

# L. S. Vygotsky and Contemporary Developmental Psychology

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Central themes from L. S. Vygotsky's writings that have particular relevance for contemporary developmental psychology are outlined, and these ideas are extended in light of recent theoretical advances in the social sciences and humanities. The discussion focuses primarily on Vygotsky's claims about the social origins and social nature of higher (i.e., uniquely human) mental functioning and on his understanding of culture. His claims about the social origins of individual mental functioning have implications for the definition of terms such as "cognition" and "memory" as well as for how empirical research on these processes can be pursued. His understanding of culture is shown to be derivative of his account of the "psychological tools" that mediate human mental functioning. It is argued that efforts need to be made to elaborate a notion of culture within a Vygotskian framework that takes into account contemporary ideas and findings in the social sciences and humanities.

Over the past decade there has been a major upsurge of interest in the ideas of Lev Semenovich Vygotsky (1896-1934). This is reflected in the dramatic rise in citations of Vygotsky's publications (Belmont, 1988), in the spate of new translations of his writings (Vygotsky, 1978, 1981a, 1981b, 1981c, 1986, 1987, in press), and in several new volumes about his life and work (Kozulin, 1990; A. A. Leont'ev, 1990; Minick, Forman, & Stone, in press; Moll, 1990; Puzerei, 1986; Ratner, 1991; van der Veer & Valsiner, in press; Wertsch, 1985a, 1985b, 1991; Yaroshevskii, 1989).

The reasons for the new interest in Vygotsky in the United States are not altogether clear, but several factors seem to have played a role. One of them is the recent publication or republication of most of his writings in Russian (Vygotsky, 1982a, 1982b, 1983a, 1983b, 1984a, 1984b) and the subsequent translation of these items into English (Vygotsky, 1987, in press). Another is that increased scholarly exchanges between the United States and the former Soviet Union and the emigration of several Soviet psychologists to the West have provided a coterie of experts who can deal authoritatively with these writings. Yet a third is the fact that many of Vygotsky's ideas seem directly relevant to issues in education and other applied fields (Moll, 1990). And perhaps the most important factor is that Western scholars, especially those in the United States, have been actively searching for new theoretical frameworks and Vygotsky's ideas seem to address many of the issues that have motivated their quest.

Our goal in this article is not to provide a general review of the origins and fate of Vygotsky's ideas. This task has been carried out admirably by authors such as Kozulin (1990) and

van der Veer and Valsiner (in press). Instead, our intent is to review a few of Vygotsky's ideas that have particular relevance for contemporary developmental psychology and to see how these ideas can be extended in light of recent theoretical advances in the social sciences and humanities. Our discussion focuses primarily on two points in Vygotsky's theoretical approach: his claims about the social origins and social nature of higher (i.e., uniquely human) mental functioning, and his uses of culture. In examining these points we also touch on his use of a developmental method and on his distinction between elementary and higher mental functioning.

## Social Origins of Individual Mental Functioning

Perhaps the major reason for Vygotsky's current appeal in the West is his analysis of the social origins of mental processes. This is a theme that has reemerged with considerable force in Western developmental psychology over the past 20 years or so, and Vygotsky's ideas have come to play an important role in this movement.

In Vygotsky's view, mental functioning in the individual can be understood only by examining the social and cultural processes from which it derives. This involves an analytic strategy that may appear to some to be paradoxical at first glance. Namely, it calls on the investigator to begin the analysis of mental functioning in the individual by going outside the individual. As one of Vygotsky's students and colleagues, A. R. Luria (1981), put it,

In order to explain the highly complex forms of human consciousness one must go beyond the human organism. One must seek the origins of conscious activity . . . in the external processes of social life, in the social and historical forms of human existence. (p. 25)

This view stands in marked contrast to the strong individualistic assumptions that underlie the bulk of contemporary Western research in psychology (see Sarason, 1981, for a critique of these assumptions).

Vygotsky's claims about the analytic priority to be given to social processes were in evidence throughout his career as a

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psychologist (basically the decade before his death of tuberculosis in 1934). For example, in one of his first articles from this period he asserted that "the social dimension of consciousness is primary in time and in fact. The individual dimension of consciousness is derivative and secondary" (Vygotsky, 1979, p. 30). As Bruner (1962) noted, this aspect of Vygotsky's approach bears a striking resemblance to the ideas of George Herbert Mead. Its actual origins in Vygotsky's writings, however, seem to have been in the writings of Marx (Wertsch, 1985b) and in the ideas of the French psychiatrist and psychologist Pierre Janet (1928; also see van der Veer & Valsiner, 1988), who was in turn strongly influenced by the French sociological school of Emile Durkheim.

Perhaps the most useful general formulation of Vygotsky's claims about the social origins of individual mental functioning can be found in his "general genetic law of cultural development."

