

Learning by Observing and Pitching In to Family and Community Endeavors: An Orientation

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Key Words

Children · Conceptual model · Cultural variation · Learning · Learning by Observing and Pitching In

Abstract

This article formulates a way of organizing learning opportunities in which children are broadly integrated in the activities of their families and communities and learn by attentively contributing to the endeavors around them, in a multifaceted process termed "*Learning by Observing and Pitching In*." This form of informal learning appears to be especially prevalent in many Indigenous-heritage communities of the USA, Mexico, and Central America, although it is important in all communities and in some schools. It contrasts with an approach that involves adults attempting to control children's attention, motivation, and learning in *Assembly-Line Instruction*, which is a widespread way of organizing Western schooling. This article contrasts these two approaches and considers how families varying in experience with these two approaches (and related practices) across generations may engage in them during everyday and instructional adult-child interactions.

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Fig. 1. “Children [in a village high in the Andes of Peru] amazed me in many ways. From the first moment I arrived in their village, I was captivated by their respectful behavior, self-confident demeanor, and astonishing creativity. In July of 1990, when I met three-year-old Anali in her home located at almost 5,000 meters (16,400 feet) above sea level, she came to greet me in Quechua. ... This was her first meeting with a foreigner, but she did not seem to mind that I looked, spoke, and acted differently from the people around her. While her parents were busy preparing a meal, she took over the role of the hostess. She filled two cups with water, kept one for herself, and offered one to me with the words ‘Kuska ukyasun’ (Let’s drink together). She cared for me in an elegant and quite determined way throughout my stay at her home.” Photo courtesy of I. Bolin and the University of Texas Press, Copyright 2006. Anali recently graduated from her studies in Systems Analysis in the city of Cusco – Inge Bolin notes that she feels fortunate that Anali can now teach her about special aspects of computing (personal communication, November 1, 2013).



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Throughout the world, children learn informally by observing and contributing to family and community endeavors, as seen in Anali’s social skills and all children’s learning of their first language. An explanation is provided by 5-time Grammy winner Victor Wooten, who had learned to play the bass to complete the family band and had gone on tour by age 5 years, opening for Curtis Mayfield. Wooten explained that being allowed to “jam with the pros” is how infants learn language, by immersion, not so much being instructed to speak as learning by *using* language [Jaffe, 2012, p. 29]. “Jamming with the pros” can also be seen in academic families in which children grow up engaging in conversations in academic formats and observing the activities and rhythms that researchers and teachers engage in. Although learning by observing and contributing to family and community endeavors happens worldwide, it seems to be especially prevalent in Indigenous communities of the Americas.

This article introduces a special issue of *Human Development* focusing on this approach to learning and assisting learning, which my colleagues and I are calling “Learning by Observing and Pitching In” (LOPI). This article articulates what is involved in this form of informal learning and contrasts it with a type of formal learning that is common in Western schooling: Assembly-Line Instruction. It then considers how children and families develop repertoires that fit with their experience in constellations of practice that organize learning in everyday life. The article concludes by discussing how general LOPI is across communities removed in time and space from Indigenous communities of the Americas. Learning by Observing and Pitching In

may be quite familiar to many children in Mexico and Central America as well as many US children from Mexican-heritage, Central American, and Native American backgrounds.

Of course, children who are very familiar with LOPI are also likely to be involved in other ways of organizing learning opportunities. We examine the prevalence of two approaches, not equating the approaches with particular populations or considering them mutually exclusive. Examining population differences in prevalence of distinct approaches helps us understand these approaches.

Although our focus is on understanding Learning by Observing and Pitching In as it seems to be widely used in Indigenous-heritage communities of the Americas, LOPI and related approaches likely occur to some extent everywhere and may be common in other parts of the world. (For example, Lave's [2011] descriptions of legitimate peripheral participation in apprenticeship of Liberian tailors share many features with LOPI, as do Levin's [1990] descriptions of teaching and learning through helping in Native Hawaiian families.) We make use of cultural differences in approaches to children's learning – focusing on Indigenous-heritage communities of the Americas and middle-class communities – as a sort of natural laboratory to broaden and deepen the field's understanding of the processes of children's everyday learning, and to refine our understanding and test the coherence of LOPI and to examine its generality.

