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Evidence of Development from People's Participation in Communities of Learners

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The educational function of museums results from a blending of efforts of many people participating in a process of social mediation that goes far beyond face-to-face interaction of people present in a museum. The process includes the museum staff, those whose ideas and artifacts are represented in the museum, those who prepare and fund the exhibits, and those who visit the museum. The sociocultural process of learning from visits to a museum involves the content and organization of the exhibition, the architecture of a museum building, gift shops, and companionship at a display. The issue of assessing the long-term impact of this socially mediated learning relies on consideration of the conceptual relationship between socially mediated learning and individual development.

This paper describes the implications of four conceptions of how the social world relates to individual learning for the organization of museums and the study of their long-term effects on learning and development. We focus on a conceptual view of development as mutual participation in communities of learners and contrast this view with three one-sided approaches in which either only the learner or the social world is conceived as active (or they alternate). The three one-sided approaches portray learning as solo discovery, as transmission of knowledge, or as transfer of control over the curriculum. The participation model considers development as transformation of participation in a community of practice. Participation in a community of learners involves participation in specific institutions (e.g., schools, museums) in which people pursue inquiries, make connections among various contexts, share interests with others, and learn how to learn and how to assist and collaborate with others. Evidence of learning in the participation model involves transformations of people's participation in sociocultural activities as they assume more responsibility for an activity.

Each philosophy of learning assigns specific roles to the participants. For example, in the solo discovery philosophy of learning, a museum visitor is considered as an active learner who is involved in discovering essential relations in the environment. In the transmission philosophy of learning, a visitor is considered as a passive receiver of a body of knowledge provided by the museum organizers. Here only one "side" of the exchange between participants is considered to be active in the organization of the learning processes. The transfer of control philosophy is a compromise in that first the educators (e.g., parents, teachers, museum staff) are responsible for structuring the learning situation, and then the learners (e.g., children, students, museum visitors) are responsible for active learning in one-sided succession.

Our own preference and commitment are to the participation philosophy of learning, which treats learning as participation in a community of learners. This philosophy corresponds to a sociocultural approach in psychology, which assumes that socially mediated education and psychological development mutually constitute each other. In contrast with the three one-sided approaches — rather popular among educators — in which responsibility for the learning process is either assigned to educators or to learners, the participation approach treats all the participants in an educational institution as learners who share interests and expertise. Educational leaders have the responsibility to guide this process, while children, students, and visitors have the responsibility to contribute to their own learning and, given the opportunity, to assist the educational leaders in developing their roles. Our goal in this paper is to describe the four approaches and their underlying philosophies of learning, their implications for the organization of museums, and how to assess the long-term impact of museums on learning within each of the approaches.

There have been many discussions about how to organize museums in manners that provide more effective learning. These discussions are often focused around specific organizational elements of museum activity such as how much text should accompany an exhibit or whether "hands-on" and "hands-off" exhibits are better (Falk and Dierking 1992). Although all these questions are important, our focus

has been on the learning philosophies that underlie many of those discussions. This paper examines the following four learning philosophies and their implications for the promotion and evaluation of learning in museums.

The *traditional transmission* model treats visitors as receptacles for the knowledge provided by the museum staff. This model of learning requires a visitor to attend to the exhibit and digest the information provided by the exhibit designer. Of course this process is complicated; museum staff must find ways to attract and maintain visitors' attention to the exhibit and to control how the visitors use the exhibit.

In reaction to the transmission model of learning, some educational institutions employ the solo *discovery* approach, which treats the visitor as an isolated active constructor of knowledge. Involvement by the museum staff (beyond provision of raw materials) is seen as a potential hindrance, limiting the visitor's creativity and exploration. It is assumed that the visitor has self-motivation for learning that is based on a stimulating, enriched environment provided by the museum. This model calls for the museum staff to avoid active guidance and involvement in the activities and limit their assistance to providing minimal guidance when asked for help.

The *transfer* approach attempts to combine the two previous approaches and design the educational curriculum in a way that chains tasks so visitors have the opportunity to discover essential relations between exhibited objects. It is based on a division of labor in which the museum staff are fully responsible for defining the learning curriculum and defining the educational tasks, while visitors are responsible for engaging in and solving the tasks. The problem in the learning process arises when visitors have their own educational agenda or their own tasks that are not addressed by the exhibits. Moreover, like the transmission approach, it requires visitors to move sequentially from one educational task designed by the museum staff to another, a requirement that is often difficult in museum settings in which visitors have freedom to move in various directions.