Any function in the child's cultural development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane. First it appears between people as an intersychological category, and then within the child as an intrapsychological category. This is equally true with regard to voluntary attention, logical memory, the formation of concepts, and the development of volition. . . . [I]t goes without saying that internalization transforms the process itself and changes its structure and functions. Social relations or relations among people genetically underlie all higher functions and their relationships. (Vygotsky, 1981b, p. 163)

There are several aspects of this statement worth noting. The first is that the notion of mental functioning it presupposes differs from that which is typically assumed in contemporary Western psychology. Instead of beginning with the assumption that mental functioning occurs first and foremost, if not only, within the individual, it assumes that one can speak equally appropriately of mental processes as occurring *between* people on the intermental<sup>1</sup> plane. Indeed, it gives analytic priority to such intermental functioning in that intramental functioning is viewed as being derivative, as emerging through the mastery and internalization of social processes.

This fundamental difference in orientation is clearly manifested in how terms are used. In contemporary usage terms such as *cognition*, *memory*, and *attention* are automatically assumed to apply exclusively to the individual. In order to use these terms when speaking of processes carried out on the social plane, some modifier must be attached. This is the source of recent terms such as *socially shared cognition* (Resnick, Levine, & Behrend, 1991), *socially distributed cognition* (Hutchins, 1991), and *collective memory* (Middleton, 1987). The need to use modifiers such as "socially shared" reflects the derivative, or nonbasic, status that mental functioning carried out on the social plane is assumed to have in contemporary paradigms.

In contrast to traditions in which individualistic assumptions are built into the very terms used to discuss psychological phenomena, Vygotsky's view was based in his claims about the social origins and "quasi-social nature" (Vygotsky, 1981b, p. 164) of intramental functioning. This orientation reflects an implicit rejection of the primacy given to individual functioning and to the seemingly neat distinction between social and

individual processes that characterize many contemporary approaches in psychology. In contrast to such approaches, Vygotsky viewed mental functioning as a kind of action (Wertsch, 1991) that may be carried out by individuals or by dyads and larger groups. Much like that of authors such as Bateson (1972) and Geertz (1973), therefore, his view is one in which mind is understood as "extending beyond the skin." Mind, cognition, memory, and so forth are understood not as attributes or properties of the individual, but as functions that may be carried out intermentally or intramentally.

Vygotsky's claims about the social origins of individual mental functioning surface in many ways throughout his writings. Two issues that have taken on particular importance in contemporary developmental psychology in the West are the "zone of proximal development" (Vygotsky, 1978, 1987) and "egocentric" and "inner speech" (Vygotsky, 1987). Each of these phenomena has taken on a sort of life of its own in the contemporary developmental literature, but from a Vygotskian perspective it is essential to remember how they are situated in an overall theoretical framework. In particular, it is important to remember that they are specific instances of more general claims about the social origins of individual mental functioning.

The zone of proximal development has recently received a great deal of attention in the West (e.g., Brown & Ferrara, 1985; Brown & French, 1979; Cole, 1985; Rogoff, 1990; Rogoff & Wertsch, 1984; Tharp & Gallimore, 1988). This zone is defined as the distance between a child's "actual developmental level as determined by independent problem solving" and the higher level of "potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86).

Vygotsky examined the implications of the zone of proximal development for the organization of instruction and for the assessment of intelligence. With regard to the former he argued that instruction should be tied more closely to the level of potential development than to the level of actual development; with regard to the latter he argued that measuring the level of potential development is just as important as measuring the actual developmental level. He used the following example to illustrate his ideas about assessment:

Imagine that we have examined two children and have determined that the mental age of both is seven years. This means that both children solve tasks accessible to seven-year-olds. However, when we attempt to push these children further in carrying out the tests, there turns out to be an essential difference between them. With the help of leading questions, examples, and demonstrations, one of them easily solves test items taken from two years above the child's level of [actual] development. The other solves test items that are only a half-year above his or her level of [actual] development. (Vygotsky, 1956, pp. 446-447)

Given this set of circumstances, Vygotsky (1956, p. 447) went on to pose the question, "Is the mental development of these two children the same?" In his view it was not:

<sup>1</sup> In this article we shall use the terms *intermental* and *intramental* rather than *interpsychological* and *intrapyschological*, respectively. This follows the translation practices established in Vygotsky (1987) and contrasts with those found in earlier translated texts (Vygotsky, 1978, 1981b). *Intermental* and *intramental* are translations of the Russian terms *interpsikhicheskii* and *intrapyskhicheskii*, respectively.