The Importance of Specifying Forms of “Informal” Learning

Research regarding how children learn and how adults support their learning has primarily focused on “formal” or instructional learning in school settings and in instructional interactions in families with generations of experience with the approaches commonly used in schools. Many studies describe children's motivation, attention, and studying in settings where adults with extensive schooling (parents as well as teachers) attempt to closely manage children's motivation and attention in lessons and mini-lessons.

However, children's everyday lives include many social situations in which their learning is not managed by instruction. For example, children learn as they listen in on a conversation, help a parent repair an appliance, visit the doctor, examine creatures in a tide pool with siblings, take a family hike, and accompany a grandparent shopping.

Unfortunately, informal learning has often been characterized merely in terms of absences, as *not-formal* learning – for example, in terms of an absence of lesson-format instruction and an absence of adult control of children's activities. Informal learning has been treated as a polar opposite of formal learning, in a dichotomy or as one end of a continuum with formal learning at the other end. But what is commonly considered informal learning includes a number of distinct approaches in addition to LOPI. For example, another form of “informal learning,” emphasized in some settings that are designed to foster learning such as science centers and museums, is characterized as free choice and inquiry, with widespread discussion of how to further describe it [e.g., see the National Research Council book on learning science in informal environments, Bell, Lewenstein, Shouse, & Feder, 2009]. And the organization of schooling, while often employing Assembly-Line Instruction, can include other ways of organizing learning opportunities, including ways that resemble Learning by Observing and Pitching In to family and community endeavors [Bolin, 2006; Paradise,

1994; Rogoff, Goodman Turkkanis, & Bartlett, 2001]. Assembly-Line Instruction is not equivalent to schooling.

LOPI and Assembly-Line Instruction are only two of many approaches to organizing children's opportunities to learn [Rogoff, Moore, Correa-Chávez, & Dexter, in press]. We contrast them in order to examine and communicate their features, especially those of LOPI, not to treat them as the only possibilities, as a dichotomy, or as mutually exclusive in the lives of children.

Learning by Observing and Pitching In resembles many descriptions of informal learning in communities with no or little Western schooling. Several early analyses of informal learning, like our analysis of LOPI, emphasize the integration of children in the ongoing endeavors of their families and communities [e.g., Greenfield & Lave, 1982; Scribner & Cole, 1973]. However, other aspects of the models differ from our description of LOPI. Some of the differences may derive from our focus on Indigenous communities of the Americas. LOPI resembles approaches on other continents in communities where Western schooling has not been common, but there also seem to be differences that are worthy of empirical examination and future articulation.

There is another key difference between LOPI and some models that put informal learning in opposition to formal learning: Some models claim or assume, incorrectly, that informal learning produces only specific, concrete forms of knowledge or skill and that formal learning, again incorrectly, produces general or abstract knowledge or skills. These claims or assumptions have been disproved by a number of studies that show limited generalization (or abstraction) stemming from *both* formal and informal learning situations. (See especially the work of Lave, Cole, Scribner, Saxe, Goodnow, and Serpell, and summaries in Rogoff [1981] and Rogoff and Chavajay [1995].) In addition, Learning by Observing and Pitching In can easily be observed to be important in any domain of learning (including learning to do research in graduate school or learning to speak a language), whereas extensive research has shown Assembly-Line Instruction to have severe shortcomings in promoting conceptual understanding [Bransford, Brown, & Cocking, 1999].

Nonetheless, these assumptions continue to appear in recent publications (such as in a 2012 issue of *Child Development* focusing on childrearing quality in “developing” countries). Such assumptions may stay alive because they are engrained in the worldview and cultural identity of many highly schooled researchers [see Lave, 2011; Neisser, 1976]. It is easy for people who have spent much of their lives in schools to equate school skills, knowledge, and routines with intelligence rather than to recognize the specific contexts of their use. In addition, efforts to assess learning and knowledge are often bound up with specific forms of social interaction – such as asking known-answer questions that do not request new information – that are common in schools and unfamiliar to many populations with little or no experience in Western schooling [Rogoff, in press].

