five-year-old Mazahua girl who learns as she spends hours, days, and weeks seated beside her mother or other women emulating and helping at an onion stand in the marketplace in México (Paradise 1985). She trims onions. She tirelessly practices tying them into bunches with or without success. She arranges them carefully on a piece of plastic laid out on the ground, fanning away insects patiently during long stretches while seated on the ground beside the onions. She ties pieces of plastic above them to keep them from the direct sunlight. When, eventually, in the form of an abandoned piece of cardboard, an opportunity to put together her own small stand presents itself, her excitement is unmistakable and she quickly takes the initiative in finding an appropriate spot and setting it up.

She quickly carries the piece of cardboard over to her mother, who nods and says a few words. With short quick steps she takes the cardboard to an empty space six or seven yards away and places it on the ground. . . . She runs back to her mother's *puesto*, bright-eyed, and gathers five or six already tied bundles of onions in her arm and apron, and quickly and purposefully walks back to the piece of cardboard upon which she arranges them . . . She sits there fanning the onions with deliberateness and care. She looks around with quiet purposefulness, bright sharp eyes, forehead pulled down a little, eyebrows close in a semi-frown of tension and concentration. [Paradise 1985:85]

Lee (1961) wrote about "autonomous motivation" in a way that helps make sense of the social groundedness of this kind of personal motivation to learn the activities recognized as central to everyday life in one's community. Based on a review of ethnographic literatures, Lee concluded that a basic feature of human motivation is a need for collaboration and involvement.

Some authors have suggested that informal learning is inherently a conservative way to learn—that it limits learners to reproducing what they have seen—but this idea is based on a view of this learning process that leaves out its very active, constructive character. Learning by observing and pitching in to family and community activities is not simple imitation or uninventive reproduction of existing forms and practices. Its active nature generates novel approaches and makes it so that if novel approaches prove worthwhile, they are incorporated and in this way can contribute to creating new forms and practices.

Learning with or without Explicit Guidance by Observed Experts

Observation can proceed with or without the intent of anyone to instruct. Children's development of the necessary awareness, motivation, and capacity to take initiative depends in great degree, however, on the role played by the adults or other experts from whom they learn. The Canadian Inuit are described as having a "view of children as complete beings who are in charge of their own development and not to be directly formed by adult manip-

ulation" (Stairs 1991:282). Duranti and Ochs found that "in contrast to Western middle-class caregivers, Samoan caregivers place far greater responsibility for acquisition of knowledge with the child. Children are expected to watch and listen" (1986:226).

In communities where children spend much of their day actually taking part in mature activities, the skills and goals of mature activities become apparent to them in a self-evident way (Coleman et al. 1974; Goody 1989; Jacobs 1982; Rogoff 1981; Rogoff et al. 1993; Scribner and Cole 1973). In these settings there is little room for narrowly conceived instruction; those who are knowledgeable involve themselves by collaborating with the learner, by guiding and showing as they engage together in the activity. In this way they invite children to learn through their experience, with little dependence on coercion and explicit teaching.

Repeated opportunities to observe and participate in daily mature activities, together with children's strong personal motivation and early well-honed perceptual capacity all tend to make it superfluous for adults to organize special learning situations such as instructional talk or to enter into child play to teach children about work and other mature activities (Morelli et al. 2003). Of course, involved adults are also present and engaged. However, with active learners who frequently become engaged in (get close to) ongoing events, learning does not depend on the intent of anyone to instruct, as can be seen in McPhee's description of children's "lessons" in the all-important music of Bali.

It will be seen, first of all, that the teacher here does not seem to teach. . . . He is merely the transmitter; he simply makes audible the musical idea to be passed on. The rest is up to the pupils. . . . No allowance was made here for youth; it never occurred to Nengah to use any method other than that he uses when teaching an adult group. He explains nothing. . . . If there are mistakes, he corrects them, and his patience is great. But even from the first lesson he played everything too fast, and it was up to the children to follow him as best they could.

Yet Nengah's system produced swift results. . . . As for Nengah, he called them [the children], at the start, "sharp as needles."

Then again there is none of the drudgery of learning to read in this music, or, worse still, of counting time values; no one to say, "Use the fourth finger . . . did you practice your scales?" The children produced music from the start, in an orchestral group. Learning was fun. Each child took pleasure not only in what he was doing but in the fact that he was doing it in company with his friends. [McPhee 1969:89]

Maurer describes the "dynamic" that characterizes this kind of learning and the concomitant role of the knowledgeable person who is being observed, in Mayan Tzeltal:

The job of the educator will be "to orient, make straight" ("tojbtseel" [in Mayan]) and counsel ("tsitseel"). Here we have pedagogy in the authentic sense: guide the hand of the disciple so that he can learn ("p'jyubel." Literally: so that he can make himself smart ["*hacerse listo a sí mismo*"]). [1977:94]

This implies a radically different role for the expert compared to the teacher role, as it is often practiced in schools as well as in highly schooled families, where adults often direct children's learning, provide lessons, and enter into child-focused conversations and play (Blount 1972; Harkness 1977; Morelli et al. 2003; Ochs and Schieffelin 1985; Rogoff et al. 1993). In her review of language socialization practices in various parts of the world, Heath concludes by noting that

For those societies in which adults believe children are "found" or "grow up" or "come up," adults do not intervene with highly specific verbalizations of the here and now or requests or recounts of shared events, except for societal ceremonial occasions that serve as group rites of intensification. Children of these groups learn early to observe and listen to the scenes, actors, events, and outcomes of the dramaturgical settings that surround them. . . . Their display of knowledge is thus in actions that illustrate their keen powers of sight, touch, and interpersonal awareness, rather than through routinized conversational exchanges that adults scaffold about objects or events. The demands of the lexicon and genres or discourse stretches are strikingly different from those of societies in which adults believe they must "train" or "bring up" or "raise" children. [1989:345, 346]

Serpell, echoing Mead, noted that "the educational philosophy underlying formal schooling is formalized as a deliberate undertaking, with an explicit purpose and design. The school's very *raison d'être* is to change the children who enter it" (1996:138). He contrasts this to the "implicit philosophy" of the educational practices of adults in an African community in Zambia.

