In E. Amsel & A. Renninger (Eds.), Change and development. Hillsdale, NJ: Erlbaum, 1997.

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Evaluating Development in the Process of Participation: Theory, Methods, and Practice Building on Each Other

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In this chapter, I focus on a question that simultaneously requires consideration of theoretical, methodological, and practical issues: "How can we tell when development and learning have occurred?"[1] Addressing this question requires a conceptual perspective regarding what development and learning are—tying practices such as assessment of learning in schools to theoretical notions of what development/learning involves and methodological issues of how to examine it.

My contribution is based on sociocultural theory, a perspective in which there are not distinct boundaries between theory, methods, and practice. In particular, the traditional separation between theory and application dissolves, because theory is built on observations of the sociocultural phenomena of the real world, and application is seen as principled practice that inherently embodies particular theoretical notions (whether articulated or not). The perspective that I develop here is built on a family of sociocultural theories that are emerging from discourse across disciplines and cultural and historical communities using the con-

[1]I use the terms *development* and *learning* interchangeably in this chapter, consistent with the following statement by Kuhn: "Modern research has made it clear that learning processes share all of the complexity, organization, structure, and internal dynamics once attributed exclusively to development. If the distinction has become blurred, it is not because development has been reduced to 'nothing but' learning, but rather because we now recognize learning to be more like development in many fundamental respects" (1995, p. 138).

cept of *activity* and an emphasis on integrating levels of analysis (e.g., Dewey, 1916; Heath, 1983; Laboratory of Comparative Human Cognition, 1983; Lave & Wenger, 1991; Leont'ev, 1981; Ochs, 1988; Rogoff, 1995; Schieffelin, 1991; Vygotsky, 1978; Wertsch, 1991).

I contrast two conceptions of development and learning that prevail in ongoing research, theory, and practice with a third conception based on sociocultural theory (Rogoff, 1994). The prevailing views are that learning occurs through the *transmission* of information and ideas to the brain from the outside world or through *acquisition* of information and ideas by the brain. Although the transmission and acquisition views are often seen as opposites, I have argued that they are both versions of a one-sided model of development, with the world conceived as active in the former and the individual conceived as active in the latter (Rogoff, 1994). The third conception goes beyond the one-sided limitation of the transmission and acquisition conceptions, positing that people change through transforming their *participation* in sociocultural activities—in which both the individual and the rest of the world are active.

Several developmental approaches call attention to the concept of participation for understanding learning and development. I have used the notions of guided participation and transformation of participation (Rogoff, 1990, 1994); Lave and Wenger (1991) offered the related idea of legitimate peripheral participation; White and Siegel (1984) referred to child development as widening participation in communities of thinkers. In all three of these approaches, the emphasis is on participation in both face-to-face interactions and in indirect interpersonal arrangements of cultural activities (which include times that people are solitary and participating in sociocultural activities).

If we take the idea of participation seriously, we do not consider the individual to exist in isolation or out of cultural context—participation requires a description or an explanation of how people participate in sociocultural activities that are not formed by individuals alone, but by individuals with other people, in cultural communities. In sociocultural theories, processes of individual development are regarded as constituting and being constituted by interpersonal and cultural–historical activities and practices. Sociocultural approaches view the development of children as occurring as they participate in sociocultural activities. My stance offers an articulation of what it means to think of development as a process of transformation of participation—a stance that questions some common conceptualizations of learning and development.

My remarks here proceed from consideration of theoretical distinctions between viewing development as transmission, acquisition, or participation, to a discussion of the central research questions that stem from these theoretical approaches, to an examination of the kinds of evidence that

are used in research and practical assessments for evaluating the occurrence of learning and development from the differing theoretical approaches. As is seen, issues of theory, methods, and practice are all connected in this account.

THEORETICAL DISTINCTIONS: DEVELOPMENT AS TRANSMISSION, ACQUISITION, OR PARTICIPATION

The way that researchers and practitioners have traditionally gone about understanding children's development involves assuming a boundary between children's learning and the sociocultural world. External information is conceived as crossing a boundary to be stored internally, with either the individual or the environment as the active agent responsible for moving new materials across the boundary (Rogoff, 1990; 1995; see the top two images in Fig. 13.1). From the transmission perspective, the environment produces learning by inserting information; from the acquisition perspective, the individual is responsible for gaining the skills and information.

However, the boundary between individual and environment disappears if development is viewed as transformation of participation. The bottom of Fig. 13.1 portrays sociocultural activity—rather than the individual—as the unit of analysis, with three lenses showing three different planes of analysis of the role of individuals, interpersonal relations, and community activities. The right-hand lens represents how individual learning and contributions to sociocultural activity can be conceptualized from a transformation of participation perspective. This personal plane of analysis focuses on how individuals change through their involvement in one or another activity, in the process becoming prepared for subsequent involvement in related activities (Rogoff, 1995). If a person is participating in an activity, it is inconsistent to consider the person as independent of it; *participation* inherently means involvement. Through engagement in an activity at one time, individuals change and handle a later situation in ways prepared by their own participation in the previous situation. I argue that the process of children's participation and changing responsibility in an activity is how development occurs; it also provides researchers with evidence they can use to understand development.