Articulating a Model: Learning by Observing and Pitching In to Family and Community Endeavors

This article describes the 7 interrelated facets that constitute and define Learning by Observing and Pitching In to family and community endeavors, and the corresponding 7 facets of Assembly-Line Instruction. The 7 features of each model are

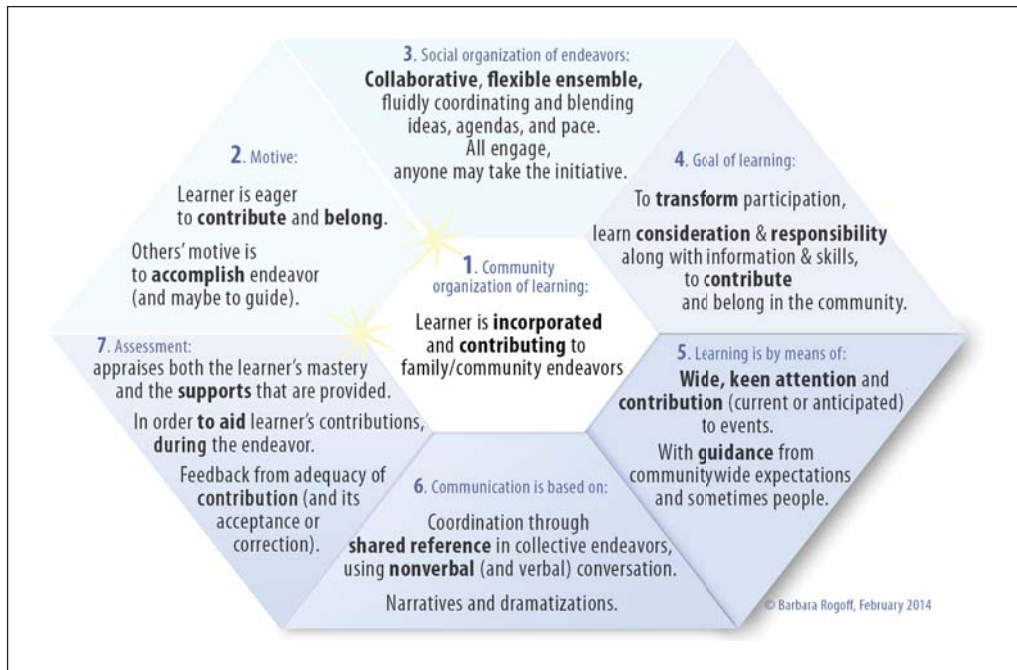


Fig. 2. Prism defining the features (facets) of Learning by Observing and Pitching In.

holistically interrelated and bridge across classic topics that are often divided into cognitive and social domains: Motivation, social interaction, goals of learning, attention, and communication and language. In this special issue we emphasize a cross-cutting theme that relates to all 7 facets of LOPI: *children's initiative in contributing responsibly* to ongoing activities of their families and communities together with other people's support for children's initiative through collaborative guidance. This contrasts with adult control of children's motivation, attention, and pace in Assembly-Line Instruction.

LOPI has gone by several other names and the prisms representing it have continued to develop as we have tried to articulate its key features. It was called "Intent Participation" by Rogoff, Paradise, Mejía-Arauz, Correa-Chávez, and Angelillo [2003] and revised to "Intent Community Participation" by Rogoff et al. [2007] to emphasize the centrality of children's inclusion in community endeavors [see also Paradise & Rogoff, 2009]. We now call it Learning by Observing and Pitching In in order to have a clearer, simpler label. (The full concept is better expressed as Learning by Observing and Pitching In to family and community endeavors, however.) We have continued to further articulate and develop the model (fig. 2), building on previous versions and integrating new ethnographic and quantitative findings as well as insights from discussions with colleagues.

An especially important basis of the LOPI model are in-depth ethnographic and biographical observations, and some comparative studies, by Indigenous American scholars and other anthropologists, psychologists, linguists, and educators who have

spent many years in Indigenous-heritage communities of the Americas. (In addition to my coauthors' and my research and conversations over recent decades, these sources include other publications by Barnhardt, Basso, Bolin, Briggs, Cajete, Cardoso, Chamoux, Chavajay, Corona Caraveo, de Haan, de Leon, Deyhle, Freeman, García-Rivera, Gaskins, Good, Henne-Ochoa, John, Jordan, Kawagley, Lamphere, Lipka, Lomawaima, Lorente Fernandez, Martínez Pérez, Modiano, Paoli, Paradise, Pelletier, Philips, Ramírez Sánchez, Robles Valle, Romney and Romney, Scollon and Scollon, Spring, Suina, Swisher, Thomas, and Urrieta, and others whose work is referenced throughout this special issue.)