Adult interventions in the lives of children, although they have educational functions . . . also have other, more immediately pragmatic functions in the flow of daily life. If there were no child around to be educated, many if not all of these activities would still take place in the interactions between adults, albeit perhaps in a slightly different form. Individually and collectively, adult members of the community are aware that in the process of these activities they influence children's development, that the adult who performs these interventions is assuming some kind of responsibility for a change in the child's outlook. But in many cases the activity did not come into existence solely for that purpose. Even storytelling, which might appear to be a deliberately pedagogical activity, has a self-justifying celebratory quality that enables the storyteller to derive a reflexive satisfaction from its performance. It is thus less factitious than the educational activities of formal schooling, which are designed explicitly for the purpose of instruction. [Serpell 1996:138]

Learning through observation may involve active demonstration by the person being observed, as when a Mayan mother shows her daughter how to weave edges of a cloth evenly.

In other cases, the person being observed may be apparently unconcerned or in fact unaware of a learner's efforts to observe, as is often the case when children attend to ongoing adult conversation.

Community arrangements that allow learners to be in the right place at the right time to observe are an important source of support for learning by observing. This arrangement of resources is especially apparent when we consider how much work would go into creating an infrastructure that would increase young children's opportunities to observe and participate in community activities in middle-class U.S. communities where work and home settings are commonly segregated.

Although a person being observed may not facilitate children's presence and access to information, children may often be encouraged to be "around" to observe important events. For example, experts' emphasis on providing opportunities for the next generation to observe may be a part of their skilled activities, as when, in the case of the South American Warao, an expert canoe maker recognizes the need for boys to learn how to make canoes and thus

insists on having boys present when boats are being made. In other words, whereas adults may not engage in verbal instruction, they definitely require the presence of the learner when the opportunity for visual learning and instruction through demonstration presents itself. [Wilbert 1979:318]

The emphasis on children's being present and watching often includes the children doing the activity at the same time, even though this may slow the progress of the person whose activity is being emulated, as this instance in Wogeo New Guinea indicates:

When Marigum was making a new canoe he allowed his youngest son, Sabwakai, to take an adze and chip at the dugout. On my enquiring whether the boy did not impede his progress, the father agreed that he would be able to work much faster alone. "But if I send the child away," he added, "how can I expect him to know anything? This time he was in the way, but I'm showing him, and when we have to make another canoe he'll be really useful." [Hogbin 1970:143]

Observing can occur without the acquiescence of an expert. Laguna describes how the Tlingit people from the Gulf of Alaska learned:

Children began to learn practical skills through games and also through imitating their elders. There seems to have been a great deal of individual variation in the amount of . . . instruction given. Thus one woman recalled, "I go with my mother all the time. She showed me how to weave baskets. . . . I do one row; she does the next; I do the next. That's why I learn so quick." . . . Another woman, however, said, "As the only girl, I had to learn to do all kinds of things. My mother didn't want to teach me, but I watched and learned." This was the child who took her mother's ulu without permission and cut her

finger, because she was so anxious to learn how to slice seal fat. Another recalled how eager she was to learn how to cut fish for smoking and how she nearly wept over those she spoiled. [1965:14]

Children may even be prevented from following a certain training direction, but their own interest and the opportunity to observe may fuel their learning. For example, children within a family may be expected to contribute to the household economy by mastering different tasks, and their learning is guided accordingly; yet personal interest may take them in another direction. Because of a strict family division of labor, a Navajo girl was assigned to sheep herding while her sister was designated as the one who would learn to weave. The girl's interest and attempts to learn were "ungraciously repulsed." Nonetheless, she was

fascinated by the looms and their equipment. During the time she spent at home she hovered as persistently as a goat about her mother's loom, sitting as near her mother as possible when she was weaving, now before the loom and now behind it when her mother was away from it. [Reichard 1934:38]

By smuggling bits and pieces of different materials and working on her own while tending the sheep she eventually succeeded in learning how to weave.

De Leon relates how a Tzotzil boy in Zinacantán, Chiapas, México, growing up in a predominantly female family

wants to play with corn dough, to make tortillas with a tortilla press, to wrap *tamal* dough with corn leaves, to stir corn gruel, to pour coffee into cups, to chop vegetables, to do the laundry, to embroider, to weave. He is systematically reprimanded and not allowed to touch any of these household items ... [he is observed] "stealing" his Grampa's knife to peel fruit and putting it back surreptitiously ... embroidering his sister's appliques [while] hiding under beds ... "heating up" tortillas in a cold *comal* (pan), or experimenting with the waist loom ... [When] "weaving" he knows how to sit down, how to pull out the warping pole, how to move back and forward to tense the loom. [2005:3-4]

In these cases, an expert's intent to instruct was not necessary for these children to learn through observation, though repeated opportunities to observe and interest in learning the activities, as well as engagement in them (even if discouraged), were essential.

