Vygotsky's mediational psychology: A new conceptualization of culture, signification and metaphor

Habibollah Ghassemzadeh

Department of Psychiatry, Roozbeh Hospital, Tehran University of Medical Sciences, Kargar Avenue, Tehran 13185, Iran

Abstract

The idea of mediation of elementary mental functions by "psychological tools" or "signs" was introduced and formulated by Vygotsky. The main purpose of this paper is to review some of the important aspects of Vygotsky's mediational/semiotic psychology as they relate to the concepts of signalling, signification, and culture. It has been suggested that as a matrix reflecting many aspects of life, culture "creates special forms of behavior, modifies the activity of mental functions and adds new stories to the developing system of human behavior." Culture regulates behavior through generating some "models" which may be reflected in different modes of representations as folk models and metaphors.
© 2005 Elsevier Ltd. All rights reserved.

Keywords: Mediation; Signs; Signification; Culture; Cultural models; Metaphor

1. Introduction

In his book *Theories of Development*, Jonas Langer (1969) has discussed different theories of development under three general developmental perspectives which

E-mail address: hghasemzadeh@yahoo.com

provide a comprehensive picture of the state of the art of that time, and may be regarded as a framework for further work in this area. The perspectives which he regarded as the three main streams of thought on psychological development were the *psychoanalytic* (e.g. Freud, Erickson), the *organic lamp* (e.g. Werner, Piaget), and the *mechanical mirror* (e.g. Sears, Bandura). He put the Vygotskian perspective on development in the mechanical mirror category, indicating that "central to the mechanical mirror conception of growth is the *environmentalistic* assumption that the source of all psychological phenomena is the stimulation from the external world" (Langer, 1969, p. 52). It is not intended here to evaluate the validity, precision and usefulness of such a classification or its implications, but there is one semi-Vygotskian thesis implied in Langer's characterization of the mechanical mirror perspective and that is "man grows to be what he/she is made to be by his/her environment" (p. 4). But what is environment? Isn't it made by man himself/herself? If we accept the latter point, then we may conclude that man grows to be what he/she is made to be himself/herself. The whole story of Vygotsky may be seen as a methodological, theoretical as well as experimental explanation of this feedback (environment–person) and feedforward (person–environment) process.

2. What is environment?

Environment has been defined as "the individual's life-space; from the psychological viewpoint, the totality of stimuli affecting an individual from the point of fusion of sperm and ovum to the point of death" (Eysenck et al., 1975). But for Vygotsky the environment was taken to mean "the socially organized world of culture created by the individual who developed, in the process, his latent forces and abilities" (Yaroshevsky, 1989, p. 19). The characterization of environment as "*the socially organized world of culture created by the individual*" makes the environment an emergent concept, which arises as a person acts upon his/her surrounding conditions. Environment, for Vygotsky therefore is not considered to be an absolute and immutable concept which is already present when the child is born, but a factor, or rather a set of factors, which vary according to the peculiarities of the organism (e.g. the developmental stage of the child) and which possess some regulations that can be internalized according to a transformational and developmental system. In other words, it is *social*. In Vygotsky's formulation: "the essential difference between the child's environment and the animal's environment is that the human environment is a *social* environment, that the child is part of a living environment, that the environment is never external to the child" (cited in Van Der Veer, 1986, p. 529). Environment, then, is a dynamic concept in Vygotskian perspective and changes as the child changes, and the child changes as the environment changes. We may consider this developmental aspect as the core characteristic of any integrative function in the living organism, in general and in human being in particular (Ghassemzadeh, 1992, 1994).

The developmental process according to Vygotsky does not follow a continuous and linear trend—which according to Langer (1969) is a characteristic of the

mechanical mirror theory—but undergoes a series of radical changes reflecting a non-linear trend and a transition from what he called ''natural'' and ''unmediated'' to ''cultural'' and ''mediated'' psychological processes (e.g. Vygotsky, 1929, p. 417).

3. Vygotsky's mediational psychology

The starting point of Vygotsky's developmental theory is considered to be his idea of the *mediation* of elementary (natural) mental functions by ''psychological tools'' (Aidman and Leontiev, 1991; Davydov and Radzikhovskii, 1985; Garton, 1992; Karpov and Haywood, 1998; Kozulin, 1986, 1990a,b; Newman and Holzman, 1993; Robbins, 2001; Vygotsky, 1966; Wertsch, 1985; Wertsch and Tulviste, 1996; Zinchenko, 1985). According to Vygotsky, human higher mental functions must be viewed as products of *mediated* activity. The role of mediator is played by *psychological tools* and means of interpersonal communication. Like material tools, psychological tools are artificial formations. Both are naturally social but while material tools are aimed at the control over processes in nature, psychological tools master natural forms of individual behavior and cognition. Psychological tools have mostly a *semantic* nature, and are internally oriented, transforming the natural human abilities and skills into higher mental functions (Kozulin, 1988, p. xxv).