For example, in an analysis of how Girl Scouts managed the complex cognitive activity of planning and carrying out their annual cookie sales, Rogoff, Baker-Sennett, Lacasa, and Goldsmith (1995) argued that children's roles are interdependent with those of their partners in community activities that are themselves dynamically changing. The individual

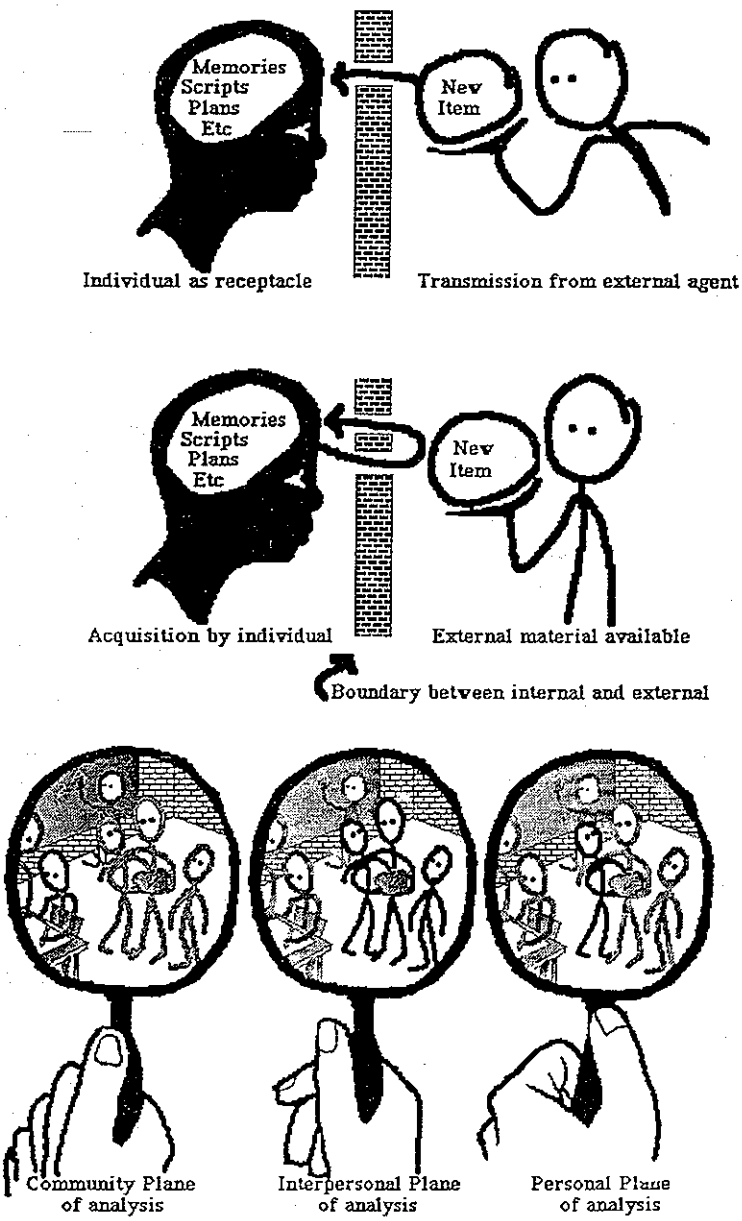

FIG. 13.1. Transmission and acquisition models, and lenses focusing on development as focusing on processes of participation. (Adapted from Rogoff, 1996.) Reprinted with permission.

Scouts learn to solve complex problems that have been defined and organized in their community; their own changes in roles and understanding extend to their efforts and involvements on similar occasions in the future and simultaneously contribute to transformation of the activities in which they participate.

The individual is viewed as participating in and contributing to sociocultural activity; there is no impermeable boundary between individual and environment. The role of individual contributions is accessible by focusing on them, with interpersonal and community processes appearing with less focus in the background in the righthand lens; the complementary focus on interpersonal and community processes appears in the foreground of the other two lenses of Fig. 13.1 (Rogoff, 1995). The interpersonal plane of analysis focuses on how people communicate and coordinate efforts in face-to-face and side-by-side interaction as well as more distal arrangements of people's activities that do not require copresence (e.g., choices of where and with whom and with what materials and activities a person is involved).[2] The community plane of analysis focuses on people participating with others in culturally organized activity, with institutional practices and development extending from historical events into the present, guided by cultural values and goals.

Focus on one or another plane of analysis is for the purposes of study and communication. The three planes cannot be isolated, and none is primary except with regard to being the current focus of attention, when we can focus on one or another, keeping the others in the background for our analysis.[3] It is not as if the individual could be taken outside of the activity to have his or her learning analyzed. They are amid, involved, and part of the activity. In an analysis focusing on individual processes, the individual's contributions are in focus and those of the other people are blurred, but one could not interpret what the individual was doing without understanding how it fits with what is going on around.

From a sociocultural perspective, developmental processes are not just within individuals but also within group and community processes. Hence, individual children are not regarded as developing with every-

[2]Interpersonal processes are not simply facilitative of involvement in certain activities but also include restriction of the activities in which people participate, such as the exclusion of children from some adult activities or provision of messages that they are allowed to participate only in certain ways.

[3]These three lenses are of course not the only ones that can be used to contribute to the study of human development. For example, lenses focusing on neuronal processes or phylogenetic processes provide analyses addressing important (and different) questions; none of the lenses can be reduced to the others. They provide different and complementary foci of analysis. This view is consistent with the Vygotskian notion that development involves phylogenesis, sociohistorical change, ontogenesis, and microgenesis (Scribner, 1985; Zinchenko, 1985).

thing else static, on the one hand, nor everything else as developing with individuals staying static, on the other. Individuals are not excised from their involvement in activities to evaluate individual change; rather, individual change is studied as it is constituted by and constitutes interpersonal and community processes in sociocultural activities.