The *community of learners* approach goes beyond the transmission, solo discovery, or transfer alternatives because it focuses on mutuality in joint activity and guidance rather than on control by one side or the other. In a community of learners, both the visitors and museum staff are seen as active in structuring the inquiry, with museum staff assuming responsibility for guiding the process and visitors learning to participate in the management of their own learning (Dewey [1916] 1944; Newman, Griffin, and Cole 1989; Rogoff, Matusov, and White, forthcoming; Tharp and Gallimore 1988; Wells, Chang, and Maher 1990).

The remainder of this paper provides a brief orientation to the transmission, solo discovery, and transfer alternatives, with their implications for museums, and then turns to develop the community of learners approach in more detail.

Learning as Transmission of Information

According to the transmission approach, development involves a process of internal restructuring or encoding of information transmitted from external sources. Often a learner is treated as a "black box," a device that changes its internal state and outcome according to external input and its previous internal state. Teaching is regarded as a series of unilateral interventions in the learner's mental processes aiming to change the learner's internal state and his or her output.

In the transmission model, the purpose of educational institutions is to "design" development by defining systems of teaching interventions that add to learners' knowledge and skills. From this approach, educational institutions should choose what kind of facts and skills they want people to learn and implement instruction on the basis of the learner's previous knowledge. This model considers the long-term impact of learning as etching of transmitted facts, skills, and behavior in the learner.

The transmission model focuses on six major issues for the implementation of unilateral teaching.

1. How to define the learner's current knowledge — an issue of finding a genuine test of competence.

2. How to provide the right amount of guidance necessary to change the learner's internal state in accord with the desired plan — an issue of the optimal pedagogical technique.

3. How to make the learner accept and be ready for the teaching interventions — an issue of the learner's motivation.

4. How to schedule the teaching interventions for many learners at once — an issue of the effective management and organization of the educational process.

5. What the learner should learn — an issue of the curriculum.

6. How to engrave the transmitted skills so they stay forever with the learner — an issue of the long-term impact of learning.

The key recommendations that this approach might give to museums include:

• Clearly define pieces of information that visitors have to know after visiting a museum.

• Repeat this information to the visitors as much as necessary to imprint it in the visitors.

• Make the visitors responsive to the information and the repetitions.

In this approach, the evidence of the long-term impact of museum learning can be obtained from test-

ing recall of the information to which individuals are exposed in a museum after a lapse of time.

We consider the transmission approach as one-sided because it gives full responsibility for the learning processes to educational leaders and assigns the learner a passive role, as the receptacle of externally transmitted knowledge (see also Rogoff, 1994, and Rogoff, Matusov, and White, forthcoming).

Learning as Solo Discovery

According to the solo discovery approach to learning inspired by the work of Jean Piaget (1970) among others, the rote of education is to diagnose and facilitate ongoing processes in the universal sequence of development of children's concepts of causality, reasoning, and mastery of logical forms of thought. The child is viewed as active in developing an understanding of the world through experimenting with the environment in order to discover the logical relations among her or his own actions. Piaget attempted to study the child's "genuine" thinking apart from any knowledge that was uncritically absorbed by or imposed on the child in school or other educational institutions.

From the perspective of the solo discovery approach, educational institutions should assess developmental readiness and capitalize on development by providing a schedule for teaching subject matter that copies and nudges the universal sequence of developmental processes. For example, because, according to Piaget's findings, the concept of speed precedes the concept of time, the notion of speed should be taught before the notion of time. Capitalizing on developmental achievements involves teaching the subject material that can be assimilated by the child because development can be facilitated at the point when the child is ready to progress. For example, teaching metric units of volume measurement would be considered developmentally appropriate only for the child who has already developed the notion of volume conservation (i.e., that the volume of liquid remains the same even when its shape is changed by pouring it into another vessel).

The proponents of the solo discovery approach argue that educational institutions can speed up developmental processes by providing opportunities for a child to participate in activities that promote the child's development through enriching the child's physical and social environment. For example, many kindergartens provide opportunities to work with clay and liquid to facilitate the development of the notion of conservation of volume and mass. In the Piagetian view, such enriched physical environments provide opportunities for a child to apply his or her cognitive schemes, find discrepancies between expectations and the outcome of actions, experiment with actions and

expectations, and, finally, discover new and better cognitive schemes for actions.