Judicious Use of Speech, in the Service of Communication

The emphasis on watching and showing rather than listening to verbal explanations has frequently been misinterpreted as indicating that observation is essentially "nonverbal," implying an absence of talk, with a relative poverty in symbolic meanings (e.g., Swisher and Deyhle 1989). However, articulate nonverbal communication during observation can

involve highly symbolic and precise meanings carried through sensitive and coordinated use of gesture, posture changes, timing, and the information available in shared action (Rogoff et al. 1993). Meanings can be built into and communicated through nonverbal aspects of the interaction (Paradise 1994). Rather than restricting communicative possibilities, communication that relies less on speech and verbal explanation may open up the possibility of learning through many channels that are either systematically ignored or excluded in teaching and learning situations that rely relatively exclusively on verbal explanation.

Indeed, in Western schooling, the possibilities for varied modes of communication are limited. Often, because the school situation segregates students from most of the activities of the community, talk must be relied on heavily. When "language becomes almost the exclusive means of exchanging information," then "the amount of information available to the learner is restricted" (Scribner and Cole 1973:556).

Talk that Supports Observation and Pitching in

In contrast to school-based discourse, talk in this informal learning tradition is not used to explain and vicariously reproduce nonpresent phenomena or aspects of an activity that actually takes place in another physical and social context. Talk is not used in a way that attempts to *substitute* for involvement in a productive activity, but rather *in the service of* carrying out that activity. In her study of midwives in the Yucatán, Jordan describes this way of using talk as follows.

In everyday life, in contrast to formal education, skills are acquired by watching and imitating, with talk playing a facilitating rather than a central role. Midwives in the traditional system are accustomed to learning experientially. They are *parteras empíricas*, that is to say, they have acquired their skills by "going around" with an experienced midwife and by carefully monitoring the course and outcome of the births they attend. Talk in such situations is always closely tied to, and supportive of, action. In the traditional system, to know something is to know *how to do it*, and only derivatively to know *how to talk about it*. [1993:178]

Where children participate in a wide range of family and community activities, conversation and questions between children and adults usually occur for the sake of sharing necessary information, and adults rarely focus conversation on child-related topics to engage children in talk (Blount 1972; Duranti and Ochs 1986; Heath 1982; Morelli et al. 2003; Ochs and Schieffelin 1985; Ward 1971). Talk supports and is integral to the endeavor at hand rather than becoming the focus of a lesson. For example, rather than a lesson describing all the parts of a loom and how to set up the threads, out of the context of weaving, an experienced weaver is more likely to give spoken and nonverbal pointers to a learner during the weaving process itself, highlighting, drawing distinctions, or explaining the ongoing process. The pointers are linked to the endeavor in which the participants are engaged, rather than being

disembodied statements (see also Chamoux 1992). For example, Reichard describes how she learned to weave blankets with a Navajo woman,

Marie sits by my side watching carefully lest I make a mistake. We don't talk much, except about the points of weaving . . . Besides, Marie does not "tell" when teaching. She "shows." The Navaho word for "teach" means "show." [1934:21]

Thus, in learning through participation in the range of family and community activities, talk tends to be used judiciously and occurs in the context of—and in tandem with—other forms of communication.

For example, a verbal explanation of a cause-and-effect relation is embedded in ongoing productive activity as a four- to five-year-old Wogeo New Guinea boy is given pointers and shown how to appropriately hold a digging stick.

Gwa . . . marched up to his father, who was busy planting taro, and demanded a digging stick. A stout bamboo was found, and the little boy stood alongside and began making holes in the ground. Wiawia [his father] watched him for a time and then interrupted his own labours to show him the best grip. "There, put your fingers so," he said. "Hold the stick like that, and you'll be able to dig deep and feel no pain in your back." The boy seemed to be an apt pupil and worked diligently for ten minutes or so. [Hogbin 1970:148]

The Tahitian man mentioned earlier, who reported that he "just looked at the way things were done" (Levy 1973:451), also spoke of how his adopted father would "teach" him with clear direct verbal orders, in the context of carrying out the work: "When I would help him in the work, then he would teach me, 'Gather together the dried coconuts. Don't take too many. Take the proper amount.' He taught me because I was little, and I could not take a heavy load . . . 'Here is how to do it, make it light'" (Levy 1973:451). Verbal teaching embedded within shared endeavors is quite different from providing a detailed verbal explanation of the steps, independent of carrying out the process itself. In this form of teaching and learning, the child is encouraged, indeed often urged, to experience the activity directly, to do it, to be alert and take initiative.

Mazahua children learning marketing and caregiving activities were frequently told what to do by means of clear, specific directions in the context of the ongoing activity. In one incident, the four- to five-year-old girl mentioned above who set up her own onion stand needed guidance about what to do to get the right change for one of her customers (Paradise 1985). At the crucial moment she simply ran quickly to her mother's stand and stood silently but expectantly in front of her mother who then told her with few words to go get the change and where. When the girl returned to her mother's stand with change in hand, she once more stood wordlessly in front of her mother. The mother then told her again exactly what to do.

In an education system based on observation and participation in productive endeavors, explanation and critique may be interspersed with the target activity, with speech supporting the activity and encouraging children's keen perception and attention. Guiding and directing comments augment rather than replace firsthand learning through observation and participation. This is the case in the following example from New Guinea.

The guiding hand of the grown-ups is particularly in evidence when the boys decide to have a game with model canoes. Each lad makes a vessel for himself, and the party then adjourns to the shallow water off the beach. The men as a rule sit watching and afterwards give a detailed commentary on the different craft taking part. This one, they point out, was unwieldy because the outrigger booms were too long, that one went crab-fashion because the float was crooked, the sail of a third was too small to take full advantage of the wind, and a fourth would have been more stable had a few stones been put into the hull. . . . Suggestions are usually put to proof at once and additional information sought if a prediction fails to come true. [Hogbin 1970:143]

Such abstract verbal critiques are contextualized in relation to the real activities in which the children are directly involved; the activity is ongoing and the aim is to get the toy boats to actually work. The principles learned are crucial for future productive activities. Basso provides another example of this way of teaching as Slave fathers and young sons play "a question and answer game" related to real-life situations.