According to Vygotsky the source of mediation is either in a material tool in a system of symbols or in the behavior of another human being. He paid particular attention to semiotic mediators, from simple signs to complex semiotic system such as works of literature, which act as ''psychological tools'' in transforming natural impulses into higher mental processes (Kozulin, 1990c, pp. 114–5).

3.1. Mediation through sign systems

Every elementary form of behavior presupposes a *direct* reaction to the task with which the organism is confronted (which can be expressed by the simple *S–R* formula). This kind of behavior may be called the natural behavior. But the structure of sign operations requires an intermediate link between the stimulus and the response. This intermediate link is a *second order* stimulus (sign) that is *drawn into* the operation when it fulfills a special function; it creates a new relation between *S* and *R*. Vygotsky (1978) uses the term ''drawn into'' to indicate that an individual must be *actively engaged* in establishing such a link. This sign also possesses the important characteristic of reverse action that is, it operates on the individual, not the environment (p. 39).

Vygotsky's use of 'sign', as has been explained in *Mind and Society* (1978), is mostly psycho-historical in nature, but it is indeed comparable to the symbolic sign in a Piercean classification of signs, as has been articulated by Kondratov (1969). Three types of signs have been generally distinguished in this system: (1) indexical or ''natural'' signs based on sequential or causal connection to their objects, e.g. smoke is an indexical sign of fire; (2) iconic or copy signs based on resemblance, e.g. a picture of a tree is an iconic sign of a tree; (3) symbolic signs which are

arbitrary and most importantly require the active presence of an "interpretant" to make the signifying connection. The third type includes signals of communication or conventional signs. They are an instance of signs in the narrow sense of the word.

Vygotsky's use of 'sign' or 'sign system' consists of the third type of signals, in which any sign possesses an informational value and the perceiver of the sign can make a prediction based on such information. The signal (!) has nothing in common with the concept of "danger" yet we understand it as a sign of danger. When someone uses mnemonic technique, he/she, as a matter of fact, in a way, controls his/her behavior and the fact that this technique may be as simple as a knot tied to a finger or a written note or a piece of poetry makes the nature and function of the relation of a person with the environment more instrumental and complicated. Consequently, as Vygotsky asserts, the simple stimulus-response is replaced by a complex, mediated act, which can be pictured as follows:
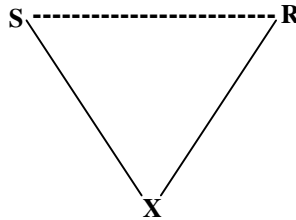
The response (R) is not a direct reaction to the stimulus (S), but it is affected by a mediator (X). In this new process the direct impulse to react is inhibited, and an auxiliary stimulus that facilitates the completion of the operation by indirect means, is incorporated (Vygotsky, 1978, p. 40).

Vygotsky understood the genesis of signs as a process of internalizing the means of social communication, emphasizing the importance of social aspect as the initial starting point of semiotics. "Thus, the sign initially acts as a means of social connection in the behavior of the child, as an intermental function; subsequently it becomes a means of controlling his/her own behavior and he/she just transfers the social relation to a subject inward into his personality" (Vygotsky, 1999, p. 41). The idea of mediation of elementary mental function by sign system has the following implications:

1. If one accepts that the higher mental functions arise on the foundation of lower ones through the mediation mechanism, then it would be possible to explain some of properties of these higher functions through the analysis of psychological tools (i.e. signs).
2. The idea of mediation makes it possible to view mental functions in the course of their genesis (ontogenesis as well as phylogenesis). In a non-mediational perspective everything must be viewed as "a" then "b", but in mediational perspective "b" relates to "a" through a link or mechanism which is mostly outside of "a"

and "b", but may be incorporated in both "a" and "b". Integration or "beyondism", therefore, methodologically replaces reductionism.

3. Vygotsky believed that initially psychological tools are directed "externally" toward a partner. Subsequently they turn in "on themselves", that is, they become a means of controlling one's own mental process. Further, they become internal (i.e. they "go underground"). Mental functions are then mediated "from within". The necessity for using an external stimulus—means disappears. Vygotsky (1929) referred to this entire process as the complete circle of cultural–historical development of mental functions in ontogenesis. It provides the key to explicating the process of internalization.