Children's Learning by Observing and Pitching In to the ongoing endeavors of their families and communities involves the following features/facets:

- (1) Community organization *incorporates* children in the range of ongoing endeavors of their families and communities. Children are treated as regular participants in the community, with expectations and opportunities to *contribute* according to their interests and skills, like everyone else.
- (2) Learners are *eager to contribute and belong* as valued members of their families and communities. They engage with initiative, to fulfill valued roles. Other people present are trying to *accomplish* the activity at hand, and may guide or support the learners' contributions.
- (3) The social organization of endeavors involves *collaborative engagement as an ensemble*, with *flexible leadership* as the people involved coordinate fluidly with each other. Learners are trusted to take *initiative* along with the others as everyone fluidly blends their ideas and agendas at a calm mutual pace.
- (4) The goal of learning is *transforming participation* to contribute and belong in the community. Such transformation involves *learning to collaborate with consideration and responsibility*, as well as gaining information and skills. (A paradigm shift is involved in thinking of learning as transformation of participation rather than as the acquisition of knowledge and skills [see Rogoff, 1997, 1998].)
- (5) Learning involves *wide, keen attention*, in anticipation of or during *contribution* to the endeavor at hand. Guidance comes from community-wide *expectations* that everyone contributes with responsibility (as in cultural values indicating that everyone in a family pitch in to help with household work). Guidance may sometimes also come from other people engaged in the activity, supporting learners' opportunities to observe and contribute and sometimes providing pointers regarding the ongoing shared activity.
- (6) Communication is based on coordination among participants that builds on the *shared reference* available in their mutual endeavors. This involves a balance of *articulate nonverbal conversation and parsimonious verbal means*. When explanation occurs, it is nested within the shared endeavors, providing information to carry out or understand the ongoing or anticipated activity. *Narratives and dramatization* that bring remembered or hypothetical scenarios to life also guide learning and development in a way that contextualizes information and ideas in the service of skilled problem-solving and appropriate action.
- (7) Assessment includes appraisal of the success of the *support* provided for the learner as well as of the learner's *progress toward mastery*. The purpose of assessment is *to aid* learners' contributions, and it occurs *during the endeavor*. *Feedback is available from the outcome* of learners' efforts to contribute to the endeavor and others' acceptance, appreciation, or correction of the efforts as productive contributions.

Coherence of the Facets of LOPI

The 7 facets interrelate with and reflect each other in a multidimensional way. We can focus on one or another facet for a particular study or conversation. But as aspects of a coherent system, the other facets are necessarily taken into consideration in the background of any particular analysis of a system of LOPI. The mutual involvement of the facets is illustrated by their conceptual interrelations. For example:

- Children's involvement in collaborative ensembles with initiative (facet 3) requires children to be incorporated and attentive (facets 1 and 5) and gives them opportunities to learn valued ways of participating (facet 4), which in turn allows them to contribute to ongoing endeavors (facets 3 and 5) – and these are the basis of their eagerness to pitch in (facet 2).
- Coordination of shared endeavors through articulate nonverbal and verbal communication (facet 6) requires people to be engaged in shared activities (facets 1 and 3), and also serves collaborative social arrangements (facet 3) and learning of valued ways of participating (facet 4), and it is required for assessment of the arrangements for support and of individuals' progress (facet 7).
- Children's eagerness to pitch in (facet 2) relies on them being included in events (facet 1) and trusted to contribute (facet 3); it serves their learning of the consideration and responsibility, as well as information and skills, to be able to contribute to the community from an early age (facet 4), which are supported by assessment in order to aid children's contributions (facet 7) and by advice and corrections that involve narratives and dramatizations in the context of coordination of shared endeavors, using nonverbal and verbal communication (facet 6).