The game is designed to teach the boys how to travel safely on ice and its rules are simple. The adult player names one of the thirteen categories of ice . . . and a particular type of situation. . . . The boy's task is to decide whether to cross the ice, make a detour, or proceed cautiously and examine it. If he makes a correct decision he is presented with another category-situation combination. If not, he is mildly chastised and urged to reconsider. [Basso 1972:40]

In these examples, spoken language is an essential part of the learning activity; however, it is in service of and dependent on the children's keen observation and direct active participation in the community's endeavors.

In education that places value on learners observing and experiencing firsthand, speech may be used sparingly to encourage the child's capacity for observation and not distract from the actual carrying out of the activity at hand.

It is as though these groups acknowledge the hard work to be done by the language learner and thus try to provide the most noninterfering, supportive environment possible. They offer numerous committed models close in age to the learner, focus their language to children on directives, and do not clutter up the learning with verbal "noise." [Heath 1989:347]

Care is taken that speech will not interfere with or replace a learner's active observation. Directives and modeling allow a child to continue with the activity at hand without interruption. Chamoux (1992) noted that Indigenous peoples of México are not generally taciturn—they have a fine sense of elegant language for use in other contexts; but during learning language use is sparse. Instead of stopping to explain, adults “show how” while a child is engaged in a task, often with little recourse to speech. Howard (1970) reported that if a Rotuman (Polynesian) child experienced difficulty, an adult would physically adjust the child's position to correct an error or refine a movement, but would seldom offer verbal instruction, instead encouraging children to watch an expert.

In addition to avoiding extensive explanation by experts, learners' questions may be discouraged. Children are frequently admonished to look for themselves when they ask questions. As Chavajay (1993) reported, Tz'utujil Mayan children may be scolded, “Have you no eyes?” if they miss information that adults consider already available to them. In accord with this, US children whose families came from rural Mexico with relatively little experience in schooling seldom pressed for further information during a demonstration of origami paper folding. In contrast, Mexican-heritage and European-heritage U.S. children whose families had extensive schooling—and who presumably were less accustomed to “using their eyes” and more accustomed to explanations and adult management—often pressed the demonstrating adult with questions, “Like this? Like this?” (Mejía-Arauz et al. 2005).

The expectation that learners will avoid asking questions may also be based on a respect for the ongoing endeavor, avoiding interrupting and constraining the expert's activity. Questioning by children may signal immature self-centeredness and rudeness (rather than signaling curiosity or valued inquisitiveness). “As they [Inuit children] grow older, questioning becomes a boring habit; they have gained wisdom and eventually become more intelligent. The more intelligent they become, the quieter they are” (Freeman 1978:21).

Narratives and Dramatization: Listening, Watching, and Empathizing

In many communities in which children are expected to be keen observers, they are also expected to be keen listeners to ongoing conversations and stories, and to be actors in everyday dramatic events such as teasing (Rogoff 2003). Judicious use of talk during children's observation and ongoing participation in everyday activities does not imply a lack of importance of learning from speech in other contexts. In fact, the common perception that unschooled Native peoples tend to deemphasize speech is indeed a misconception, as Irving, as cited by Hymes, notes:

When the Indians are among themselves, however, there cannot be greater gossips. Half their time is taken up in talking over their adventures in war and hunting, and in telling whimsical stories. [Hymes 1987:x]

Stories and dramatizations provide extended verbal information that differs from school lessons, in that they carry extensive context in the organization of the message. At the same time that they carry a message (such as a moral or models of correct behavior or the consequences of bad judgment), the narrative or dramatic format creates a context for the message that supports listeners in imagining events and scenarios, and often requires listeners to make inferences on the basis of ideas that are suggested through the action described in the story. According to Stairs, Canadian Inuit

do not traditionally make explicit verbal formulations of basic ideas or rules for success, but rather recount what they have experienced and listen to stories which present concepts and principles implicitly. Formulation of the big ideas is left to the mind of individual participants or listeners according to their own experience levels and perspectives. [1991:282]

Stories of this nature thus differ from the classic school-lesson in focusing less on rules or procedures or out-of-context explanations and more on wisdom or suggestions grounded in dramatic and engaging recounted events. They often give listeners an opportunity for vicarious involvement in others' experience, similar to the vicarious involvement available when children witness others' activities.

Lorente y Fernández describes how in Texcoco, Mexico,

periods of family rest—at night before going to sleep or early in the morning—are spaces of socialization shared by several generations . . . hidden from foreign eyes, the adults speak of *abuaques* [rain gods, owners of the water] and the illnesses that they or their neighbors have suffered, while the children, always present, listen and learn these stories. [2005:4]

Similarly, in Aucara, Peru, Quechua-speaking adults tell stories and comment on events when children have gone to bed or in the early morning hours when all is dark and otherwise quiet, knowing that their words will be heard by the children as they fall asleep or when they are not yet fully awake. They speak of events and phenomena they want the children to know about and understand, but which they would tend not to speak about in other contexts (Garcia-Rivera 2007).

Basso (2000) described how Apaches use stories as “arrows” targeted at specific individuals. These stories carry tailored lessons and are carefully timed and placed. The lessons involved are often quite subtle; their effectiveness depends on the perceptive capacity of the individual to recognize that he or she has been hit by an arrow and then be able to interpret and apply the story, and make the implied necessary changes in comportment or attitude.