4. For Vygotsky, a sign is a symbol with a definite meaning that has evolved in the history of mankind to fulfill the role of psychological tools. Therefore, psychological functions possess a kind of semiotic nature on the one hand, and historical–cultural on the other. The idea of the sign as a psychological tool in Vygotsky's theory is one of the most successful examples of the application of semiotic ideas in psychology. This is frequently seen as the basic merit and result of Vygotsky's research as a psychologist (Davydov and Radzikhovskii, 1985, p. 54).

5. The development of psychological functions in man, therefore, possesses a semiotic nature which leads to a level of *decontextualization* (e.g. Wertsch, 1985, p. 217). Williams (1983) has related this peculiarity of signs to the verbal aspect of this system—as opposes to nonverbal sign system—which makes it indifferent to the material of the signs that composed them.

Although verbal sign systems are logically subsequent to nonverbal sign systems and are always related to them, they enjoy a certain degree of independence. A verbal sign system incorporates three levels of abstraction: (1) abstraction from the immediacy of need satisfaction; (2) abstraction from the use of a particular artifact to the use of that artifact in general; and (3) abstraction from the material of sign itself (Williams, 1983, pp. 363–4). This kind of independence allows the psychological functions based on (verbal) sign systems to be decontextualized. But the psychological functions are *contextualized* in that they have evolved in the true social and cultural contexts in the course of history (Leontiev, 1978, 1981).

Therefore, the dichotomy of *contextualized–decontextualized* becomes one of the issues in the mediational psychology of Vygotsky. In dealing with this somewhat paradoxical situation, Vygotsky introduces his *experimental–developmental approach* (Vygotsky, 1962, 1978) toward methodology. He believes that any psychological function must be studied historically, and adds that "to study something historically means to study it in the process of change" (1978, pp. 64–5). And the process of change has within itself the implication of contextualization as well as decontextualization. It is contextualized because it depends on concrete conditions and is bound to a given situation. It is decontextualized because it goes beyond any situation and creates its own regularities. As a matter of fact, when Vygotsky cites Blonsky's statement that "behavior can be understood only as the history of behavior" (Vygotsky, 1978, p. 65), he refers to this aspect of change process. One of the salient aspects of the dichotomy may be found in the ontogeny of spontaneous vs. scientific concepts.

As Vygotsky (1962, 1986) has shown, the concepts, in the course of development, move to a greater degree of decontexualization i.e. a separation from the situational variables and incidental impressions.

In sum, we may conclude that the sign as a psychological tool made it possible for Vygotsky to transform the two–part scheme for the analysis of behavior into a three-part scheme, introducing the "psychological tool" or "sign" as an intervening link:

$$S \text{ —————— } \text{Sign System} \text{ —————— } R$$

One of the most important implications of this formula is that the response is not dependent directly on stimulus but on the peculiarities of the sign system as well. The inclusion of the sign system in this formula gives some characteristics to behavior which are absent in *S–R* formula. Most importantly, the system makes the environment–organism interaction an information-oriented system of semiotics. Therefore for an understanding of behavior, one has to understand the nature, mechanisms and the genesis of this semiotic system. Moving in this direction Vygotsky (1966) introduces a new property of sign, namely *signification*.

3.2. Signification vs. signalling

For the purpose of understanding the meaning of *signification* in Vygotsky's usage, we have to deal with the concept of the sign as it has evolved in the Soviet tradition of psychology. According to Pavlov the main and most common activity of the hemispheres of the brain is signalling activity, with an infinite number of signals and with a variable mode of signalling (Pavlov, 1960, pp. 1–15).

This signalling reflects the natural links between phenomena grasped by the brain in accordance with the organism's need to survive in a variable environment. But the main function of sign in a Vygotskian perspective is to stimulate behavior, to form new reflex connections in the human brain. In fact, most of the psychological functions are signs, in their very nature and function, i.e. the *artificially* created stimuli whose purpose is to stimulate behavior according to a new learned system of adaptation (Vygotsky, 1966). Vygotsky's use of sign, therefore, is a special kind of sign, which may be called a *cultural sign*. In this new formulation, in place of signalling, a new principle was introduced, that of *signification*. Signification means creation and use of signs (Vygotsky, 1966, p. 27). The principle consists in the fact that "man creates association in the brain from the outside, controls the brain and, through the brain his/her body" (Yaroshevsky, 1989, pp. 251–2). Taking up Pavlov's comparison of the brain to an immense switchboard, an apparatus intended to close temporary associations, Vygotsky adds his own metaphor to this comparison: "man creates a key to that switchboard with the aid of that key, he masters the activity of the cortex and controls his/her behavior" (cited in Yaroshevsky, 1989, p. 252).