From the point of view of their independent activity they are equivalent, but from the point of view of their immediate potential development they are sharply different. That which the child turns out to be able to do with the help of an adult points us toward the zone of the child's proximal development. This means that with the help of this method, we can take stock not only of today's completed process of development, not only the cycles that are already concluded and done, not only the processes of maturation that are completed; we can also take stock of processes that are now in the state of coming into being, that are only ripening, or only developing. (Vygotsky, 1956, pp. 447-448)

In such analyses, it is essential to keep in mind that the actual and potential levels of development correspond with intramental and intermental functioning, respectively. By doing so one can avoid the temptation to view the zone of proximal development simply as a formulation for improving the assessment of individual mental functioning. Instead, it can be seen as having powerful implications for how one can *change* intermental, and hence intramental, functioning. This has been the key to intervention programs such as the "reciprocal teaching" outlined by Palincsar and Brown (1984, 1988).

As in the case of the zone of proximal development, Vygotsky's account of egocentric and inner speech reflects his more general concern with the sociocultural origins of individual mental functioning and has given rise to a spate of recent research (e.g., Berk, 1986; Berk & Garvin, 1984; Bivens & Berk, 1990; Bivens & Hagstrom, in press; Diaz & Berk, in press; Emerson, 1983; Goudena, 1987; Kohlberg, Yaeger, & Hjertholm, 1968; Wertsch, 1979a, 1979b, 1985b). Vygotsky claimed that inner speech enables humans to plan and regulate their action and derives from previous participation in verbal social interaction. Egocentric speech is "a [speech] form found in the transition from external to inner speech" (Vygotsky, 1934, p. 46). The appearance of egocentric speech, roughly at the age of 3, reflects the emergence of a new self-regulative function similar to that of inner speech. Its external form reflects the fact that the child has not fully differentiated this new speech function from the function of social contact and social interaction.

As was the case in his account of the zone of proximal development, Vygotsky's treatment of egocentric and inner speech is grounded in the assumptions spelled out in his general genetic law of cultural development. This is reflected at several points in his treatment. For example, let us turn once again to the terminology involved. Why did Vygotsky formulate his claims in terms of inner *speech* rather than in terms of *thinking*, *mental processes*, or some other commonly used label? The answer to this question lies in his assumptions about the social origins and quasi-social nature of intramental functioning. As was the case for other theorists in his milieu (e.g., Potebnya, 1922), Vygotsky's use of the term *speech* here reflects the fact that he viewed individual mental functioning as deriving essentially from the mastery and internalization of social processes.

Vygotsky's emphasis on the social origins of individual mental processes in this case emerges quite clearly in his analysis of the functions of language. He argued that "a sign is always originally a means used for social purposes, a means of influencing others, and only later becomes a means of influencing oneself" (Vygotsky, 1981b, p. 157). And focusing more specifically on the sign system of language, he argued that "the primary function of speech, both for the adult and for the child, is the function of

communication, social contact, influencing surrounding individuals" (Vygotsky, 1934, p. 45). With regard to egocentric and inner speech Vygotsky argued that because these forms derive from "communication, social contact, influencing surrounding individuals," it follows that they should reflect certain properties of their intermental precursors, properties such as a dialogic structure. This is precisely what he seems to have had in mind when he asserted that "egocentric speech . . . grows out of its social foundations by means of transferring social, collaborative forms of behavior to the sphere of the individual's psychological functioning" (Vygotsky, 1934, p. 45). Explications and extensions of this basic argument of how social, dialogic properties of speech characterize inner speech have been made by scholars such as Bibler (1975, 1981), Emerson (1983), and Wertsch (1980, 1985b, 1991).

### The Role of a Developmental Method

A second theme in Vygotsky's work that has made it attractive to contemporary Western psychology is his use of a developmental, or genetic, method. His reliance on this method is reflected in the very title of his "general genetic law of cultural development." The fact that the law is formulated in terms of developmental transitions reflects his assumption that the most adequate way to understand human mental functioning is to trace it back through the developmental changes it has undergone. In his view,

We need to concentrate not on the *product* of development but on the very *process* by which higher forms are established. . . . To encompass in research the process of a given thing's development in all its phases and changes—from birth to death—fundamentally means to discover its nature, its essence, for "it is only in movement that a body shows what it is." Thus, the historical [that is, in the broadest sense of "history"] study of behavior is not an auxiliary aspect of theoretical study, but rather forms its very base. (Vygotsky, 1978, pp. 64-65)

Vygotsky's account of a genetic method derived from several theoretical sources. For example, his debt to his contemporaries in psychology is reflected in the distinction he drew between description and explanation in psychology.