THE CENTRAL RESEARCH QUESTIONS

The central questions for research differ depending on whether one works from the theoretical perspective of transmission and acquisition or from the theoretical perspective of transformation of participation, and the questions are based on associated premises regarding time, change, and relations among activities.

Central Questions From Transmission–Acquisition Views

The questions raised by transmission and acquisition views are similar, except that explanatory power is put either outside the individual (e.g., social *effects*) or inside the individual (e.g., maturation), or regarded as an interaction of independent external and internal factors. The central questions of the transmission and acquisition view have to do with attempting to locate where knowledge resides and how it moves from one location to another:

- Where is information stored? And how is it retrieved?
- How is information taken or given from external events?
- How is information generalized across situations?
- How is information translated into action?

The transmission–acquisition questions are premised on a storage metaphor, in which learning and development are conceived as the accumulation of mental objects such as plans, memories, or reading skills (see discussion in Kvale, 1977; Rogoff, Baker-Sennett, & Matusov, 1994). The storage metaphor seems to be necessitated by the assumptions of a boundary between the person and the rest of the world, accompanied by assumptions that the present is bounded off from the past and future.

The notions of acquisition and transmission rest on the assumption that time is segmented into past, present, and future, which are treated as independent entities. This yields problems of accounting for relations across time that are often handled by assuming that the individual stores memories of the past that are somehow retrieved and used in the present, and that the individual makes plans in the present and (if they are stored

effectively) executes them in the future. To bring the elements stored at one time to implement at another time, acquisition and transmission models need a homunculus or difficult-to-specify executive process (Rogoff, Baker-Sennett, & Matusov, 1994). This is the same executive process that is required to bring external pieces of knowledge or skill inside the person if learning is seen as the accumulation of objects stored in the brain. There is a boundary between time periods, like the boundary between the person and the rest of the world.

Central Questions From a Transformation of Participation View

The central questions raised in the transformation of participation view have to do with how people's participation changes as an activity develops:

- What are the activities in which people participate? Why and with whom and with what?
- How do the activity, its purpose, and people's roles in it transform?
- How do different activities relate to each other currently, historically, and prospectively?
- How do people prepare now for what they expect later, on the basis of their prior participation?

The view that development is a transformation of participation of people engaged in shared endeavors abandons the idea that the social world is external to the individual and that development consists of acquiring knowledge and skills independent of activity. Rather, a person develops through participation in an activity, changing to be involved in the situation at hand in ways that contribute both to the ongoing event and to the person's preparation for involvement in other similar events. Instead of studying a person's possession or acquisition of a capacity or a bit of knowledge, the focus is on people's active changes in understanding, facility, and motivation involved in an unfolding event or activity in which they participate (see Gibson, 1979; Leont'ev, 1981; Meacham, 1984; Pepper, 1942; Rogoff, 1990; Rogoff et al., 1994). The focus in a participation model of development turns to how planning, remembering, relating to others, and so on involve participation in cultural practices with other people (even when a person is alone for a while).

Change and development in the process of participation are assumed to be inherent, with prior and upcoming events involved in (not separated from) the ongoing present event. Any event in the present is an extension of previous events and is directed toward goals that have not yet been accomplished. The goals themselves can be articulated or can be an

informal orientation to accomplish a sketchy purpose. As such, the present extends through the past and future and cannot be separated from them (see Rogoff, 1995). When a person acts on the basis of previous experience, their past is present. It is not merely a stored memory called up in the present; the person's previous participation contributes to the event at hand by having prepared it. The present event is different than it would have been if previous events had been different; the explanation does not require a storage model of past events.[4] Acting in the present involves reference to prior events and activities as well as others that are anticipated in the future.

For example, this paragraph makes sense only with reference to prior paragraphs in this paper and to works that others have written in previous decades; as prior discussions are part of the current communication, they are present from the past. Likewise, as I and you anticipate the direction that the argument will take (e.g., I bet you thought this sentence would deal with the future), we are already involved in activities to come later. The present is not bounded off from what we have done before or from what we plan to do. The references to prior ideas do not require thinking of them as stored away in a separate past; rather, they are inherently part of the present. And my description of the structure of what I want to be telling you in the next paragraphs is not a future that is separated off; it is an aspect of where we are heading in the present.

Individuals transform their understanding of and responsibility for activities through their own participation in activities, and in the process they become prepared to engage in similar subsequent activities. By taking part in an activity, participating in its meaning, people necessarily make ongoing contributions, whether in concrete actions or in stretching to understand the actions and ideas of others. Communication and coordination in the course of participation in shared endeavors involve adjustments between participants (with varying, complementary, or even incompatible roles), stretching their common understanding to fit with new perspectives in the shared endeavor. Such stretching to accomplish something together is development, and occurs in the process of participation. As Wertsch and Stone (1979, p. 21) put it, "the process is the product."

The differing premises of the transformation of participation view and those of the transformation–acquisition views involve deep differences in how changes in competence and relations across activities are conceptualized, as described in the following sections.

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[4]Hence, from the transformation of participation perspective, the storage metaphor is an unnecessary trapping; it may be a necessary metaphor for those working from transmission and acquisition views—but my colleagues and I argued that even there it should be treated as a metaphor and not a fact (Rogoff et al., 1994).

Questions of Acquisition of Competence Versus Changes in How People Participate in Activities

With an emphasis on participation, the emphasis for the central research questions shifts from trying to understand the acquisition of capacities or skills or mental objects to understanding the processes of participation. Individuals are seen as inherently changing through their lifetimes, through their involvement in necessarily changing events. Thus development is an aspect of participation. The focus is on questions of how people's actual involvement transforms in activities of particular interest, rather than on attempts to answer when or whether certain mental objects have or have not been acquired.