Pavlov regarded the word as a special kind of irritant (second signal) which distinguishes man from animal and introduces a new regulative principle in his/her behavior. According to Pavlov, the word signals all the external and inner excitations that come to the cerebral hemispheres. It replaces these signals and is therefore a "signal of signals". But for Vygotsky the word was a *cultural sign*, which introduces a completely new type of regulation of behavior in man (Deleau, 1989).

Vygotsky's important innovation in this regard is the assertion of the signification principal in place of signalling, and the cultural sign concept in place of signal. It becomes clear that for Vygotsky sign means a psychological tool, which encompasses not only the mechanisms which have been established by Pavlov's experiments, but includes the cultural aspect of behavior. The cultural sign concept developed by Vygotsky was an important contribution not only to psychology, but also to semiotics, or the science of signs. Literature, poetry and art in general become the most important irrigant of behavior, and the brain was introduced as an integrative processing system which works at different levels and with different plans and representational modes including propositional, analogical, and procedural properties (cf. Johnson-Laird, 1985; Rumelhart and Norman, 1985).

4. Signification, mediation, and culture

Vygotsky's (1966) definition of signs as "artificially created stimuli whose purpose is to stimulate behavior, to form new reflex connections in the human brain" (p. 29) brings us very close to the concept of culture. The gist of Vygotsky's perspective is that man determines his/her own relation with the aid of an artificial stimulus system, i.e. a sign system. The artificial stimuli such as the casting of lots, tying a knot to remember something, and writing down the things all have evolved in the history of mankind and all act as aids to mastery of one's own reactions.

The historical study of the relation of man and nature reveals the fact that nature acts on man on the one hand and man acts on nature, on the other. As Engels (1976) has pointed out it is in the process of the alteration of nature by men (through some tools) that man's own nature changes. And it is in the course of these changes that higher psychological functions (verbal thinking, logical memory, inferential reasoning, voluntary attention, etc.) develop. Culture, in a sense, is the product of such a changing process. But the main point is that culture, generally speaking, does not produce anything new apart from that which is given by nature. It *transforms* nature to suit the ends of men. This same *transformation* occurs in the cultural development of behavior. It also consists of inner changes in what was given by nature in the course of natural development of behavior (Vygotsky, 1929, p. 418). Based on such an assumption, Vygotsky concluded that "human behavior differs from the behavior of animals in the same qualitative manner as the entire type of adaptation and historical development of man differs from the adaptation and development of animals, because the process of man's development is part of the general process of man's historical development. We are thereby compelled to seek and find a new methodological formula for psychological experiment" (1966, p. 23). Some aspects of this

methodological formula has been explained in the first chapter of *Thought and Language* (Vygotsky, 1962, 1987; Vygotsky, 1988).

4.1. Culture and the regulation of behavior

One of the most important psychological aspects of sign systems is their controlling effect on human behavior. Man in a way has been aware through history that he/she cannot govern his/her own behavior directly and has been compelled to create a system—a sign system such as mnemonic devices, speech, or writing—in order to deal with it in an indirect way. The creation and evolution of such systems has brought with itself three important new dimensions to the psychological functions of man. First, through such systems humans have characterized their outer environment using descriptions, formulations and explanations—which are mostly expressed in a symbolic laws, rules and hypotheses.

Second, along with these formulations and explanations an inner world has evolved in the history of mankind which is closely related to the outer world and at the same time goes beyond the reality. Third, these two and interrelated aspects of life have produced an emergent peculiarity which deals with the processes of feedback and feedforward and which may be called the regulative function of the sign system. Culture which is, in a way, a product of these transactions, assumes the form of an evolving and organizing pattern of "instructions" or "scripts" which controls the "controlling system" of individuals in a society. Culture, which is a product of human behavior, then becomes the regulator of human behavior. And this may be one of the most important implications of Vygotskian perspective on culture and cultural development.

Vygotsky (1966) formulates his general genetic law of cultural development as follows; "any function in the child's cultural development appears on the stage twice, on two planes, first on the social plane and then on the psychological, first among people as an intermental category and then within the child as an intramental category" (p. 44). And then Vygotsky pursues the history of the child's cultural development as a "sociogenesis of the higher forms of behavior" (p. 45). This means for Vygotsky that any higher psychological function appears due to the internalization of social relations—which are outside of the child—and assumes the mediated semantic properties.

4.2. Culture as generator and moderator

Many anthropologists have offered definitions of the term "culture" (Hunter and Whitten, 1976). Perhaps the most frequently quoted is the one proposed by Edward B. Tylor in 1871: "belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society." There have been so many variations in the definitions offered by different scholars and writers which have been discussed and criticized from various viewpoints (for a detailed discussion see Weiss, 1973). But the common feature of such definitions is that culture is something which is created and generated by man. Sapir (1921), for example, defines culture "as *what*

a society does and thinks'' (p. 218). And Triandis (1990) referred to culture as the ''human-made part of environment''. Schusky and Culbert (1967) have summarized the characteristics of culture, in general, as follows: (1) culture is shared by a group of people; (2) culture is learned; (3) culture is cumulative; (4) culture is diverse; (5) culture is a whole, a system with many mutually interdependent parts (pp. 36–37). While all of these may be relevant to the concept of culture, culture has one outstanding feature that makes it a very powerful regulator of behavior. And this is its role as a generator and a moderator of behavioral patterns.