In her description of the moral instruction of young Inuit children, Briggs showed how dramas that are “engineered by the adults” (1998:146) place toddlers in positions that will

allow them the opportunity to know firsthand, to directly experience the lesson they are learning about maturity. Lessons about attachment, protectiveness, reciprocity, taking responsibility for oneself and others, autonomy, and so on are made available to three-year-old Chubby Maata not through explanation but through engagement in small dramas that allow a direct emotional experience of their logic and reality (Briggs 1998:134–145). “Clearly, the plot has an emotional, logical coherence which Chubby Maata is learning to feel viscerally” (Briggs 1998:137). As Briggs points out, the child does not simply receive this experience at the hands of the adults; she is “led through the motions of a morality play and given compelling reasons to act her part in that social drama” (1998:134).

In Indigenous communities of Central America and Mexico, parents reported that giving *consejos* was a primary form of educating their children—referring to oral communication of knowledge, norms, and values (Duque Arellanos 1999). Giving verbal *consejos* is not a free-standing event, but rather carries with it the idea of teaching and learning in the context of doing, as children participate in the activities of the life of the community, from ceremonies to community meetings, to market activities and fiestas. Thus the verbal instruction is integrated with children’s everyday shared participation in community endeavors.

Learning in family and community settings may include questioning about events, explanation, drama, and story telling, but this use of speech tends to be in the service of fostering skillful perception and a wholehearted experiential participation rather than emphasizing the use of language in and of itself, as is so frequently the case in schools. What perhaps best defines both adults’ and children’s use of speech during learning is the coordination of talk with a child’s participation in everyday contexts of ongoing family and community life. Children are at the right place, at the right time, observing and engaging in socially and culturally relevant activities that allow them to “see” and experience in real terms what it is that is being learned as well as its relevance, if they are able to be present and participate according to their growing understanding and abilities. Hence, a New Guinea child is guided physically to hold the stick correctly and at the same time is given an explanation as to why, so that “you’ll be able to dig deep and feel no pain in your back.” In a comparable situation a Rotuman child may not be offered an explanation as to why. An Apache child may have a verbal “arrow” with a lesson shot at him, and a Quechua-speaking child may overhear stories while falling asleep. In all of these cases, no matter how language is used, children are being encouraged to learn through their own keen observation and perception, as narratives and dramatization support their integration in community life.

Carefully honed language-related skills are highly valued in and of themselves by most if not all peoples. However, the overwhelming dependence on certain forms of language in prototypical school learning often results in the familiar “school learners who ‘know the words’ but not the referents” (Scribner and Cole 1973:557) or learn how to use academic explanations but without this information entering their ways of behaving (Jordan 1993). This may be not only because of restrictions in understanding, when explanations are distanced from

the activities they refer to, but also may be related to learners' not perceiving personal relevance or value in what is presented.

Children's Contributions and Collaboration

An essential characteristic of children's learning in family and community settings is their collaboration and contribution to shared collective efforts. Even when practicing particular skills independently, the activity itself is part of an endeavor recognized by all to be important for the family or community as a whole. As we have argued above, this recognition of the shared value and worth of what is being learned best explains the intrinsic motivation and desire to learn on which the effectiveness of this kind of learning in great part depends.

This is perhaps what best explains the rarity of learning problems and failure to learn through observing and participating in family and community contexts. As Spindler and Spindler note (1989), in learning outside of school there are virtually no failures. Whatever the skill or knowledge might be (how to construct and navigate canoes, the names and appropriate uses of medicinal herbs, etc.), almost all children learn what is needed to function as full-fledged members of their communities. This does not mean that the learning process is without conflict or difficulty, simply that almost all children learn what they need to learn to be able to collaborate and contribute fully to family and community life. There are very few or none who flunk or "drop out."

Recently, research on teaching and learning interactions that take place in schools has brought attention to the conflictual nature of teacher—student interactions. Mehan stated this position clearly: "Trouble is an essential feature of teaching-learning interaction; it is always there, a feature that defies our attempts to correct it, or repair it, or make it disappear" (1998:264). He introduces the concept "contested negotiation" to describe the nature of teacher—student interaction during learning "because it foregrounds the inevitable tension and conflict in teaching and learning" (Mehan 1998:264). Although Mehan does not identify this feature as characteristic principally of teacher—learner interactions in school settings, his comments seem to be limited to Western schooling. Although there may be trouble in learning in family and community contexts (for example, the Navaho girl learning to weave blankets described above), the source of the trouble seems to have little to do with the organization of the teaching—learning interaction itself.

These differences in the kind and degree of trouble experienced in learning interactions likely have to do with the kinds of motivation that are in play and with whether or not the learning process involves collaborating and contributing (or anticipating doing so) to collectively valued worthwhile activities. When the value of pitching in to family and community endeavors and the desire to do so are self-evident, motivating to learn is not an issue. In ordinary schools, however, motivating children to learn is notoriously difficult. Frequently much of a class lesson is dedicated to motivating students, getting them to take

an interest in what is being taught. This need to motivate learners may occur in part because the practice of organizing learning activities into relatively unconnected stages, with little or no reference to or recognition of their ultimate purpose, makes it difficult for a student to take initiative or responsibility for learning in any meaningful way. In many classroom learning interactions only the teacher knows where they are headed and understands the direct connection between what is to be learned and its future application (Minick 1993).