According to Piaget, certain social interactions can also push children's development (Tudge and Rogoff 1989). Development occurs in situations of open dialogue when a child encounters the views of other children that, even if they are limited and incorrect, provide different perspectives on the topic. For example, two children who have not yet fully developed the notion of conservation of volume might notice different kinds of changes when a liquid is poured from a wider vessel into a thinner vessel. One child might notice that the level of the liquid is higher and conclude that the volume of the liquid has increased. The other child might notice that the vessel is thinner and conclude that the volume of the liquid has decreased. The children's attempts to argue their positions with each other as equal partners — with no special social status predefining which perspective is right — is considered to promote cognitive development. (This process is contrasted with superficial acceptance of an adult's opinion). The children have to accommodate their partner's perspective and find new schemes of actions that incorporate all the perspectives. Thus, according to the solo discovery approach to learning, the task of educational institutions is to provide opportunities for such discussions among socially equal partners.

If we apply the solo discovery approach to designing museums for optimal learning, this approach would recommend:

• Define developmentally appropriate content for museum exhibitions that can be easily assimilated by visitors on the basis of a diagnostic study of the current level of understanding of the target population of visitors

• Provide opportunities and choices for visitors to work actively with physical and symbolic objects

• Provide opportunities for visitors to be involved in open discussions with socially equal partners.

Although this approach has much to recommend it, we consider it to be one-sided, giving full responsibility for learning processes to the learner.

A Compromise:
Learning as Transfer of Control over the Curriculum

A third approach involves sequentially active roles for both educational leaders and learners, with education redirecting developmental processes in a transfer of control over the educational curriculum from educators to the learners. Unlike proponents of the solo discovery model, proponents of the translcr approach put strong emphasis on guidance. Unlike proponents of the transmission model, they emphasize the active role of learners in problem solving and are careful in choosing educational curricula in order to, on the one

hand, foresee and allow learners' active engagement in the task and, on the other hand, lead them in a socially desired direction.

Proponents of the transfer of control approach (e.g., Davydov and Markova 1982; Davydov 1980) believe that educational curricula should be highly structured to allow the child to learn tasks successfully in a step-by-step fashion. First, each task has to be analyzed to extract the essential relations between the cognitive actions it requires. Second, the hierarchy between the relations has to be built to define the most effective learning schedule for these relations, which is nothing less than an integrated teaching curriculum. This stage involves developing a chain of the tasks carrying the essential relations leading to learning.

With regard to museums, this approach can offer the following recommendations.

- Define the desired tasks that visitors have to learn in a museum.
- Extract the tasks' underlying essential relations.
- Design tasks that carry the essential relations.

In the transfer of control approach, there is an attempt to overcome the differing one-sided approaches of both the solo discovery and the transmission philosophies of learning by appreciating the child's active role in the educational tasks fully defined by educational leaders. The solo discovery philosophy is one-sided because the responsibility for the educational agenda is fully assigned to the child, while the transmission philosophy is one-sided because the responsibility for the educational curriculum is assigned to educational leaders such as parents, teachers, and museum staff. The transfer approach, however, is sequentially one-sided because it involves switching from one type of one-sidedness during the phase when the task is designed by educators and professionals (without any involvement of the child in the curriculum definition process) to the other type of one-sidedness during the phase when the task is solved by the learners. In the transfer of control philosophy, it is first the educators' and then the learner's responsibility to be active in arranging for and engaging in learning, transferring responsibility for learning from one side to the other.

Learning as Participation in a Community of Learners

The participation approach is not one-sided but is mutual, based on shared engagement among the participants with an educational agenda emerging in collaboration (with potentially differing responsibilities) among the participants. This approach was inspired by Lev Vygotsky (see Vygotsky, 1978) and his students and has been expanded by researchers from different social science disciplines (Heath 1991; Lave and Wenger 1991; Newman, Griffin, and Cole 1989;

Rogoff 1990, 1995; Tharp and Gallimore 1988; Wertsch 1991). According to the participation approach, education, learning, and development cannot be separated. Psychological development, defined as mastery of participation in communities of practice, includes formal and informal educational processes.