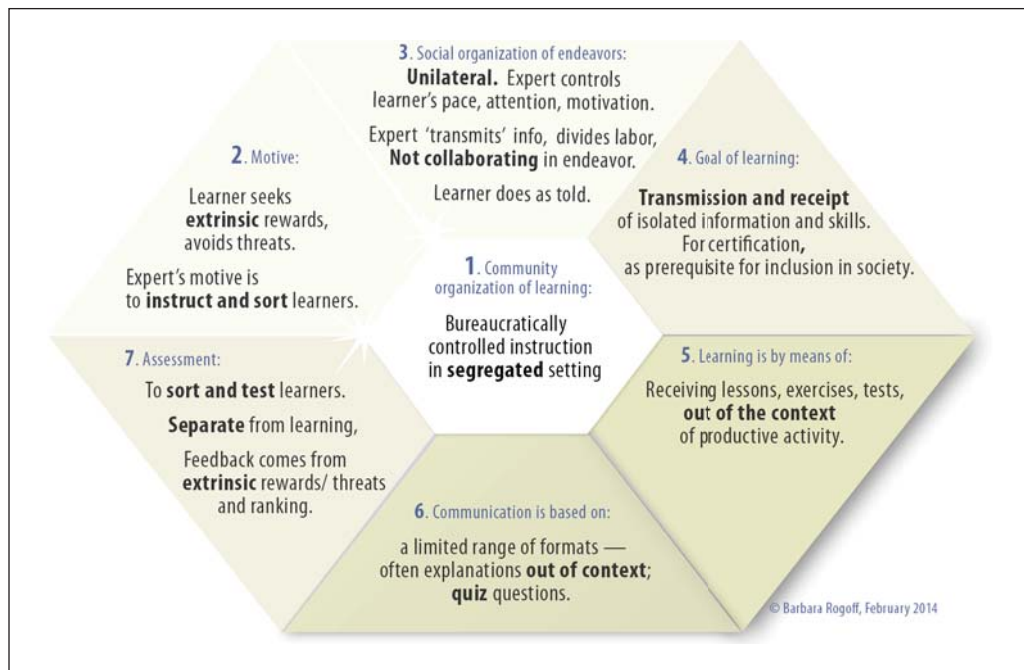
The inherent inseparability of the facets of the prism can also be seen in the interrelations of the studies presented in this special issue. Each study is directly connected with at least 3 facets and is indirectly connected with the others, in the background. In addition, all 7 facets relate to the particular focus of this special issue: Children's initiative in observing and pitching in, with guidance that allows this initiative.

Ethnographic research examining children's lives in Indigenous communities of the Americas supports the idea that these facets form a coherent pattern [e.g., Cazden & John, 1971; Chamoux, 1992, 2010; de Haan, 1999; Gaskins, 1999; Modiano, 1974; Paoli, 2003; Paradise, 1987, 1991; Philips, 1983; Romney & Romney, 1966]. For example, in a Guatemalan Mayan community, children traditionally were present in almost all community events, learning by observing keenly and pitching in to shared endeavors with initiative because the activities mattered for family and community success and wellbeing; the children's responsible help and learning were supported by family and community arrangements [Rogoff, 2011].

After describing important contrasts with the facets of the dominant cultural tradition of Assembly-Line Instruction, this article considers how cultural traditions for organizing learning fit in constellations of related cultural practices and how widespread LOPI is.

Contrasts with Assembly-Line Instruction

LOPI contrasts with learning in Assembly-Line Instruction, which aims to control learners' attention, motivation, and behavior in settings isolated from productive contributions to the community. This approach became widespread in US children's



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Fig. 3. Prism defining the features (facets) of Assembly-Line Instruction.

lives about a century ago, when educational administrators explicitly used the newly developed assembly line as a bureaucratic model for processing the influx of students resulting from immigration and from the advent of compulsory schooling [e.g., see the leading educational administration text of the time, Cubberley, 1916]. During the 20th century, the wide application of this approach to schooling accompanied children's increasing segregation from the range of activities of family and community life.

The prism shown in figure 3, revised from prior versions, defines the features of Assembly-Line Instruction, to compare with the LOPI prism. Defining alternative models such as LOPI and other forms of "informal" learning can aid in getting beyond Assembly-Line Instruction in educational settings. Assembly-Line Instruction is not very effective for most people's learning, according to findings from many decades of research [Bransford et al., 1999], although it is useful for sorting students bureaucratically. In addition, it marginalizes many students who come from backgrounds that have not historically used Assembly-Line Instruction at home or in schools. The cultural tradition of Learning by Observing and Pitching In to family and community endeavors, especially the way it occurs in a seamless fashion in some Indigenous communities of the Americas, can inspire efforts to improve educational opportunities in schools and out of school.