Hegel believed that ''in the course of universal history, man creates a number of human worlds that are essentially different from the natural world'' (cited in Kozulin, 1990c, p. 16). As a matter of fact the ''cultural world'' is one of those worlds, and it has been created in the course of the universal history of mankind. And the more important point is that this cultural world affects all aspects of human life. One of the most influential contribution of Vygotsky was the point that culture itself becomes a context which leads to more advanced levels of ''culturalization''. Vygotsky clarifies this point when he characterizes the generating aspect of culture. He asserts that ''culture, creates special forms of behavior, modifies the activity of mental functions and adds new stories to the developing system of human behavior.'' (Vygotsky, 1966, p. 19). It seems that the new stories that Vygotsky has proposed represent themselves in the form of what Luria (1959, 1969, 1973a, 1979, 1982) called the planning function of language, which has been discussed and elaborated by Das's group (Bournot-Trites et al., 1995). If we consider culture's main function as ''semiotic mediation'' (cf. Nadin, 1983; Wertsch, 1983; Williams, 1983), this aspect of culture becomes more salient.

As Ivanov (1977) has stated, man cannot govern his/her own behavior directly and creates signs in order to control it indirectly. The history of a culture can be described to a great extent as the transmission in time of sign systems serving to *control behavior* (Wertsch, 1983, p. 24). This controlling system functions as a cultural model or ''a cognitive schema that is intersubjectively shared by a social group'' (D'Andrade, 1989, p. 809). The main function of a cultural model is to direct the behavior in a way which can be formulated according to the different representational systems (cf. Rumelhart and Norman, 1985). First of all, a person acts according to the rules outlined in the model. However, everyone may provide a description about the necessity and significance of programs or patterns of behavior.

Cultural models have four characteristics: (1) they are intersubjectively shared. Therefore, all members ''know'' something about the necessity and performance aspects of these models. (2) The transmission of information through cultural models takes place in an encapsulated and non-analytical frame of communication. This peculiarity makes it easy for the members to learn and spread the models in different situations and with different facilities. (3) The cultural models use some units to organize the messages which are mostly large chunking units and which in general take a multidimensional script including propositional–analogical–procedural aspects of representation. It is understandable then why most cultural models present themselves in the forms of metaphors, idioms, similes, proverbs, etc. (4) Cultural models

allow the individuals of a society to form a kind of "expectancy frames" which act as "standards" or "norms" to evaluate the acts and motivations behind the acts against these rules and which make some predictions about the probability of the occurrence of the behavior. People who don't act according to the rules should justify their behavior, otherwise they would be judged as "abnormal" or "deviated".

5. Cultural models, inner speech and metaphor

It becomes clear that almost all the characteristics of cultural models deal with some aspects of generating, planning and regulative function of behavior. This function finds its basic formulation and conceptualization in the Vygotskian sign mediation, which reflects itself primarily in language. Language and speech arise initially as a means of communication between the child and the people in his/her environment. Only subsequently, upon conversion to internal speech, does it come to organize the child's thought, that is, become an internal mental function" (Vygotsky, 1978, p. 89). Moving in this direction, Luria (1973b) has classified the role of speech as a sign system into three categories: (1) as a special form of social communication; (2) as a tool for intellectual activity; and (3) as a method of regulating or organizing human mental processes. The last characteristic finds its most definite expression in cultural models. When we refer to the regulative function of cultural models, we are dealing not only with the role of outer and inner speech in controlling behavior which is usually manifest at an individual level, but also with the executive or operative aspect of human speech, formulated in social and cultural patterns of behavior. Typically these are used as an encapsulated program for general control of behavior. Metaphors, for example, play such a role in society. The "simplistic" definition of a metaphor would be a comparison between two seemingly unrelated objects without necessarily using words such as "like" or "as". In general, it is a transference of one object's characteristics onto another (cf. Lakoff and Johnson, 1980; Ortony, 1993). Metaphors not only convey the *hidden* aspects of communication but at the same time provide a program for our behavior, our thinking and the exercise of imagination. This power of metaphors is probably based on their very cultural nature. Black (1979) believes that some metaphors can function as "cognitive instruments", meaning that some metaphors permit us to see aspects of reality that they themselves help to constitute. This is because the interpretations of some of the words in metaphors are different from their interpretations in literal contexts. It may be argued that new knowledge can result from the comprehension of language in general, and to that extent, at least, it can result from the comprehension of metaphors in particular. But there are some good reasons to believe that metaphors, at least some of them, afford different ways of perceiving and conceptualization. Paivio (1979), viewing metaphor as a solar eclipse, believes that it "hides the object of study and at the same time reveals some of its most salient and interesting characteristics when viewed through the right telescope" (p. 150). He adds that metaphors obscure its literal and commonplace aspects while permitting a new and subtle understanding to emerge.