Following Lewin, we can apply [the] distinction between the phenotypic (descriptive) and genotypic (explanatory) viewpoints to psychology. By a developmental study of a problem, I mean the disclosure of its genesis, its causal dynamic basis. By phenotypic I mean the analysis that begins directly with an object's current features and manifestations. It is possible to furnish many examples from psychology where serious errors have been committed because these viewpoints have been confused. (Vygotsky, 1978, p. 62)

Unlike many contemporary developmental psychologists, Vygotsky did not limit the application of his genetic analysis to ontogenesis. Instead, he viewed ontogenesis as one of several "genetic domains" (Wertsch, 1985b) that must eventually be taken into consideration in order to provide an adequate account of human mental processes. In addition, he was concerned with phylogenesis, sociocultural history, and microgenesis (Wertsch, 1985b). In his view, an adequate account of human mental functioning could be derived only through

understanding how these various genetic domains operate within an integrated system.

Vygotsky posited that change in each genetic domain is associated with a distinct set of explanatory principles.

The use and "invention" of tools in humanlike apes crowns the organic development of behavior in evolution and paves the way for the transition of all development to take place along new paths. It creates the *basic psychological prerequisites for the historical development of behavior*. Labor and the associated development of human speech and other psychological signs with which primitives attempt to master their behavior, signify the beginning of the genuine cultural or historical development of behavior. Finally, in child development, along with processes of organic growth and maturation, a second line of development is clearly distinguished—the cultural growth of behavior. It is based on the mastery of devices and means of cultural behavior and thinking. (Vygotsky & Luria, 1930, pp. 3–4)

In this view it is misguided to reduce the account of change in one genetic domain to the principles invoked in connection with another, a point associated with Vygotsky's basic antirecruitmentist orientation (Wertsch, 1991).

Vygotsky was particularly interested in "revolutionary," as opposed to evolutionary, shifts in development. For example, in outlining his account of the form of genetic transition involved in phylogenesis, sociocultural history, and ontogenesis, he argued,

All three of these moments are symptoms of new epochs in the evolution of behavior and indications of a *change in the type of development itself*. In all three instances we have thereby selected turning points or critical steps in the development of behavior. We think that the turning point or critical moment in the behavior of apes is the use of tools; in the behavior of primitives it is labor and the use of psychological signs; in the behavior of the child it is the bifurcation of lines of development into natural-psychological and cultural-psychological development. (Vygotsky & Luria, 1930, p. 4)

The tenets of Vygotsky's developmental approach provided the basic methodological framework within which all other aspects of his analyses were formulated.

### Vygotsky's Uses of Culture

Up to this point our comments on the social origins and social nature of individual mental functioning have focused on a particular kind of social process. Specifically, we have concentrated on intermental functioning in the form of dyadic or small group processes and how it fits into Vygotsky's genetic analysis. This was a major focus of Vygotsky's thinking and certainly constitutes one of the ways in which mind may be said to extend beyond the skin in his approach. It has also been the concern of a great deal of Vygotsky-inspired research in contemporary Western psychology (e.g., Rogoff, 1990; Rogoff & Wertsch, 1984; Wertsch, 1979a).

There is a second, equally important sense, however, in which mental functioning may be said to extend beyond the skin in Vygotsky's writings, a sense that draws on his notion of culture. Mind extends beyond the skin in this second sense because human mental functioning, on the intramental as well as intermental plane, involves cultural tools, or mediational means. In contrast to the "unencumbered image of the self"

that is presupposed by so much of contemporary psychology (Taylor, 1985; Wertsch, 1991), Vygotsky's account of culture suggests that humans are never as autonomous and as free of outside interference as it might at first appear. Instead, human mental functioning, even when carried out by an individual acting in isolation, is inherently social, or sociocultural, in that it incorporates socially evolved and socially organized cultural tools.

The two senses in which mental functioning may be said to extend beyond the skin are analytically distinct and hence require the use of different theoretical and methodological categories. However, in concrete human action they are inextricably linked, a point that surfaces in many forms throughout Vygotsky's writings. For example, the relationship between intermental functioning and culture is outlined in his statement that

the word "social" when applied to our subject has great significance. Above all, in the widest sense of the word, it means that everything that is cultural is social. Culture is the product of social life and human social activity. That is why just by raising the question of the cultural development of behavior we are directly introducing the social plane of development. (Vygotsky, 1981b, p. 164)

From this statement one can see that Vygotsky understood culture as something that comes into concrete existence in social processes, and he viewed these social processes as providing the foundation for the emergence of individual mental processes. However, he did not assume that it is possible to reduce an account of culture to a set of principles that apply to intermental or intramental processes.

Despite the clear role that cultural tools played in Vygotsky's approach, his account of the more general category of culture is by no means well developed. Furthermore, the difficulties that arise in understanding his notion of culture are not primarily difficulties that can be resolved by correcting translations or by making more texts available. The fact is that even though the school of psychology he founded came to be called the cultural-historical school in the Soviet Union in the 1930s, neither Vygotsky nor his followers provided extensive accounts of the notion of culture.<sup>2</sup>

An explication of Vygotsky's notion of culture must be based on an analysis of the role that culture played in his overall theoretical system. In this system Vygotsky gave the idea of mediation analytic priority over the notion of culture (as well as other themes, see Wertsch, 1985b). Indeed, his analysis of culture is part of his attempt to elaborate the notion of mediation. In his view, a criterial feature of human action is that it is mediated by tools ("technical tools") and signs ("psychological tools"). His primary concern was with the latter (what we are here calling "cultural tools"), and for that reason we shall focus primarily on "semiotic mediation."