Cultural differences that resemble the contrast between LOPI and Assembly-Line Instruction have been noted in a series of studies. One of the first studies showed that Guatemalan Mayan mothers helped toddlers learn how to operate novel objects

by being ready with supportive assistance, attending to the toddlers at the same time they engaged in adult activities, and coordinating their shared endeavors by articulate nonverbal means as well as talk. The toddlers were attentive and engaged broadly in the group interaction. In contrast, mothers in a middle-class European American community used a lesson approach that resembles Assembly-Line Instruction in some ways. They used mock excitement, running commentary, and praise to engage and evaluate the toddlers in mini language lessons; the toddlers usually attended to their own solo activity or interacted with one other person at a time, seldom with the group as a whole [Rogoff, Mistry, Göncü, & Mosier, 1993].

The contrast between collaborative guidance in LOPI and control of learners' attention and behavior in Assembly-Line Instruction is elucidated by Paradise, Mejía-Arauz, Silva, Dexter, and Rogoff [this issue]. When asked to guide collaboratively rather than "teaching" children how to fold an origami figure, two experienced European American teachers serving as research assistants had great difficulty "letting go" of their feeling of responsibility for children's learning, and continued trying to control the children's attention, motivation, and behavior. This contrasts with the collaborative approach of two Mexican-heritage research assistants, who provided leadership aligned with the children's pace and supported their initiative. Paradise et al. [this issue] demonstrate the coherence of both models and the resilience of people's repertoires of practice even when they try to change.

However, people can learn to function within several approaches to instruction and guidance. Given how commonly Assembly-Line Instruction appears in many schools and in tests, it is valuable for current generations to know how to function within it. It is also valuable for them to be able to learn in ways that are more conducive to learning, such as by observing and pitching in.

Most real-life situations are not pure forms of any of these models. In practice, participants mix approaches and they reflect considerations tied to the current circumstances and to the worlds they anticipate, as well as to their repertoires of practice. Each of these learning traditions is likely to be related to many other practices, commonly embedded in a *constellation* of cultural practices.

Constellations of Cultural Practices across Generations

Cultural practices such as those involved in LOPI or Assembly-Line Instruction are connected with many other aspects of children's and families' lives as aspects of coherent *constellations* of cultural practices [Rogoff, 2003, 2011; Rogoff & Angelillo, 2002] that transform across generations. The idea of constellations contrasts with treating cultural practices such as schooling, parental occupations, or urban living as variables that operate independently, or equating culture with ethnicity or nationality as static social addresses.

Cultural variation can be used to examine the generality and coherence of LOPI and Assembly-Line Instruction and the constellations of cultural practices in which they operate. Rogoff, Najafi, and Mejía-Arauz [this issue] use historical and community comparisons as tools to understand cultural practices related to Learning by Observing and Pitching In that seem to have roots in Indigenous communities of the Americas. Across 3 generations in 3 Mexican communities, interconnections among features of distinct constellations of cultural practices (involving birth practices and

spiritual ceremonies, schooling, parental occupations, and urban/rural residence) align with constellations of practices related to LOPI and Assembly-Line Instruction. Cultural differences in children's and families' approaches to learning seem to correspond with cultural changes in other practices of Indigenous and immigrant communities, across generations. Familiarity with Indigenous practices was observed among families who did not identify themselves as Indigenous but whose ancestors lived as Indigenous people of Mexico.

Theoretical notions regarding repertoires of cultural practices and the co-occurrence of cultural practices in constellations that may generalize and change across generations are further developed by Rogoff, Najafi, and Mejía-Arauz [this issue]. They argue for examining how children's and families' everyday practices transform with generational, historical change as well as migration and other contact with new settings (such as schools) organized according to distinct cultural values and practices.

How Widespread Is Learning by Observing and Pitching In to Family and Community Endeavors?

An important tool for bringing to light the nature of LOPI (and other forms of informal learning), as well as its prevalence, is comparing the practices of distinct cultural communities and generations. Ethnographic accounts describing LOPI in Indigenous-American communities assume that – but do not test whether – learning by attentively pitching in to mature activities is more common among children in the Indigenous communities studied than among children in middle-class communities. In the process of testing that assumption, we can learn more about the processes involved in Learning by Observing and Pitching In.