Rather than being able to depend on learners' direct interest in the activity or knowledge rooted in an appreciation of its self-evident relevance and social and cultural value, frequently the norm in schools is to use various extrinsic kinds of motivation that have no inherent relation to what is to be learned. Attractive materials and colors, play, "having fun," eye-catching devices (such as clever questions and unusual voice intonations), rewards (stars, grades, smiles, various forms of encouragement), and even competition, threats, and punishment; all are used to ensure children's engagement in classroom learning interactions and activities, unrelated to the specific knowledge or skill being taught. When learning through observing and pitching in to family and community endeavors, the character of the learner's participation and the self-evident value of what is being learned render superfluous the kinds of extrinsic motivators commonly considered necessary for school learning.

Because of the prevalence of school-based discourse and teaching practices in highly schooled families and communities, scholars' understanding of motivation to learn may be skewed toward school practices. Children's tremendous initiative in out-of-school learning tends not to be noticed, except perhaps in the case of "marginal" activities such as popular music, computer games, and skateboarding, activities that are grounded in collective identities and an implicitly recognized value of the activity itself, precisely the social and cultural conditions that permit learning to flourish while learning through observing and pitching in to family and community endeavors.

Learners who are accustomed to taking the initiative and responsibility for their learning, with multiple opportunities to "abstract" what it is they need to know and practice from their everyday world, tend to have a different kind of relationship with experts than that of teacher and student. The learning and interactions are usually already defined within a context of collaboration that may include interchanging roles as well as various other sorts of cooperation and accommodation among children and adults (Haan 1999; Paradise and Haan in press; Paradise 1996; Rogoff 1994). Whatever conflict, difficulties, frustrations, and obstacles occur, in learning through observing and pitching in to family and community endeavors seldom includes motivating and finding ways to get children to learn.

Schooling Societies and Learning through Observation and Participation

The informal educational system described above is not restricted to families and communities with little experience with schooling. Although it appears to be generally more

prevalent in communities in which children spend most of their time integrated in family and community activities, informal learning is also common in communities where schooling has been extensive for generations. For example, learning through observing and pitching in to family and community endeavors is common in young children's learning of their first language, as children attend closely to the use of language around them in ongoing conversations, and pitch in as they have something to communicate (Rogoff et al. 2003). (Other examples of this form of learning can be found in Ball and Heath 1993; Fine et al. 2000; Heath 1991; Lave and Wenger 1990; Rogoff et al. 1995.) Informal learning through observation and participation is common when there is a spontaneous recognition of the social, cultural, and economic importance of the activities being learned, as well as a desire to belong to the community that engages in those activities.

In this section we discuss several examples that illustrate that this way of learning occurs in family and community settings where schooling is also widely experienced. These examples demonstrate the quality of the learner's involvement in everyday family and community activities in which learning through observation and participation is culturally rooted, echoing the characteristic ways of organizing interactions described in the first parts of this article.

Learning Mechanics in an Auto Repair Shop

Learning through observation and pitching in tends to be prevalent in settings in which learners have the opportunity to directly perceive the connection and relevance of what is being learned, both in terms of the immediate activity as well as in terms of the life of the community as a whole. Harper (1987) provides a clear description of this kind of learning taking place in New York State North Country. Willie, an auto repairman and blacksmith, talks about how he learned his skills from his father, and how he taught them to other kids in the family and neighborhood:

"When my father was doing something I was eager, I was watching him. Maybe the next time I'd have to do it for him. But I watched him do it the first time. That made a lot of difference." [Harper 1987:26]

Willie speaks of how his son, Skip, and others learned from him in the daily life of his small shop:

"When Skip was young," Willie begins, "I had a blacksmith's shop out here with my regular shop. He learned a little about it—that's where he learned how to weld. When he was about seven years old he set out here at the old blacksmith's shop—one day he struck up a bead and went across a piece of metal with it. When he stopped he threw the helmet back, looked at it, 'Humph!—that's as good as Frenchie's.' The guys sitting here busted right out laughing—they went over and looked at it, and they agreed with him! Well, nowadays you don't get the opportunity, actually. When I was teaching him all

this—Billy and Mike Murphy [two other youngsters]—they were always around, and getting right into the same deal. Billy Murphy turned out to be a damned good mechanic, and a good welder—and Mike—he’s a good mechanic—he works for Niagara Mohawk. They all grew up together, like brothers.” [Harper 1987:27]

Many of the characteristics of learning through observing and pitching in to family and community activities are notable in these descriptions. Children are eagerly engaged and participating in activities that are real and productive. The learner takes initiative and responsibility; motivation seems linked to the shared value of and commitment to the activity and to belonging in the specific community engaging in that activity (“They all grew up together, like brothers.”). Adults are present and the learner receives support and recognition from them. Harper cautions against romanticizing this kind of family learning arrangement,

The learning, however, was not always gentle or easy. The child’s work was part of the work of the family and carried a lot of responsibility. Punishment for mistakes was as natural as the responsibility. Yet Willie characterizes what perhaps looks like a rather severe relationship between adult and child as a bond of interest and commitment. [1987:26]

Problems, punishment, and difficulties exist, yet there is no evidence of the kind of conflict that signals participants are at odds, that there is resistance to learning, or that they are locked in a contest where negotiation is the necessary *modus operandus*, the kind of conflict that is frequent in school learning. On the contrary, as the following examples show, there is evidence of a subtle and flexible coordination of the actions, roles, and even attitudes of learner and teacher that would seem to preclude an oppositional negotiating structure.