In any metaphorical formulation motivational and cognitive aspects work together to produce a new concept for which there may be no other expression. Cultural scripts find their most prominent features in metaphorical expression. This is because culture is not only a sum total of mankind-made environment, but a formulation for decision making and executive functions. To have access to such a broad category of human behavior and mental activity can only be feasible through metaphors which can put so many different aspects of human life together. Metaphors allow large "chunks" of information to be converted or transferred from one concept to the other. In addition, metaphors enable us to talk about experiences which cannot be 'literally' described. And most importantly, through imagery, metaphors provide a vivid, and therefore, memorable and emotion—arousing representation of perceived experience (Paivio, 1979, p. 152).

Vygotsky's schema for the generation of an utterance (cf. Akhutina, 1978) may provide us with a useful framework within which to deal with cultural features of metaphors as expressed in an external speech:

Motive

Thought

Inner Speech

Semantic Planning
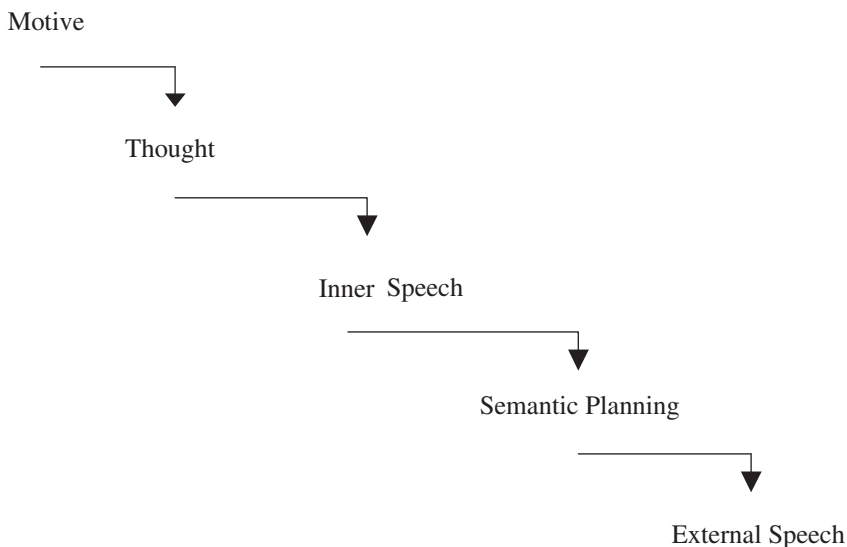
External Speech

According to this schema every instance of external speech goes through different stages in a communication process. External speech is a final stage mainly based on a semantic plane which itself is a product of mediation via meanings of external words. Inner speech, the mid-stage of this process, is a specific formation, with its own laws and complex relations to the other forms of speech activity. It is speech for oneself; external speech is for others.

Inner speech possesses some semantic peculiarities. The first and basic one is the preponderance of the *sense* of a word over its *meaning*. The sense is the sum total of psychological events aroused in our consciousness by a word. It is a dynamic, fluid, complex whole, which has several zones of unequal stability. Meaning is only one of

the zones: the most stable and precise zone. A word acquires its sense from the context in which it appears. In different contexts, it changes its sense.

The second peculiarity of inner speech concerns agglutination: when several words are merged into one word, the new word not only expresses a rather complex idea but designates all the separate elements contained in that idea. The third peculiarity of the inner speech, which is related to and based on the second one is "influx of sense". It means that in inner speech the senses of different words flow into one another. A single word is so saturated with sense that many words would be required to explain it in external speech (Robbins, 2001, pp. 51–53; Vygotsky, 1962, pp. 145–8).

According to Vygotsky, inner speech is "a dynamic, shifting, unstable thing, fluttering between word and thought" (Vygotsky, 1962, p. 149). Its true nature and place can be understood only after examining *thought* itself. "Every thought creates a connection, fulfills a function, solves a problem. The flow of thought is not accompanied by a simultaneous unfolding of speech. The two processes are not identical, and there is no rigid correspondence between the units of thought and speech" (p. 149).