Vygotsky (1978) noted that the level of mastery observed as a child works individually on a task (as in traditional assessments of development) does not provide a full picture of the child's psychological development. Two children demonstrating similar outcomes on a battery of individual psychological tests might behave differently in a situation in which assistance by a more knowledgeable partner is offered. One child, with the help of the more knowledgeable partner, might easily solve the tasks that she could not solve before; the other child still might demonstrate difficulties in problem solving. Vygotsky defined accomplishing the tasks which the child could not solve alone but could accomplish with the help of a more knowledgeable partner as working in the child's zone of proximal development (ZPD). This concept redefines development as involving collaborative efforts of people rather than as an individual endeavor. From this perspective, what develops is not a child's mastery of more complex tasks on an individual basis, but a child's participation in sociocultural activities that involves collaboration and, in some cases, temporarily working alone as well. According to Vygotsky (1978), sociocultural teaching[1] creates the zone of proximal development and thus guides developmental pathways.

Because of the diversity of sociocultural practices, children in different communities have different developmental pathways. Tharp and Gallimore (1988, p. 3 1) report, "Boys in Micronesia, where sailing a canoe is a fundamental skill, will have a ZPD for the skills of navigation, created in interaction with the sailing masters. A girl in the Navajo weaving community will have experiences in a zone not quite like any ever encountered by the daughters of Philadelphia." The diversity of goals of different communities necessitates defining development in terms of progress toward more responsible participation in specific communities of practice rather than assuming that development is a generic process independent of the goals and institutions of the communities in which an individual develops. At the same time, the developing individual contributes to the further development of the practices (and goals and institutions) of the community.

Development involves not only the content of sociocultural practice in differing communities but also the ways that learning occurs. That is, in varying communities of practice, learners participate in different activities explicitly or less deliberately designed for their learning. The learners' development includes

not only what they are learning how to do but also how they are participating in the community using (and demonstrating) their developing skills and knowledge.

For example, Matusov, Bell, and Rogoff (forthcoming) suggest that children learn more than curriculum content through their involvement in the teaching and learning practices of their school. Participation in different school institutions (e.g., stressing collaboration or stressing individual competition) shapes the formats of children's interaction in guidance and joint problem solving. We found that in joint problem solving, third- and fourth-grade children experienced with cooperative schooling built on each other's ideas in a collaborative way and embedded their instruction in collaboration more often than did children from a traditional schooling background. Children with a traditional schooling background emphasizing individual competitive performance predominantly used guidance based on withholding of information, consistent with known-answer questions used by teachers in traditional schools.

According to the participation approach, development occurs as people change responsibilities for and membership in communities of practice and when they transform sociocultural tools that they use in the activity. For example, when people visit a museum for the first time they try to construct its meaning and relate it to known institutions and experiences, and later they may orient other new visitors to an exhibit.

The new experience allows individuals to build new relations with other people and with the subject matter, and to redefine old relations. A person's orienting of a newcomer may occur within familiar relationships (as when parents who have just become familiar with an exhibit orient a child to it in the same manner that they help the child with homework) or within transformed relationships (as when a child who has become familiar with an exhibit orients a parent to it).

New practices can be embedded in other practices, using or transforming practices from other settings. For example, didactic formats from school or more collaborative exploration from scouts can be used in the museum, involving development of ways of learning that bridge across different institutions as people participate in a new setting on the basis of their involvement. Their participation may also contribute to changing practices in other settings, as when involvement in museum learning sparks ideas for curriculum and for ways to approach it in schools.

The Museum as a Bridge between Communities of Learners

Museums, as educational institutions, provide opportunities for people to bridge different sociocultural practices and, through this process, to bridge different institutions and communities. John Dewey ([19 16] 1944, p. 20) argued that one of the main functions of educational institutions is to give an individual "an opportunity to escape from the limitations of the social group in which he was born, and to come into living contact with a broader environment." According to this definition, an educational institution is a crossroad of a great variety of communities of practice. Visitors of museums are past, present, and future participants of different communities of practice, including professional, religious, political, recreational, ethnic, and other communities. Thus learning that is involved in museums begins before and continues after the physical visit to a museum.