The effort to chart internal competence (conceived as acquisition of mental objects underlying actual but impure performance) is central to acquisition–transmission views but are not relevant to attempting to understand the structure of people's developing involvement in inherently changing sociocultural activities. From a transformation of participation perspective, we examine how children actually participate in sociocultural activities to characterize how they contribute to those activities. The emphasis changes from trying to infer what children *can* think to interpreting what and how they *do* think.[5]

Dropping the search for determining the acquisition of mental objects or competence also recasts the question of onset (Rogoff, 1996). The question of when a person *begins* to have plans or problem-solving skills or perspective-taking skills or language treats transitions as if they were contained in the child, who either has it or does not. The onset question in developmental psychology generally searches for the earliest time one can find evidence of the skill or knowledge in question, yielding continual efforts to demonstrate that the child "has it" at an earlier age than asserted by Piaget or some other scholar (see Elbers, 1991).[6]

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[5]This contrast does not imply a recommendation to attend only to behavior. Determining what and how people think is still inferential and is not simply a matter of recording simple aspects of behavior or of people's responses to questions or cognitive tasks. Neither the view of observers nor of people themselves is a "true" window on cognitive processes. Researchers should take advantage of whatever evidence is available from their own observations as well as from the reports of other observers and the people involved to create a plausible account that advances understanding among a community of investigators about the phenomenon under study. (See Kvale, 1977, for a discussion of this point.)

[6]Note that in the transformation of participation view, boundaries also do not exist between cognitive, social, emotional, and motivational processes. Such boundaries may be tied to a model of human functioning that assumes the acquisition of objects in the head that need to be named separately in order to treat them as objects. With a focus on processes of participation in sociocultural activities, one can look at events as involving cognitive, social, emotional, and motivational processes as a function of the focus of the researcher's questions, without assuming that these are "really" separate entities. This view is profoundly different than much of developmental research, in which cognitive and social processes are regarded as independent (and their influence on each other sometimes examined).

Earlier "attainment" has generally been cleverly demonstrated by changing the nature of the task situation (in ways that receive insufficient attention), while continuing to assume that the competence sought is unitary and contained in the individual, awaiting a "pure" assessment. However, all research involves people participating in one or more sociocultural activities. The question from a participation view becomes understanding the transformations that occur in children's participation in particular kinds of activities, which themselves transform—how do children get from this kind of participation to that kind of participation, and how do the activities in which they participate change with the children's and others' involvement?

The central question becomes one of understanding children's changing roles as they participate in activities. For example, in understanding learning to read, rather than focusing on identifying the onset of reading skill, we would examine transformations in how children make sense of letters in certain kinds of texts with specific kinds of social and cultural organization of the reading activity (such as the kind of social support provided for the child's participation in reading and the purpose of the reading effort). The other aspects are inherently part of the process of reading, not potential confounds or features that need to be controlled in order to identify the child's "level" of reading competence. This involves a larger perspective on what it means to understand text, how texts for children and others are constructed, and how children enter and are brought into literate communities.

From a participation view, the process of understanding learning to read involves investigating children's reading in sessions in which they are assisted in reading as well as in test situations; both activities involve their own particular constraints and resources. In a test, for example, a child must understand that you are not allowed to look at your neighbor's work, you cannot ask adults for help, and so on. The test itself is an activity, rather than some kind of a window on hard-to-see competence that the individual "has." We would examine learning to take tests in terms of how an individual's participation in that kind of activity transforms. Studying children's strategies and the kinds of support they get are an important part of investigating how they learn to display their understanding of reading in tests, and to participate in the kind of reading that tests emphasize. The question of onset or acquisition of competence independent of the activity is out of keeping with addressing the question of how children's roles in activities transform as they learn, from a participation view.

Questions of Relations Across Activities

The premise that people learn through their participation in ongoing endeavors, and that, at any time, people are involved in activities that relate to prior involvements and to anticipated involvements, relates

closely to the classic question of transfer or generalization. In a participation view, the relation between processes in different activities is a central matter for investigation. Processes are not automatically assumed to be general, nor are they assumed to be so particular that we cannot extend from any particular observation to others. Rather, researchers can observe in situations that we want to understand, and look to see how processes observed there relate to those in other situations.

The question of relating activities to each other differs from questions of transfer or generalization using a storage metaphor. It differs in that the focus is on determining how activities relate to each other and how people move from one activity to another, rather than on how mental objects are transferred (as if they existed in isolation in the head) or how physical similarities in the materials elicit transfer (as if the materials carry meaning outside of their use).

From a participation perspective, similar or contrasting processes are sought across activities, with the generalizations being in the nature of the patterns in the dynamic processes of activities rather than residing in the individuals or in the materials or tasks. For example, Rogoff, Mistry, Göncü, and Mosier (1993) examined both variations and similarities in the models of teaching and learning (and associated patterns of relationship among adults and children) across activities varying in the focus of adults on the children or on other adults present. Another example is provided by Toma (personal communication, January 1993), who suggested the contrasting patterns of Japanese education in which children participate in elementary schools and in *juku* "cram" schools each relate to forms of participation that are important in adult life in Japan. The cooperative learning in elementary schools relates to learning to participate in coordinated work teams, whereas participation in *juku* relates to learning to compete with others and to participate in exams such as the entrance exams for high schools and universities.