Inner speech, by contrast with outer speech, essentially reflects a clearly different, new and independent function of speech, poetry-like silent speech for onself. Inner speech is also "simplified" and compressed as it "opens up" with difficulty to others and is hardly intelligible without context. It consists of apparent fragmentariness, which makes it elliptic, including "open" gaps. So inner speech deviates by its syntax from written speech by being predicative and often even idiomatic, like a dialect.

In 1927, a well-known formalist, Boris Eikhenbaum presented a view in which he emphasized the close connection of the "language" of the cinema and inner speech (Kozulin, 1990a,b,c). Eisenstein's theory of montage and the inner monologue was affected by Eikhenbaum. The filmic "inner speech" became the cornerstone of Eisenstein's new idea of cinema. Though Eisensteinean inner "cinematic" speech, "the inner monologue" is fundamentally "thinking with pure meanings", the nature of it is described as flexible, pictorial, non-linear, and sometimes mythic. Like Vygotsky, Eisenstein believed that inner speech unlike outer speech is closer to sense and image-based thinking.

Vygotsky moves further and claims that "thought itself is engendered by motivation, i.e. by our desires and needs, our interest and emotions. ... A true and full understanding of another thought is possible only when we understand its affective—volitional basis" (1962, p. 150). It seems that metaphors are one of the most salient formulations that manifest this affective-volitional basis. Any metaphor may be regarded as an expressed form of inner speech which reveals itself in the form of external speech. But it differs from usual or "literal" forms of speech in some features. One of these features concerns the role of imagery in the metaphors. Most folk metaphors are mainly based on images which play a very important role in the "liveliness" and vividness of metaphors. And the second feature is related to the fact that metaphors are generated and expressed in encapsulated forms. In contrast to extended speech which is elaborated and descriptive in nature, metaphors are condensed and imaginative in their structure. Metaphors, therefore, follow the general

rule of generation of an utterance which starts from a motivation and ends up with a statement. It is, in general, a form of an utterance; therefore, it obeys the rules of linearity and sequentiality which are evident in any verbal expression. But at the same time it reflects the reality in a special way, which is not necessarily always linear and sequential, but grounded in imagery.

In sum we may conclude that metaphor as a multidimensional script involves many cognitive, emotional and motivational processes that unify different aspects of human communication in a compact, condensed, and paradoxically, easily understood form. Imagery has an important role in this pattern and provides the listener with a whole picture of the content as its verbal structure makes available the sequential analysis of the logical ordering of the events (Ghassemzadeh, 1999, p. 50).

Metaphors have emerged in the ordinary life of people living in society. People need not only to generate and transmit information, but to get a sense of *reassurance* about the transmitted information on the one hand, and to transfer the motivational-emotional tone of their thought to their listener, on the other. Therefore, culture finds its most dynamic, memorable, and transformable scripts or models of behaviors in the form of metaphors. In a metaphor the content and the relationship of its elements are arranged in a way which are transformable from their original context to the other fields or domains. In Persian culture we have the expression "a rolling stone gathers no plant", the synonyms of which in English and French are "a rolling stone gathers no moss"; and "pierre qui roule n'amasse pas mousse", respectively. This means that the one who continuously changes his or her place of living and career or profession, never succeeds. This is an instruction -regardless of whether it is true or false- that unfolds a script in the mind of reader or listener and gives some directions about the importance and the usefulness of persistence and tolerance (cf. Ghassemzadeh, 1993). It is short, memorable, and imagery-evoking instruction. It is context-free because the way it is used is very far from the real situation it is used in—for instance, two persons are talking about someone who is continuously changing his/her goals and plans, and never gets a feedback from his/her actions and programs. It is imagery and descriptive in terms of its original context, but when it is applied to a different situation, it is more like an inner speech, that is full of senses and the emotional-motivational aspects of meaning. These aspects are reflected in the metaphor as far as the speaker and the listener can both imagine the concept of stone, rolling, and the moss. It is evident that if the two sides of communication fail to imagine such concepts, the meaning and the core message of the metaphor will not be understood.

6. One who is not to be found: Maulavi's inner speech

Maulavi Balkhi (Maulana) (1207–1273) (known as Jalal-al-Din Rumi in the Western world) provides a very clear thought-evoking as well as painful picture of his time, and as a matter of fact, of all times, when he expresses his inner world:

"Yesterday the Master with a lantern was roaming about the city,
Crying, 'I am tired of devil and beast, I desire a man [a real human being]';

They said, 'He is not to be found, we have been seeking Him long.' One who is not to be found—*that* is my desire."