Willie “teaches anyone who comes to the shop who is willing to be taught.” His teaching is based on his making his own work available for keen observation, finding appropriate moments and opportunities for the learner’s hands-on participation (and facilitating it by sharing his tools), coordinating his own work accordingly, and directing the learner’s attention, sometimes by asking questions. Harper describes his own experience at Willie’s:

I nursed my car—which was running terribly and smelling of gasoline—to the shop well after what I expected to be closing hours. A quick look showed gas leaking from the carburetor; I was lucky not to have burned up the car driving it to the shop. Willie, whom I had met but once before, looked the engine over briefly and told me to disassemble the linkages and gas lines. I had no tools in my car; he told me to use his by simply pointing to the rack in the corner of the shop. He kept busy with his own work, but I could see that he watched me out of the corner of his eye. When I had extracted the faulty piece he made a new fitting and gently tapped it into the carburetor. He then found a piece of used gas line to replace a section that was rotted and broken. After I reassembled the linkages he adjusted the carburetor and timed the distributor, asking

as he worked, "Do you hear that now? . . . Listen while I turn this . . . hear how it goes in and out of tune." [1987:28].

This short description makes it clear why academic researchers steeped in Western schooling practices sometimes claimed that there was in fact no teaching happening at all in such contexts. With this kind of educational system, a necessary given is that the learner be interested, willing, and ready to be taught, an orientation that in some sense is "produced" by the learner. Providing motivation does not figure in as part of the teaching, although it is part of the organization of this form of learning. Willie keeps an eye on his student's progress, but his purpose is to supervise the overall joint activity, know what to have his student-helper do next, and to what activity, tools or sound should the student-helper next direct attention.

A description of Willie's daughter learning captures the holistically integrated social, cognitive, and emotional nature of this way of learning, in its wholehearted spirit.

Of Willie's two girls the younger, now a preteenager, is a fixture in the shop. She hovers about Willie as he works, anticipating which tools he'll need and having them ready before he asks for them. She can guess the size of a wrench or socket better than most adult mechanics. She has picked up the shop lingo—frustration over stuck nuts or recalcitrant snap rings—and when she uses some of the sexually connotative expressions that link tools to functions of the body it is very humorous because of her innocence. She has become one more voice badgering Willie to help her out when she gets into a problem she cannot solve. She does projects of her own—rebuilding bicycles, making trailers, or repairing lawn mowers. Willie gives her jobs she is capable of—disassembling small engines, sanding surfaces to be painted, cleaning up machines to be worked on. She understands the rhythms of the shop and fits in completely. She helps people who are working on their own projects and often knows where esoteric tools have landed. One can sense that by her late teens she will have become a very competent mechanic. [Harper 1987:27]

This learner's initiative and motivation are especially evident, and so also are the many ways in which she and her expert father coordinate their separate and joint projects. She is highly and perceptively attuned to the details and rhythms of her father's ongoing work activity, and so can anticipate what tools he needs and be ready to pass them as they are needed. To take initiative in this way, she must be able to coordinate her actions to his, moment by moment, based on a "proactive" understanding and following of her father's actions and his unfolding plan of work. It is coordination and sharing that demands both cognitive and physical agility as well as social sharing and awareness between them. She "badgers" him so that she can learn; he doesn't have to try to find special ways to teach her. She acquires knowledge of mechanics and tools and at the same time learns the "rhythms" and "lingo" that are a defining part of the everyday community life of the shop. She takes initiative and actively participates in the work and social life of the larger community setting of the shop in the same way she participates in her father's specific work activity. She is around, a member

of the community, shows frustration in sociolinguistically appropriate ways and at appropriate moments, and supports others' work on their own.

Learning about Academic Life and Skills

Individuals with early school-oriented family and community experience—such as those whose parents are professors—may be able to use this experience when they get to school. They may participate in what would for others be arbitrary exercises with an appreciation of their purpose that converts these schooling routines into recognizable and familiar aspects of family and community practice. School routines are in this case practices already imbued with value and meaning, allowing such individuals to approach school learning by observing and pitching in to what they perceive to be valued family and community activity.

Some skills usually related to schooling, such as literacy, may be learned through participation in everyday family life where books and reading are ever present and take on an inherent worth as a shared and valued part of family life. Henry Adams, son and grandson of US presidents and a highly educated historian, speaks of books as being “the source of life” in his youth (Samuels 1973:38). In his home and with his family, books were a constant. As a boy, he “hung about the library; handled the books . . . there still exists somewhere a little volume of critically edited Nursery Rhymes, with the boy's name in full written in the President's trembling hand on the fly-leaf. Of course there was also the Bible, given to each child at birth, with the proper inscription in the President's hand on the fly-leaf” (Samuels 1973:14, 15). Adams speaks of his grandmother's “writing desk with little glass doors above and little eighteen[th]-century volumes in old binding, labeled ‘Peregrine Pickle’ or ‘Tom Jones’ or ‘Hannah Moore’” (Samuels 1973:16). He notes of his childhood, “The happiest hours of the boy's education were passed in summer lying on a must heap of Congressional Documents in the old farmhouse at Quincy, reading ‘Quentin Durward,’ ‘Ivanhoe,’ ‘The Talisman.’” (Samuels 1973:39)

Similarly, many people approach learning new computer skills through observing and pitching in. Although computer manuals in the early days included detailed procedural accounts giving didactic explanations for each aspect of an application, greater recognition has evolved that often computer learning is more in-the-moment, on-the-job, and based on consultation or observation of other people. Tutorials grew shorter and began to include more simulations of the process, and now instead of providing books of instructions, new applications generally provide a help function that allows users to obtain targeted advice in the process using the application rather than instructions to read before beginning. Computer users (even mature adults) can get enough of an idea of how to proceed by working with the software and with other users, using the kind of initiative and involvement that characterize learning through observing and pitching in to family and community activities.