Many other examples involve the question of how practices in families and in schools relate to each other—some may relate closely and others may not resemble each other. It becomes essential to try to characterize the relations among different kinds of activities in which children are involved. The relations among activities may be concurrent (such as relating the discourse patterns used in home activities to those used in school activities), embedded (such as relating discourse patterns in the writing of an article to political issues in the structure of academic institutions), historical (such as relating performance on a test to involvement in prior classroom activities), or future-oriented (such as relating performance on a test to intended involvement in other institutions for which tests serve a preparatory or gate-keeping function).

In the transmission perspective, differing performance under differing circumstances is also a matter for empirical study. However, because

individual competence is traditionally seen as separate from the environmental circumstances, the strategy is one of examining interactions between person and situation (Rogoff, 1981). The search for interactions between separately defined person and situation factors yields infinite and unanalyzable interactions, leading to "a hall of mirrors that extends to infinity" (Cronbach, 1975, p. 119). Those who become concerned that the study of contextual issues leads towards chaos are likely to be considering those infinite interactions rather than to be aware of the regularities and simplifications of patterns available when individuals are conceived as participants in, rather than separate from, sociocultural activity. Greater parsimony is to be found, I argued (Rogoff, 1996), in recognizing and studying the existing richness of structure of human activity with regularities in terms of how people participate in cultural activities.

For example, a researcher attempting to understand the development of children's responsibility for others as an interaction between *separate* individual and environmental factors would consider the findings in terms of "predictions" of this outcome from characteristics of the individuals (age, gender, birth order, perspective-taking skill, IQ, ethnicity, social class, etc.) and of the environment (e.g., caregivers' encouragement to share, age of child partner, availability of younger children, structure of the society, presence of formal schooling, technology available, etc.). Testing the interactions would be an endless process; reuniting the variables that have been separated out in this way would be a daunting task (Rogoff, 1996).

However, a coherent account can be made of children's transformations of roles in terms of their participation in community practices, which themselves are structured (e.g., in the roles that people play in family responsibilities and public institutions). The account includes reference to aspects of the activities that resemble the "variables" used in the interactional approach, but instead of attempting to define them separately, mutual reference to personal, interpersonal, and community planes of analysis is acknowledged and specified.

For example, Rogoff (1996) provided an account of cultural variation in 3- to 5-year-old children's responsibility for younger children, referring to the relative age and birth order of children and of their partners; to cultural assumptions regarding the development of understanding and responsibility that can be discerned from the inseparable *inter*-actions of the children and their siblings and caregivers; and to cultural values regarding interdependence, autonomy, and fairness that are constituted by the participants developing with their relations and community. The resulting account of children's participation suggests principled extensions of the research to examine whether the pattern of regularities ob-

served in two communities are observed in others, and how the children and their caregivers manage local developmental transitions (see also Mosier & Rogoff, 1995). Regarding the individual as a participant (along with others) in sociocultural activity allows the study of deeper regularities in children's development in sociocultural activity.

EVIDENCE OF LEARNING/DEVELOPMENT

Evaluating Learning/Development From Transmission and Acquisition Views

In transmission and acquisition views, the assumption is that in order to evaluate learning the individual must be isolated and a standard procedure applied to "measure" competence as pieces of knowledge that have been obtained. Because learning is considered to be contained in the individual, in order to figure out if somebody has learned something one has to isolate them from any other sources of assistance or influence. Methodological manipulations attempt to clear away situational artifacts that "get in the way" of evaluating children's possessions of skills or concepts. This often involves using standardized tests or pretest–treatment–posttest designs to isolate the individual's competence. However, this approach is plagued by difficulties in truly isolating the individual as well as in applying equivalent procedures.

In a treatment–posttest design, one looks for exposure to external knowledge or skill, followed by evidence of acquisition as the person retrieves the acquired knowledge or skill "independently" (Perret-Clermont, Perret, & Bell, 1991; Rogoff, Radziszewska, & Masiello, 1995). But there are serious complications in attempting to localize learning in terms of whether or not (or to what extent) an individual has "attained" a concept or "acquired" a skill, having to do with separating social "influence" from "individual" learning.

A posttest cannot be interpreted as revealing purely individual performance, in that posttests occur in interaction with experimenters in activities that are staged in particular cultural practices such as tests (Rogoff, Radziszewska, et al., 1995). The child in the posttest is working within the constraints and supports provided by the experimenter and by the research tradition and scholarly institutions that encompass the procedures and interpretation of posttests, according to a communicative contract that delineates the appropriate form of communication and resources available in responding to the problems posed by the experimenter. Such a communicative contract is one that is tied to the discourse patterns of traditional schooling and testing, with a knowledgeable person

asking a less knowledgeable person questions to which the knowledgeable person already knows the answers but nevertheless will not help the less knowledgeable person. Evidence that the posttest is not context-free but involves a particular kind of social interaction (with the tester) and social tradition is provided by research showing that a test is a confusing situation for individuals with less experience of schooling, including young children and people in communities that do not stress formal schooling (Bell, Grossen, & Perret-Clermont, 1985; Heath, 1983; Rogoff, 1990).

Rogoff, Radziszewska, et al. (1995) argued that all situations are social and cultural; a person's efforts in any activity provide some (but limited) information allowing inferences regarding what kind of support a person might need or responsibility they might be able to manage in related circumstances. Evaluation would involve attention to the person's participation in actual events, not attempts to infer context-free knowledge or skill. The individual cannot be dissected from the activity (including the involvement of other people, the constraints and resources provided by cultural tools such as language and maps, and institutional traditions such as ways of behaving when told to demonstrate knowledge).