Basic to this perspective is Vygotsky's insight that the inclusion of psychological, or cultural, tools into human functioning fundamentally transforms this functioning. The incorporation

<sup>2</sup> The second part of the term *cultural-historical* has had better luck, notably in Scribner's (1985) analysis of "Vygotsky's Uses of History," from which we borrowed to formulate the title of the present section.

of mediational means does not simply facilitate processes that would otherwise have occurred. Instead,

by being included in the process of behavior, the psychological tool alters the entire flow and structure of mental functions. It does this by determining the structure of a new instrumental act, just as a technical tool alters the process of a natural adaptation by determining the form of labor operations. (Vygotsky, 1981c, p. 137)

According to Vygotsky (1981c),

The following can serve as examples of psychological tools and their complex systems: language; various systems for counting; mnemonic techniques; algebraic symbol systems; works of art; writing; schemes, diagrams, maps, and mechanical drawings; all sorts of conventional signs; and so on. (p. 137)

In all cases, these are mediational means that are the products of sociocultural evolution and are appropriated by groups or individuals as they carry out mental functioning.

Vygotsky's tendency to approach the notion of culture via his account of mediation reflects the fact that he understood culture in terms of sign systems, an understanding that has been considerably elaborated in more recent Soviet cultural analyses (e.g., Lotman, 1973; Lotman & Uspensky, 1978). Vygotsky's semiotic view of culture probably derives from the work of Saussure, which was very influential among Russian linguists in the 1920s (see Matejka, 1973; Voloshinov, 1973). As was the case for Saussure, Vygotsky was primarily interested in one sign system, language. In his studies he focused on psychological processes that make use of natural language and on systems built on natural language—above all, prose and poetry (cf. Vygotsky, 1971). At the same time, he showed a continuing interest in the use of nonverbal signs. For example, he often drew on examples having to do with the use of sign systems from traditional societies, such as tying knots to organize memory, and he was involved in A. N. Leont'ev's (1931) early research on children's and adults' use of pictures to assist performance in memory tasks (see Vygotsky, 1978).

Vygotsky was quite familiar with the general theories of culture that were being developed in his time by scholars in sociology, anthropology, and other disciplines. However, he chose not to incorporate them into his writings in any major way. Indeed, he firmly rejected the basic assumptions of the British evolutionary anthropologists that laws of individual mental functioning (i.e., laws of association) were adequate for explaining the historical development of culture, human behavior, and human thinking. Instead of assuming that human mental functioning remains basically the same across historical epochs, he argued that

culture creates special forms of behavior, changes the functioning of mind, constructs new stories in the developing system of human behavior. . . . In the course of historical development, social humans change the ways and means of their behavior, transform their natural premises and functions, elaborate and create new, specifically cultural forms of behavior. (Vygotsky, 1983a, pp. 29–30)

On the issue of the relation between culture and language, Vygotsky's views are quite close to those of the French sociological school of Durkheim (but see Tulviste, 1991, on their differ-

ences), and on the issue of the qualitative changes in thinking that occur in the course of historical development, he had much in common with the views of Levy-Bruhl (1923; also see Tulviste, 1987). Furthermore, he often turned to the work of Thurnwald, but this was mainly to find examples of how signs are used in "primitive" cultures or to find support for his claim that changes in humans during sociocultural history are not attributable to changes in brain structure but to changes in other aspects of higher mental processes. Throughout all of his work, however, there is little evidence of any major interest on Vygotsky's part in the general theories of culture being elaborated by evolutionists, French sociologists, or cultural relativists. To the extent that he drew on them, he did so in connection with his interest in the cultural tools used to mediate intermental and intramental functioning.

A first major fact about Vygotsky's notion of culture, then, is that it was motivated primarily by a concern with semiotic mediation and its role in human mental functioning. A second fact is that he held strongly to an evolutionist account of culture (one that was heavily influenced by figures such as Marx, Spencer [1900], and Tylor [1888]). In line with his mediation-based approach to culture, this fact was manifested in his comments on mediational means. These means were viewed as being capable of supporting more "rudimentary" and advanced levels of intermental and intramental functioning. A correlate of this was Vygotsky's concern with more and less developed cultures, primitive and modern cultures, people, minds, and so forth.