Although not common, classroom learning itself is sometimes organized in ways resembling learning through observing and pitching in to community activities, in some innovative schools (Rogoff et al. 2001). Some schools with specific mandates for making innovations have developed special curricula and learning contexts, included family members, reoriented interactions among learners and teacher-experts in ways that allow for flexibility in roles and coordination, and encouraged learner initiative, motivation, and responsibility, as well as enhanced participation by learners in community life and group identity (e.g., Ahkwesâhsne Mohawk Board of Education 1994; Collier 1988; Lipka 1991, 1998).

As practices associated with ordinary formal school learning become increasingly hegemonic, and the inequalities associated with modern schooling practices become more evident, we are faced with a growing need to identify, validate, and promote other ways of organizing learning. The particular strengths of an educational system based on observation and participation in activities repeatedly carried out in family and community settings, with the implied group belonging and collective commitment, can complement school learning precisely where the need is greatest. Serpell noted in his description of the situation in Chewa, Zambia, that local ways of learning represent an educational system that is not only different but viable and, in many cases, a preferable option to formal Western schooling.

The point of view represented by this indigenous system derives great strength from the facts of its continuity with many other aspects of contemporary life in the community. These objectively experienced features of its social reality, perhaps more than any explicit commitment to a historical tradition, underlie its informal legitimacy and its capacity to pose a real challenge on the local stage to the might of the establishment view represented by the primary school. [Serpell 1996:136]

Belonging: Experiencing Community by Observing and Pitching In

Central to this kind of informal learning is the mutual and continual sharing of family and community life that is implied. The everyday social sharing described above constitutes more than the slowly accumulated tacit knowledge resulting from experience and long-term familiarity with the terms, tools, materials, and processes of the shared activity. It also implies a personal emotional experience and attraction to the activity and the social setting in which it takes place.

Learning through observation and participation in the everyday life of particular communities is built on a sense of belonging or desire to belong, as a member or participant takes part in the family and community by being present and sharing their characteristic practices. Thus, a learner's emotional involvement and the accompanying self-generated motivation are not only based on being present and socially oriented toward participation. They are also the result of a deep-seated "bond of interest and commitment" and a sharing of values and goals, as well as ongoing participation in a shared community existence.

As an advanced doctoral student at UCLA, Manuel Espinoza argued that intent community participation goes beyond the organization of learning, in that it is at the same time “an intelligent approach to creating community through collective attention and orientation toward a social problem” (personal communication, July 2005). Espinoza illustrated this with reflections on his own childhood experience from when he was about ten years old taking part in tuning cars in his Mexican American community in Colorado:

It was so cool to be allowed to watch the men in my family do something so important and not be shooed away because I was too small. I remember observing, listening, being allowed to touch tools, hand tools to my uncles, attach meaning to those pieces of metal, develop my senses to identify and diagnose problems, learning how to “talk trash” to each other and carry myself as a man (not always in the best way though—there was a heavy gender trip along with it). Still, I got to take part in an important activity that kept the household afloat.

What is beautiful about this, what I think the intent participation tradition hints at, are the multiple, standing invitations to enter into an activity and the possibility of multiple ways of interacting and working as a community. When taking part in tuning the car, I was able to come and go with relatively little risk (as opposed to much of my public schooling career) and had some choice (albeit limited by my mechanical knowledge) on the role I could take up (tool boy, beer fetcher, pointing out problems, putting forth a diagnosis on the car’s ailment). The ethics of being treated as a developing young man and not just a bothersome kid; over time I learned how to both tune a car and act as a member of the family. [personal communication, 2005]

Espinoza contrasted this form of involvement in the collective endeavor with observations of a community organization that could have integrated workers into the daily work life of the organization, socializing them effectively in the ethos of the organization, but instead gave new workers busywork and uninspiring lectures.

All of this bespeaks a powerful experiential learning process that is personally authentic as well as shared with others and culturally grounded in family and community life. A learner pushes cognitively, socially, emotionally, and physically (and in some cases is “kicked” by others, as car mechanic Willie notes regarding his own learning) to the very limits of mastery, and beyond. Recognizing this alignment of social, cognitive, emotional, and physical aspects is crucial to understanding that this form of informal learning represents an integrated set of educational practices, an educational system, and not just a series of specific strategies that can be applied without reference to the learner’s role in family or community, or to personal experience. The knowledge and skills learned are not easily forgotten; rather they are integrated into the learner’s life as knowledge that implies understanding and agency, for the development of attitudes and orientations that allow the learner to generate flexible practices and applications relating to that knowledge.

It is the larger context of an underlying shared community orientation that best explains the nature of this way of learning as an educational system. This was evident to Fortes (1970) when he studied the educational system in a society without schooling. It is similar in modern Western settings such as a mechanic's workshop (Harper 1987), a community-organized dance school (Ball and Heath 1993), or a little league baseball team (Heath 1991). Examples from contemporary families and communities that emphasize schooling, as well as examples from ethnographies of non-Western societies where Western schooling is less prevalent, all indicate that the shared community values and the social, cognitive, and emotional realities of participation are crucial to this way of learning. Many Indigenous educators have spoken clearly about this way of learning as "skills taught in the context of a worldview" (Mosha 1999:216), and as "a reflection of our formation of 'face, heart, and foundation'" (Cajete 1999:171).

We regard this form of informal learning as human age-old sociocultural practice that has evolved culturally across millennia. The "naturalness" and ubiquity with which learning and learners are incorporated into everyday life in the tradition of learning by observing and pitching in can be compared to the way in which language is incorporated into and is crucial to everyday life; informal learning of the kind we have described is as "natural"—and cultural—to human interaction as is language. We thus argue that it is a panhuman cultural practice, comfortable for and well suited for human learning of all kinds. At the same time, it seems to be a practice that is more prevalent in some societies, such as those in which children are integrated in the range of everyday community events, than in others.

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