For the purpose of aiding children or others in learning more, the dynamics of social interaction can provide information on what aspects of problem solving a child or other person handles with what types of support. As Brown and French (1979) suggested, it may be more informative for the fostering of cognitive development to understand what children do with other people than to try to understand what they do when other people simply constrain performance or provide standard supports, purposely ignoring individual needs (as in traditional testing).

Efforts to apply standardized procedures, important for evaluation of learning in the transmission and acquisition perspectives, pose additional problems. Standardization requires that situations have the same meaning for different individuals or groups; it is not necessarily achieved by applying the same procedures. This is the thorny problem of how to make comparisons across cultures. In order to make comparisons, procedures have to be standardized, but given that cultural communities are inherently different on at least some dimensions, identical procedures do not necessarily have the same meanings from the perspective of the people who are involved.

An example of how the same procedure is not standard with different groups occurred in a study of children from a school in which collaboration was rare and a school in which collaboration was central to the school's philosophy and children collaborated with each other and with adults throughout the day (Matusov, Bell, & Rogoff, 1995). We observed how third and fourth graders worked together on math and science

problems and how the older child in a pair helped the younger child learn. The main finding was, not surprisingly, that the children whose schooling encouraged and supported collaboration throughout the day more frequently engaged together in solving the problems, building on each other's ideas.

When we tried to evaluate what the children learned as they worked together in this situation, we ran into difficulty. The trouble was that the children in the collaborative school treated the experimenter as a collaborator. The experimenter sat reading a book to indicate to the children that he was not supposed to be interacting. But the children from the collaborative school were used to involving adults in their inquiries and this one was no exception; they conversed with the adult about the problems, asking questions, trying to involve the adult in the process. The children from the school that employed little collaboration were more used to having adults withdraw as the children worked or as they displayed their knowledge; they did not try to involve the experimenter. Thus it was not possible to compare the "independent" performance of the two groups of children, because the experimenter was treated by the children as playing different roles. For the experimenter to refuse to be involved with the children from the collaborative school was a violation of their "cultural" expectations of the social situation, although it was consistent with ordinary practices for the children from the less collaborative school. Thus the situation cannot be considered standardized, even though the experimenter acted the same way with both groups.

Thus, efforts to evaluate individual competence run into difficulties due to the need to assume that the individual can be isolated for examination from any sociocultural milieu, and due to the need to apply standardized procedures to be able to compare across people or situations that are likely to imbue even standard procedures with different meanings.

Evaluating Learning and Development From a Transformation of Participation View

From the transformation of participation view, evaluation focuses on the process of individuals' participation in and contributions to the ongoing activity rather than on "outcome" and individuals' possessions of concepts and skills. It examines individuals' roles in the context of their participation and the ways they transform their participation, analyzing how they coordinate with others in shared endeavors, with attention to the dynamic nature of the activity itself and its meaning in the community.

The investigation of people's involvement in activities becomes the basis of understanding of learning/development rather than simply the surface that we try to get past. The central question becomes how people

participate in sociocultural activity and how their participation changes from relatively peripheral participants (cf. Lave & Wenger, 1991), observing and carrying out secondary roles, to assuming various responsible roles in the management of such activities.

Evaluations of learning and development from the perspective of transformation of participation focus on:

- the roles people play (including leadership and support of others' roles), with what fidelity and responsibility;
- their changing purposes for being involved, commitment to the endeavor, and trust of unknown aspects of it (including its future);
- their flexibility and attitude toward change in involvement (interest in learning versus rejection of new roles or protection of the status quo);
- their understanding of the interrelations of different contributions to the endeavor and readiness to switch to complementary roles (e.g., to fill in for others);
- the relation of the participants' roles in this activity to those in other activities, with individuals extending to other activities or switching to different modes of involvement as appropriate (such as skillfully generalizing or switching approaches to participation in certain roles at school and at home, or to involvement in several different ethnic communities); and
- how their involvements relate to changes in the community's practices (including their flexibility and vision in revising ongoing community practices).

From my perspective, investigating how people participate in sociocultural activity and how they change their participation demystifies the processes of learning and development. To see development, we look directly at children's efforts and those of their companions and the institutions which they constitute and upon which they build, rather than searching for the mechanisms of acquisition or the nature of internalization as a conduit from external bits of knowledge or skill to an internal repository. What individuals do and how they think is the focus, rather than efforts to determine what they "can" do or think; variation and similarities in their participation in varying activities become central rather than nuisances in the attempt to observe "pure" competence.

From the perspective of transformation of participation, Rogoff, Baker-Sennett, et al. (1995) observed changes in how Girl Scouts participated in the cognitive activity of cookie sales and delivery, and through participation, developed in responsibility for and understanding of the practice.

For example, in the calculation of charges to customers, Rogoff, Baker-Sennett, et al. (1995) noted that some girls took on greater responsibility over the course of the delivery, with their mothers often initially managing the calculations and supervising the girls in keeping track of customers who had paid; in the course of participation in a system that was often set up by the mothers the girls began to take on greater responsibility for handling these complicated and important aspects of the activity.

Through the girls' participation in the activity, they developed in ways that led to changed later participation. As Lave and Wenger (1991) put it, "Learning thus implies becoming a different person with respect to the possibilities enabled by these systems of relations" (p. 53). The juxtaposition of roles in different communities was apparent for the girls, for example, as their leadership roles in selling cookies and their junior roles in relating with church members who were potential customers overlapped and sometimes came into conflict. Adjustment in responsibilities—learning to manage differing expectations, identities, and roles—is an inherent aspect of development, which also provides researchers with a window on the classic issues of transfer of learning and change and continuity across situations.