This evolutionist approach to culture, which contrasts with approaches being outlined at the time by Boas (1966) and Sapir (1921), carries with it some intellectual baggage that is not widely accepted today. For example, as van der Veer and Valsiner (in press) have noted, it reflects a kind of ethnocentric perspective, namely a Eurocentrism, that makes it difficult to interpret some of the most interesting findings generated by cross-cultural studies.

The issue here is not so much the terminology, which was commonplace in his time (Tulviste, 1991; van der Veer & Valsiner, in press), but rather the fact that Vygotsky clearly regarded some cultures as inferior to others. It must be recognized that he believed people in all cultures to be capable of, and indeed in need of, developing. For instance, he argued that education in Soviet Russia should aim at turning all children into "supermen" or "new [Soviet] men." The notion of a superman was of course borrowed from Nietzsche, but in Vygotsky's view, cultural, rather than biological, factors were capable of creating this new kind of human (Vygotsky, 1930).

In addition to their role in the ideological framework within which Vygotsky was operating, his evolutionist ideas were manifested in concrete ways in his empirical research. This is most apparent in his account of conceptual development. As Wertsch (1985b) noted, the "decontextualization of mediational means" (p. 33) serves as a kind of developmental metric in Vygotsky's analysis of sociocultural history and of ontogenesis. While arguing that all humans share a capacity to use language in a variety of ways, Vygotsky's assumption was that only more advanced groups had taken the evolutionary step necessary to use words in abstract, decontextualized ways. This assumption underlay several studies conducted by Luria (1976) in

the 1930s in Soviet Central Asia that compared the performance of various cultural groups.

Vygotsky and Luria tended to interpret the results of these studies in terms of whether subjects were from primitive or advanced societies. They proceeded on the assumption that it is possible to characterize individuals and groups generally in terms of whether they use “scientific” versus “everyday” concepts (Vygotsky, 1987), rely on “abstract” versus “situational” thinking (Luria, 1976), and so forth. This is entirely consistent with Vygotsky’s evolutionist approach to culture, according to which it is possible to rank cultures on some kind of scale from lower to higher.

In reanalyzing and extending the studies by Luria, authors such as Scribner and Cole (1981) and Tulviste (1986, 1991) argued that it is more accurate to interpret subjects’ performance in these studies in terms of the demands of particular task settings than in terms of the general level of subjects’ mental functioning or of a culture. Specifically, they demonstrated that the kinds of differences documented in subjects’ performances are primarily attributable to differences in experience with the activity of a particular institutional setting, formal schooling. This is the crux of Scribner and Cole’s (1981) “practice account of literacy” (p. 235). According to this account, subjects’ exposure to the patterns of speaking and reasoning in formal instructional settings gives rise to a particular set of discourse and cognitive skills. Instead of assuming that these skills represent a general measure by which one can classify individuals and groups, Scribner and Cole emphasized that they are a particular form of skill associated with a particular form of literacy practice. The form of activity here contrasts, for example, with literacy practices, such as memorizing religious texts, that were found to be associated with other cognitive skills.

Tulviste (1986, 1991) developed a related set of claims in his analysis of the “heterogeneity” of activities in which humans participate. Drawing on the ideas of Vygotsky and Vygotsky’s student A. N. Leont’ev (1959, 1981), Tulviste outlined an analysis of “activity relativity” that parallels the ideas about linguistic relativity proposed by the American linguistic anthropologist Whorf (1956). As with Scribner and Cole (1981), a major point of Tulviste’s account is that rather than viewing forms and levels of human mental functioning as some kind of general, immutable property of individuals or groups, the key to understanding their mental processes lies in the activity settings in which they are required to function. Furthermore, given the heterogeneity of such settings, we should anticipate a heterogeneity of forms of situationally specific mental processes.

The roots of this explication and extension of Vygotsky’s ideas are to be found in the writings of Vygotsky himself. His claims about the situational specificity of mental functioning began to emerge only in the last years of his career, but they are clearly manifested in the differences between Chapters 5 and 6 of *Thinking and Speech* (Vygotsky, 1987). Both chapters deal with the ontogenetic transition from “complexes” to “genuine,” or “scientific,” concepts. They differ, however, in what Vygotsky sees as relevant developmental forces. In Chapter 5 (based on research with Shif [1935] and written in the early 1930s), concept development is treated primarily in terms of intramental processes, that is, children’s conceptual develop-

ment as they move from “unorganized heaps” to “complexes” to “concepts.”

In Chapter 6 (written in 1934) there is an essential shift in the way Vygotsky approached these issues. He clearly continued to be interested in intramental functioning, but he shifted to approaching concept development from the perspective of how it emerges in particular spheres of socioculturally situated activity. Specifically, he was concerned with how the forms of teacher–student intermental functioning encountered in the institutional setting of formal schooling provide a framework for the development of conceptual thinking.