The contact among these communities provides the ground for both creativity in the design of museums and the development of visitors as participants in them. Museums can be considered as places where different practices and their participants can meet, learn from each other as peripheral members in different communities, and contribute to each other's practices (Falk and Dierking 1992; Lave and Wenger 199 1). For example, such a sociocultural practice as scuba diving (see Lagache 1994) has become known to the broader public through exciting documentaries of the underwater world. The success of those documentaries has transformed scuba diving as well: a new scuba diving practice of making underwater documentaries has developed. The relationship between the three communities of the museum's exhibits, museum staff, and museum visitors is not hierarchical and one-sided. Through negotiation and mutual contributions, people constitute a new type of practice and new type of community — a community of learners making individual and shared contributions to understanding. In museums, visitors usually encounter three other kinds of communities of practice:

1. communities of practice that are represented by the museum (e.g., in a museum of the history of aviation, visitors have an opportunity to meet with practices of professional aviators and designers of aircraft)

2. communities of practice that organize the museum (involving not only educational staff at the museum but also historians of flight, former professional aviators and designers of aircraft, as well as indirect contributors such as business people, educators, psychologists, economists, and so on)

3. communities of practice of other visitors who might deliberately accompany each other or just meet in the museum.

The social mediation provides complex negotiation among communities having different — complementary and/or contradictory — agendas, goals, and stakes in the institution. Very often a sociocultural practice involves different definitions of what an object and goal of the activity might be even if the

participants deal with the same physical materials. Consequently, the negotiation between the participants about the object of museum learning is a dynamic process.

Diversity of communities of practice that are directly or indirectly involved in the museum generates a diversity of agendas that shapes the museum as practice and institution. For example, donor business communities (and government agencies) want to know why they should finance museums over other social programs, including how museums contribute to a local community and address their social issues in the long run. Schoolteachers want to know how museums can help them in developing and teaching the school curricula. Educators want to know the specifics of learning in museums in comparison to other educational institutions and how they complement each other. Visitors want to know how well they can socialize, learn, relax, and engage in interesting activities in museums. Disciplinary communities (e.g., rocket engineers, space scientists, astronauts for a museum of space exploration) want to know how well the museum informs their field and the public about their practices and propagates their goals. Museum administrators want to see museums as organizationally and economically sustained institutions. This diversity of agendas makes assessment of learning in museums a complex endeavor. It involves a dialogue among the communities to spell out their agendas, concerns, and goals.

Visiting a museum involves opportunities for visitors to participate in different practices and communities. For example, a visit to some museums offers many visitors an unusual opportunity to participate in a model of learning that contrasts with their contact with similar concepts in other settings, such as schools. Participation in museums often requires more contribution from visitors to the organization of the learning event (i.e., the museum visit) and provides more leeway than participation in schools usually allows for students. Newcomers have the opportunity to approach the concept, learning how to manage their own participation in ways different from those required or allowed in many schools. Their development in the museum setting includes learning how to make use of the available resources (written explanations on walls, lectures from museum docents, and so on), which difler from the resources in many schools (such as textbooks and teachers). Visitors have greater freedom (and responsibility) to manage their own choices about where to go first, how long to spend, which aspects of the exhibit to explore, and h o w to do so. Thus, the museum is not only a crossroad of different practices and communities; it also guides visitors in how to bridge different practices and communities.

Evaluating Long-term Learning in Museums

In one-sided approaches, learning is usually assessed by isolating the individual and applying a standard procedure to "measure" competence that tests original knowledge, applies a treatment, and again tests the resulting change in knowledge gained. Competence is regarded as obtaining pieces of knowledge.

In contrast, the participation model assesses learning by analyzing individuals' changing roles in the context of their participation — how they coordinate with others in shared endeavors — with attention to the dynamic nature of the activity itself and its meaning in the community (Rogoff forthcoming). In the participation approach, evidence of learning in different educational institutions is not independent of the learning philosophy of the institution. Assessment of long-term museum learning requires attention to the institution's goals; there is no value-free, universal scale or method for assessment. Each of the four philosophies of learning defines its own educational values and ways of assessment, and these vary from institution to institution.

For example, in the study mentioned above involving children and schools with different learning philosophies (Matusov, Bell, and Rogoff, forthcoming), the researchers' attempts to measure the correctness of problem solutions of two children working on a few math problems illustrate how the definition of an appropriate solution varied in the two school programs. The two schools differed in the philosophies of learning in deep ways. In the cooperative school, instruction focused on *processes* of solution and involved collaborative problem solving, whereas in the traditional program, instruction focused on the correctness of *products* made on an individual basis. In the traditional school, learning was considered successful when a student demonstrated increasing mastery of working alone, whereas in the cooperative school, learning was considered successful when a student demonstrated increasing mastery of managing learning in collaboration with other people. The children from the traditional school tried to do the problems as much as they could and then turned to the experimenter to announce either their solution or their failure to solve the problem. In many cases, the children from the cooperative school tried to involve the experimenter in their collaborative work on the problems the experimenter gave them, but he did not cooperate. Attributing correctness of problem solution to the children alone would be inconsistent with the cooperative school's emphasis on children making use of available adult (and child) resources in solving problems.