Experimental situations can similarly be analyzed in terms of how people (including the researchers) arrange their relative contributions, such as in children's learning how to plan maze routes with the involvement of their mothers and the experimenter in practice and posttest events (Rogoff, Radziszewska, et al., 1995). Analysis would examine how the contributions of each related to the prior and subsequent event and to the larger sociocultural system (involving experiments, psychology, and academia) that these events constituted and by which they were constituted. Evaluation would include examination of how the children, mothers, and experimenter collaborated and avoided collaborating in the practice and posttest sessions (according to the rules of the experiment, which would also be an object of study), and how each person's role transformed and was transformed by those of the others. The maze planning itself would be viewed as a function of the contributions of the participants in the sociocultural activity, and the similarities across the training and posttest events would be revealing in terms of the nature of responsibility taken by the different contributors.

Inspiration for the evaluation of learning from the perspective of a transformation of participation perspective derives from observations of classroom evaluation of children's learning in an innovative public elementary school in which children are rarely given tests but teachers have rich information on children's development and learning of the curriculum (Bartlett, Goodman Turkanis, & Rogoff, in preparation). The evaluation derives from collaboration with the children and observation of the roles that the children begin to carry out in the learning activities.

Teachers evaluate learning to write, for example, in terms of whether children are at the point of needing assistance in becoming involved at all in writing, or write with interest of their own. Do they write only in response to requests to do so or to initiate communication through writing? Is their writing embedded in a very limited range of activities or is it broadly used? As they write, do they consider the understanding that a reader will make of their written communication, or are they tied to writing for themselves alone? As fledgling writers, do they take responsibility for editing their work for its meaning and its ease of being read, or is this a role that needs close support from another person? These kinds of observations provide teachers in this school with detailed understanding of the children's development as writers, and simultaneously with information about how the teachers could support further development. The evaluation, of necessity, includes examination of the teachers' own involvement, the writing situation and supports, as well as the child's role in the writing activity. Hence, the evaluation is a part of, rather than separate from, the practice of assisting children's learning.

An example that may be closer to home for many readers is how research advisors evaluate graduate students' learning in the process of doing research. The "test" for learning how to do research is the research process itself. If the advisor and the student collaborate on shared research projects, there is rich and important information available for assessing the student's progress. At first, new students require support for all phases of the research, especially the conceptualization and fitting the procedures to the research questions. Gradually, students begin to take on some of the responsibilities for a project that formerly were covered by the advisor. For instance, I often diagram research projects in the planning phases as a way of developing and referring to the design of the study; when a student takes the writing pad from me and proceeds to diagram aspects of the study, I have very direct evidence of a change in the student's understanding and role in participating in designing the project. Similarly, evidence regarding student learning is available in the collaboration when a student prepares draft writeups of a project and requires more or less support in keeping track of the main questions, remembering the forest as they describe the trees.

Other aspects of a student's involvement in research that advisors assess during the process of collaboration include the student's interest and commitment to the project, their flexibility in being willing to rethink aspects of a project that they thought they already understood, their understanding of the research process and readiness to serve complementary roles with newer students or with their advisor in areas of expertise, their skill in extending learning to related activities as well as

in switching modes of involvement in contrasting circumstances, and their flexibility and leadership in contributing to the overall direction of a line of research or a research strategy.

These are the same kinds of information that I listed at the beginning of this section as key ways of evaluating learning through close involvement, to assess an individual's contribution to ongoing activities as they transform their participation. The kind of information available to research advisors in their collaboration with students is potentially very rich, allowing diagnosis of both progress that has already been made and the kind of support that may be helpful in the student's future development.

This account assumes that the purpose of evaluation of learning or development is to support and understand learning and development. However, this is only one sociocultural context of the practice of assessment. And it may conflict with other contexts in which assessment is practiced—especially assessment that takes place with the aim of gatekeeping. Many ongoing efforts to evaluate learning, in current educational and other settings, have as their goal the exclusion of some people from further learning opportunities (for a variety of reasons). My remarks in this chapter apply to efforts to understand and support learning; different considerations apply when the aim is gatekeeping. Both purposes of evaluation are worthy of study from a sociocultural perspective—which is outside the compass of this chapter. For our purposes, it is important, however, to distinguish between the purposes so as not to confuse the aim of understanding and assisting development with other, often conflicting, aims.

In sum, I have argued that the theoretical basis for thinking about development and learning is very different in transmission–acquisition and transformation of participation approaches and that the contrasting approaches lead to very different central research questions and ways of evaluating learning and development. Although many scholars have used and will continue to use the transmission and acquisition perspectives fruitfully, my aim has been to distinguish them to aid in understanding the theoretical, methodological, and practical implications that I see following from the perspective of a sociocultural approach that views development and learning as a process of transformation of participation in cultural activities. Awareness of the distinctions can, I believe, help us achieve greater theoretical clarity, research focus, and methodological advances. I find viewing learning and development as transformation of people's participation in sociocultural activities to be particularly fruitful, and believe that its promise can best be realized if its tenets are understood as differing from transmission and acquisition perspectives rather than unknowingly assimilated to the more familiar systems.

ACKNOWLEDGMENTS

This chapter is based on an address given at the Jean Piaget Society, June 1994, which had the theme of developmental theory, application, and method. I am grateful to the Spencer Foundation for their support of this work, and to Cindy White, Eugene Matusov, and Chikako Toma for comments and colleagueship.

REFERENCES

Bartlett, L., Goodman Turkanis, C., & Rogoff, B. (in preparation). *Learning as a community.* New York: Oxford University Press.