This shift in Vygotsky’s focus is an essential shift for two reasons. First, it was a move toward analyzing conceptual thinking in terms of its intermental precursors. This of course is in line with the argument he had used all along in connection with issues such as inner speech, and it follows naturally from his general genetic law of cultural development. Second, and more important for our purposes, it was a move toward recognizing that an account of the social origins of intramental functioning cannot stop with the intermental plane. Instead, the point is that the forms of mediated intermental functioning involved must themselves be recognized as being socioculturally situated with respect to activity settings and associated mediational means.

This transition in Vygotsky’s thinking is important because it indicates a direction he was beginning to consider which, among other things, suggests a way out of the quandary of Eurocentrism. It suggests that instead of viewing particular forms of mental functioning as characterizing individuals or groups in a general way, these forms can be viewed as being characteristic of specific settings. As Tulviste (1991) noted, then, it follows that because individuals and groups are exposed to varieties of activity settings, we can expect them to master a heterogeneous set of mediational means and hence a heterogeneous set of mental processes.

## Problems and Prospects

There is little doubt that the renewed interest in Vygotsky’s writings has had a powerful and positive influence on contemporary studies in developmental psychology. However, this by no means should be taken to indicate that there are no weaknesses in his approach or that revision and extension are not in order. In this final section, we touch on a few of these weaknesses and outline some ways in which they can be addressed.

The first of these concerns Vygotsky’s Eurocentrism. In our opinion, Vygotsky made some major contributions to the discussion of historical differences in mental functioning, an issue that has seldom been addressed satisfactorily in psychology since his time. However, we believe that he tended to use the notion of a developmental hierarchy too broadly when trying to interpret differences in mental functioning. The result was a view in which modern European cultural tools and forms of mental functioning were assumed to be generally superior to the tools and functioning of other peoples. In many instances we believe it is more appropriate to view differences in terms of coexisting but qualitatively distinct ways of approaching a problem rather than as more or less advanced general levels of mental functioning.

As we noted in the preceding section, there are indications that Vygotsky was moving away from a view in which forms of mental functioning are viewed as properties that characterize the general level of individuals' and groups' functioning. In its place he seems to have been suggesting that particular forms of mental functioning are associated with particular institutionally situated activities. An implication of this is that it is more appropriate to characterize the mental functioning of individuals in terms of heterogeneity (Tulviste, 1986, 1991) or a "cultural tool kit" (Wertsch, 1991) of mental processes rather than in terms of a single, general level. This has been the focus of research directly motivated by Vygotsky's writings (e.g., *Laboratory of Comparative Human Cognition*, 1983; Tulviste, 1991; Wertsch, 1991) as well as of research only indirectly motivated by Vygotsky's ideas (Gardner, 1983).

Reformulating mental functioning in terms of heterogeneity and cultural tool kits helps avoid the often ungrounded assumption that various individuals or groups can generally be ranked as inferior or superior to others. However, it still leaves unresolved the issue of what role developmental progression plays in mental processes. There is little doubt in most people's minds that there has been historical progress in at least certain forms of activities and the mental processes (e.g., reasoning) associated with them. For example, if one considers scientific knowledge about electricity, there is little doubt that the past two centuries have witnessed significant progress. It follows that *within specific domains of knowledge*, certain activities, cultural tools, and forms of reasoning may be more advanced than others. One of the major challenges of a Vygotskian approach, then, is how to capture such facts about developmental progression without falling prey to ungrounded assumptions about the general superiority or inferiority of individuals or groups.

A second major issue in Vygotsky's approach that will require further attention emerges in his account of the ontogenetic domain. In formulating his notion of this domain, he argued that two lines of development—the cultural line and the natural line—come into contact and transform one another.

The growth of the normal child into civilization usually involves a fusion with the processes of organic maturation. Both planes of development—the natural and the cultural—coincide and mingle with one another. The two lines of change interpenetrate one another and essentially form a single line of sociobiological formation of the child's personality. (Vygotsky, 1960, p. 47)

Although this general formulation continues to make a great deal of sense, the fact is that Vygotsky said very little and was quite unclear about the natural line of development. At some points he spoke of "organic growth and maturation" (Vygotsky & Luria, 1930, p. 4) when dealing with this line of development. This could refer to everything from the emergence of sensory abilities to motor skills to neurological development, but he did not specify which. In other places he seems to have been concerned with developmental changes that are not attributable directly to organic maturation on the one hand but are not cultural by his definition on the other. For example, he sometimes referred to changes in young children's abilities to use primitive tools, such as those outlined by Piaget (1952) in his account of the sensorimotor development having to do with new means to old ends.

Furthermore, Vygotsky said almost nothing about how the "elementary mental functioning" that grows out of the natural line of development might influence the "higher mental functioning" that derives from the mastery of cultural tools. Instead, he focused almost exclusively on ways in which cultural forces transform the natural line of development. In accordance with such a view, the natural line provides a kind of raw material whose fate is to be transformed by cultural forces.