The traditional methodology for measuring learning (e.g., individual pretest, treatment, individual posttest) fits the traditional school's philosophy and definition of learning, but not that of the cooperative

school. Moreover, even if an institutionally appropriate measurement of cognitive development for each school were designed (e.g., portfolios with narratives of students' progress in classroom collaborative activities in the cooperative school and testing of individual skills in the traditional school), it would be impossible to compare developmental outcomes based on these different measurements. This is the issue of cultural equivalence of measurement (Cole, Gay, Glick, and Sharp 1971; Cole and Means 1986). The comparison of effectiveness of approaches requires judgments of quality tied to sociocultural values.

According to the participation model, the learning process is easy to observe. Parents assess their children's learning all the time by observing changes in their children's participation in home activities. For example, a mother notices progress of her child in reading by observing changes in the child's participation in reading activities: mastery of the child's retelling stories, increases in the child's attention to the text, the child's desire to read and hear reading, and so on. Learning is a lifelong activity (and a way of life) rather than a one-time event. If we consider Dewey's definition of an educational institution as an opener of the sociocultural environment of its participants, who are, otherwise, "locked" in their immediate surroundings, we can also assess visitors' learning by observing changes in their participation in different communities and practices. The more an individual learns, the more he or she gets access to diverse practices of a society, and vice versa. Getting access to societal practices and learning how to get such access should be the core of assessment of learning in museums.

According to a sociocultural approach, cultural development involves individuals becoming members of communities of practice. It focuses on how, through incorporation of new community members, people, their relations, and the community are changed. Rogofl (1995) suggested that this process involves three aspects: transformation of individual participation in joint activity (i.e., personal plane of development), transformation of interpersonal relations (i.e., interpersonal plane of development), and transformation 01 community practices themselves (i.e., community plane of development). To study evidence of learning in a museum as a community of learners, it is necessary to focus on how people change their participation in museum activities (defined in a broad sense). Rogoff (forthcoming) identified the following aspects of transformation in participation as central to the evaluation of individuals' learning and development:

- individuals' contributions to the endeavor (their roles and the responsibilities with which they engage in the endeavor)
- their initiative or need for support in becoming

involved and sustaining involvement (their commitment)
- their leadership and support of others' roles
- their attitude toward change in involvement (a learning attitude)
- their understanding of (and flexible readiness to fill) complementary roles in the endeavor
- their understanding of the relations with other activities (extension to other activities as appropriate; comfort in switching to different modes of involvement as appropriate)
- their flexibility and vision in revising ongoing community practices.

Study of the long-term effects of museums on development also includes how innovations and changes are brought about in the museum itself (in Rogoff's community plane of analysis), since according to the participation approach, developmental processes of individual and institutional development mutually constitute each other. To examine the community plane of development, it is necessary to focus on historical development of practices and institutions and their relationship.

Based on the view that the goals of an institution itself are an aspect of sociocultural activity that can be coordinated more successfully given participants' awareness of their values and philosophies, the participation approach can offer the following recommendations for studying learning in museums:

- Define the goals and philosophy of learning for the specific museum — how staff and visitors of a specific museum define learning, what they value, what is involved in the museum's practices, and how the purposes of the museum are negotiated by its constituents
- Define relations among different communities that are directly or indirectly involved in museum practice and their changes over time
- Define the roles of each community involved (e.g., visitors, educators, professionals, business associates) in each phase of the decision-making process in museum practices (from determining the purpose of the museum to the content of exhibition labels and locations for gift shops)
- Define how practices of the museum relate to other educational and noneducational practices of other institutions.

In sum, according to the participation approach, socioculturally mediated education and development mutually constitute each other through the community practices in which people are involved. Learning is based on mutuality in guidance and goes beyond processes defined by the three one-sided approaches described above. It is defined as transformations of people's participation in sociocultural activities.

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Note

1. Vygotsky used the Russian word obuchenie, which connotes both formal intentional and informal unintentional teaching (or instruction, or guidance); literally, it means learning from somebody else who is supposed to be more knowledgable.