Bell, N., Grossen, M., & Perret-Clermont, A. N. (1985). Socio-cognitive conflict and intellectual growth. In M. Berkowitz (Ed.), *Cognitive-developmental approaches to conflict resolution* (pp. 41–54). San Francisco: Jossey-Bass.

Brown, A. L., & French, L. A. (1979). The zone of potential development: Implications for intelligence testing in the year 2000. *Intelligence, 3,* 255–273.

Cronbach, L. J. (1975). Beyond the two disciplines of scientific psychology. *American Psychologist, 30,* 116–127.

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

Elbers, E. (1991). The development of competence and its social context. *Educational Psychology Review, 3,* 73–94.

Gibson, J. J. (1979). *The ecological approach to visual perception.* Boston, MA: Houghton Mifflin.

Heath, S. B. (1983). *Ways with words: Language, life, and work in communities and classrooms.* Cambridge, England: Cambridge University Press.

Kuhn, D. (1995). Microgenetic study of change: What has it told us? *Psychological Science, 6,* 133–139.

Kvale, S. (1977). Dialectics and research on remembering. In N. Datan & H. W. Reese (Eds.), *Life-span developmental psychology: Dialectical perspectives on experimental research* (pp. 165–189). New York: Academic.

Laboratory of Comparative Human Cognition. (1983). Culture and cognitive development. In W. Kessen (Ed.), *History, theory, and methods,* In P. H. Mussen (Ed.), *Handbook of child psychology* (Vol. 1, pp. 294–356). New York: Wiley.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation.* Cambridge, England: Cambridge University Press.

Leont'ev, A. N. (1981). The problem of activity in psychology. In J. V. Wertsch (Ed.), *The concept of activity in Soviet psychology* (pp. 37–71). Armonk, NY: Sharpe.

Matusov, E., Bell, N., & Rogoff, B. (1995). *Collaboration and assistance in problem solving by children differing in cooperative schooling backgrounds.* Unpublished manuscript.

Meacham, J. A. (1984). The social basis of intentional action. *Human Development, 27,* 119–124.

Mosier, C., & Rogoff, B. (1995). *Young children's autonomy and responsibility within the family: Cultural variations.* Unpublished manuscript.

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

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

Perret-Clermont, A. N., Perret, J. F., & Bell, N. (1991). The social construction of meaning and cognitive activity in elementary school children. In J. M. Levine, L. B. Resnick, & S. Behrend (Eds.), *Socially shared cognition* (pp. 41–62). New York: APA Press.

Rogoff, B. (1981). Schooling and the development of cognitive skills. In H. C. Triandis & A. Heron (Eds.), *Handbook of cross-cultural psychology* (Vol. 4, pp. 233–294). Rockleigh, NJ: Allyn & Bacon.

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

Rogoff, B. (1994). Developing understanding of the idea of communities of learners. *Mind, Culture, and Activity, 1,* 209–229.

Rogoff, B. (1995). Observing sociocultural activity on three planes: Participatory appropriation, guided participation, and apprenticeship. In J. V. Wertsch, P. del Rio, & A. Alvarez (Eds.), *Sociocultural studies of mind* (pp. 139–164). Cambridge, England: Cambridge University Press.

Rogoff, B. (1996). Developmental transitions in children's participation in sociocultural activities. In A. Sameroff & M. Haith (Eds.), *Reason and responsibility: The passage through childhood* (pp. 273–294). Chicago, IL: University of Chicago Press.

Rogoff, B., Baker-Sennett, J., Lacasa, P., & Goldsmith, D. (1995). Development through participation in sociocultural activity. In J. Goodnow, P. Miller, & F. Kessel (Eds.), *Contextualizing development* (pp. 45–65). San Francisco: Jossey-Bass.

Rogoff, B., Baker-Sennett, J., & Matusov, E. (1994). Considering the concept of planning. In M. Haith, J. Benson, B. Pennington, & R. Roberts (Eds.), *The development of future-oriented processes* (pp. 353–373). Chicago, IL: University of Chicago Press.

Rogoff, B., Mistry, J. J., Göncü, A., & Mosier, C. (1993). Guided participation in cultural activity by toddlers and caregivers. *Monographs of the Society for Research in Child Development, 58*(7, Serial No. 236).

Rogoff, B., Radziszewska, B., & Masiello, T. (1995). Analysis of developmental processes in sociocultural activity. In L. Martin, K. Nelson, & E. Tobach (Eds.), *Sociocultural psychology: Theory and practice of doing and knowing* (pp. 125–149). Cambridge, UK: Cambridge University Press.

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

Scribner, S. (1985). Vygotsky's uses of history. In J. V. Wertsch (Ed.), *Culture, communication, and cognition: Vygotskian perspectives* (pp. 119–145). Cambridge, England: Cambridge University Press.

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

Wertsch, J. V. (1991). *Voices of the mind: A sociocultural approach to mediated action.* Cambridge, MA: Harvard University Press.

Wertsch, J. V., & Stone, C. A. (1979, February). *A social interactional analysis of learning disabilities remediation.* Paper presented at the International Conference of the Association for Children with Learning Disabilities, San Francisco.

White, S. H., & Siegel, A. W. (1984). Cognitive development in time and space. In B. Rogoff & J. Lave (Eds.), *Everyday cognition: Its development in social context* (pp. 238–277). Cambridge, MA: Harvard University Press.

Zinchenko, V. P. (1985). Vygotsky's ideas about units for the analysis of mind. In J. V. Wertsch (Ed.), *Culture, communication, and cognition: Vygotskian perspectives* (pp. 94–118). Cambridge, England: Cambridge University Press.