A further problem with Vygotsky's account of the natural and cultural lines in ontogenesis is that he viewed these lines as operating quite independently of one another during early phases of life. Since the time he made these claims, investigators such as Piaget (1952), Bower (1974), and Bruner (1976) have made major research advances that bring this assumption into question, and some of Vygotsky's own followers have taken a critical stance toward it. In reviewing Vygotsky's theoretical approach, A. N. Leont'ev and Luria noted that "after all, even in children at the very earliest ages mental processes are being formed under the influence of verbal social interaction with adults who surround them" (1956, p. 7).

Vygotsky's relatively unsophisticated view of the natural line of development can be traced largely to the dearth of theoretical and empirical research on infants available in the early decades of the twentieth century. However, it also reflects another problematic assumption that underlay his work. This is the assumption that the primary force of development comes from outside the individual. Whereas one of the reasons for Vygotsky's renewed influence in contemporary psychology is that his ideas provide a corrective to the tendency to isolate individuals from their sociocultural milieu, passages such as the following might seem to suggest that ontogenesis is solely a function of the environment and leaves little room to consider the role of the active individual.

The environment appears in child development, namely in the development of personality and specific human qualities, in the role of the source of development. Hence the environment here plays the role not of the situation of development, but of its source. (Vygotsky, 1934, p. 113)

Such passages in Vygotsky's writings seem to suggest that social and cultural processes almost mechanically determine individual processes. This view minimizes the contributions made by the active individual. Among other things, it raises the question of how individuals are capable of introducing innovation and creativity into the system.

It is clear that Vygotsky has often been read in ways that make this a major problem. However, we believe that several points in his theoretical approach contradict such a reading. For the most part, these points do not emerge in the form of explicit counterstatements; instead, they surface in the assumptions about human action that underlie the entire framework of Vygotsky's approach. As we have stressed throughout this article, the notion of mediation by cultural tools plays a central role in his approach. This applies nowhere more forcefully than in his account of action. The basic form of action that Vygotsky envisioned was *mediated action* (Wertsch, 1991; Zinchenko, 1985). Such action inherently involves cultural tools, and these tools fundamentally shape it. However, this does not mean that such action can be reduced to or mechanically determined

by these tools and hence by the more general sociocultural setting. Instead, such action always involves an inherent tension between the mediational means and the individual or individuals using them in unique, concrete instances.

In such an approach one cannot derive an adequate account of mediated action by focusing either on the mediational means or on the individual or individuals initiating and carrying out action in isolation. Instead, both components are inherently involved in such a way that agency is defined as "individual(s)-operating-with-mediational-means" (Wertsch, 1991; Wertsch, Tulviste, & Hagstrom, in press). This account allows for innovation because each concrete use of mediational means by individuals involves some differences from other uses. Indeed, the individual use may vary quite radically from previous uses. On the other hand, however, mediated action is always constrained in certain fundamental ways by the fact that existing cultural tools are used. As a result, any creativity that occurs involves the transformation of an existing pattern of action, a new use for an old tool.

It is possible to trace the implications of this claim more concretely as they relate to semiotic mediation by considering the ideas of some of Vygotsky's contemporaries. In particular, the ideas of the Soviet philosopher, semiotician, and literary scholar M. M. Bakhtin (1981, 1984, 1986) on "voice" and "dialogicality" complement those of Vygotsky in many important respects. In Bakhtin's view, speaking always involves a concrete individual in a unique setting using language tools provided by others to create utterances. As outlined by Wertsch (1991), such ideas provide concrete ways for exploring the Vygotskian account of agency as individual(s)-operating-with-mediational-means.

Such analyses should not be taken to suggest, however, that the issue of mediated action has been adequately addressed in the Vygotskian literature. Major attention has been given to the issue of action in Soviet theories of activity (e.g., A. N. Leont'ev, 1959, 1975; Rubinshtein, 1957), and there are complementary ideas to be found in the writings of authors such as Bakhtin. In general, however, it is only recently that the notion of mediated action has been explored in detail in connection with Vygotsky's writings (Wertsch, 1991; Zinchenko, 1985).

The presentation and critique of Vygotsky we have outlined in this article should by no means be assumed to be exhaustive. Much more in the way of background and interpretation can be obtained by consulting the publications we listed in the first section of our article. Furthermore, one should not assume that our interpretation and critique of Vygotsky's ideas are uncontested. Although there is widespread agreement that Vygotsky's ideas are extremely rich and have major implications for contemporary research in developmental psychology, there are also major differences among authors over how these ideas should be understood and applied. Perhaps the one thing that is clear to all, however, is that Vygotsky's writings are of more than historical concern. They are capable of providing the basis for major reformulations in developmental psychology today and hence are again proving their merit as classic texts.

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