This special issue of *Human Development* examines the extent to which a common and coherent approach based on LOPI applies to populations who are not based in identified Indigenous American communities but who likely maintain some involvement in practices emanating from those communities. LOPI may be prevalent among people with historical roots in Indigenous-heritage communities, such as many immigrants to the USA from Mexico and Central America, whether or not people recognize historical connections with Indigenous communities. With increasing generational distance from life in Indigenous communities and with experience in the practices of Western schooling and related institutions, people's reasons for engaging in these practices may not be known to them, while the practices may survive, transform, or disappear.

A series of investigations has found that individuals who probably have experience with Indigenous American practices are more likely to act in ways consistent with LOPI – broadly and keenly attending to surrounding activities, collaborating with others, and employing nonverbal conversation in addition to talk – than individuals who have more distant or no experience with Indigenous communities and practices [e.g., Chavajay & Rogoff, 2002; Correa-Chávez & Rogoff, 2009; Correa-Chávez, Rogoff, & Mejía-Arauz, 2005; López, Correa-Chávez, Rogoff, & Gutiérrez, 2010; López, Najafi, Rogoff, & Mejía-Arauz, 2012; Mejía-Arauz, Rogoff, Dexter, & Najafi, 2007; Mejía-Arauz, Rogoff, & Paradise, 2005; Silva, Correa-Chávez, & Rogoff, 2010]. This work suggests that people from regions of the Americas with deep Indig-

enous histories may commonly engage in practices that relate to LOPI, even when the individuals do not recognize their connections with these Indigenous histories.

LOPI may characterize a familiar approach to learning for a large proportion of children in North and Central America, in addition to Native American groups. According to the Pew Research Center, nearly a quarter of US public-school students are Latino, especially from Mexico and Central America, where the approach that we investigate may be common for over half of the population. We contribute to a positive approach to normative child development by examining how these populations organize everyday learning, going beyond findings that they less often use approaches common in middle-class European-heritage communities. (Understanding the pattern may also potentially aid schools and community organizations in serving these populations, and children in general.)

It is essential for research to empirically examine the generality of practices rather than to assume that a common national, ethnic, or racial label automatically yields similar ways of learning and living. The research that we review, as well as the new studies presented in this special issue, investigates cultural differences within as well as across nations. Our view of culture emphasizes investigating people's experience with varying cultural practices, such as those commonly used in schools and in Indigenous communities of the Americas, rather than making assumptions based on categorical labels such as national origins, race, or ethnicity.

This special issue empirically examines whether the features of Learning by Observing and Pitching In are common in families that may or may not identify themselves as Indigenous but likely have historical roots in Indigenous American communities, and that vary in their experience with Western schooling and related practices. Consistent with this idea, Mexican children from a community that was formerly regarded as Indigenous generally contributed to family household work with initiative and regarded such contributions as something they simply wanted to do as a responsible member of the family's shared work [Alcalá, Rogoff, Mejía-Arauz, Coppens, & Dexter, this issue; Coppens, Alcalá, Mejía-Arauz, & Rogoff, this issue]. In contrast, children from a middle-class Mexican community with generations of extensive Western schooling were reported to show minimal initiative in household work. Instead, they were more often involved in sports and classes that were organized for children by adults. Children in a Mexican community with extensive schooling, but only in the most recent parental generation, often viewed family household work as something that children want to do as the shared responsibility of everyone in the family, as did the children from the community that was formerly regarded as Indigenous. However, only half of the children from the newly schooled community pitched in with initiative to family household work, and they often focused on their own individual contributions, whereas all the children in the Indigenous-heritage community made contributions on their own initiative and their reports downplayed their own contributions and emphasized collaboration.

We argue that Learning by Observing and Pitching In to family and community endeavors is a coherent, multifaceted cultural tradition that can organize children's learning and the supports available to them, fostering their participation with initiative and responsibility. This approach may provide developmental benefits to children's initiative, alertness, and skills in collaboration, perspective-taking, self-regulation, and planning, in addition to their gaining of information and skills. Learning to do things more than one way would expand everyone's repertoires of practice, as individuals and as communities.

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