Someone in the midday is looking for a "man", but he is carrying with himself a candle (lantern), crying that "I got tired of dishonesty, cruelty, and non-humanness, I want to talk to someone who is human". The first thing that comes to the mind is "why he was carrying a candle in the midday?" Maulavi tries to give the impression that everywhere is dark. Devils and beasts have taken the internal mind's eye away, even the sun can not produce lightness on the earth. This man tries to find someone who may provide natural light and warmth. The more interesting part comes at the next "script". People around this man never ask or wonder about carrying a candle in the light of a day. It seems they have been accustomed or have been "habituated" to such a "darkness". They don't ask a question, but express their helplessness and submissiveness with the statement of "He is not to be found, we have been seeking Him long". It is interesting that the "candleman" is tired of "devil and beast", but the people are tired of "seeking"! So what they imply is that don't try such a "worthless" seeking, you never will find such a person. But the "candleman" asserts that "Ok. I am looking for and I am enthusiastic about something or someone, which is not to be found"! And the way of expression suggests that the "candleman" will continue his searching. And as a matter of fact he is trying to reflect the fact that you may need such a candle, too!

The foregoing reading of the Maulavi's verse, in general, is dependent on metaphoric processing, without which understanding the senses of candle, devils, searching, desire, etc. would not be possible.

We may consider these verses as Maulavi's inner speech which have been expressed and extended in the form of figurative language and which provide us with a kind of scenario or filmic language that is basically different from the ordinary things happening around us, and that is: "something is wrong with us?" It is this implied aspect of metaphors that make the message very influential and effective. It seems that metaphors serve as a large-scale cue or priming for the activation of a network in the long-term memory. But the content that is activated comes to mind (at the level of working memory) as a formulated and prepared form ready to be evoked.

Metaphors in this sense possess some heuristic value and play an important role in schematic shifts and produce a kind of meta-frames for the mind. This is done through the imagery power of metaphor, the main function of which is the regulation of tonicity of representation. This is what happens in a cultural creative work such as poetry. As Engel (1988) puts it, when someone speaks a metaphor the implied sentence is "I invite you into a world in which..." (p. 339). This world, I believe, is characterized by the predominance of sense or meaning and motivational as well as emotional aspects of the inner world which is planned in the form of inner speech. Therefore, it may have the same power of regulation and moderation of behavior. The world that is created through a poem is mostly a meta-frame world

(Ghassemzadeh, 1999, p. 53). Inner speech, as the most powerful incentive of this meta-frame plays an important role in bringing the directions of processing of the two sides of communication close to each other. Therefore speech as Vygotsky believed acts not only as a vehicle of communication, a means for abstraction and generalizing, a way for the regulation of behavior, but a means for creating a meta-frames for processing incoming information.

Culture as a mediated system of behavior pattern is, in a way, influenced by this "new emergent processing" and at the same time itself becomes a source for such a "new emergence". It is understandable, then, why for Vygotsky, during the last decade of his life, the notion of mediation (*oposredovanie*) became increasingly important and well formulated in his theory of human mental development and higher cortical functions. By 1933 [one year before his death] he went so far as to say that "the central fact about our psychology is the fact of mediation" (cited in Wertsch, 1985, p. 15).

7. Conclusion: mediation reconsidered

From Vygotsky's point of view "man is a social creature, and social cultural conditions profoundly *change* him/her, developing a whole series of new forms and techniques in his/her behavior: a conscientious study of these characteristics constitute the specific task of the science of psychology" (Vygotsky and Luria, 1993, p. 213).

Three major points may be outlined regarding this change process: (1) the child is born to an already existing cultural–industrial environment, and this fact constitutes the crucial, critical difference between the child and the "primitive" man (Vygotsky and Luria, 1993, p. 171); (2) a very complicated interaction occurs between the child and the socio-cultural environment which shapes the whole process of development in the child; and (3) in the process of such an active interaction, internalization takes place, which is mostly based on signs, signification, and generalized meaning. The implication of these processes is that the whole system of information processing including communication, perception, memorization, concept formation, and volition work according to the rules and patterns which have been evolved in the society in the course of history.

Words considered by Vygotsky as the most powerful social means. The origin of volition, for example, is intimately related to the child's mastering the speech. As children gradually master speech, they will learn to use speech for the planning and control of their own actions. The fact that words (as a system of signs and signification) are particularly effective in this respect is again attributable to their social origin. Vygotsky subscribed to the view that words are originally (both phylogenetically and ontogenetically) commands. The power of the word for the regulation of our own behavior (i.e. in inner speech form) finds its origin in the power of words to command others (Van Der Veer and Valsiner, 1988, p. 55). This point leads us to one of the most important aspects of Vygotsky's mediational psychology, that is, as Cole and Wertsch (2002) have stated "mind is no longer to be located entirely inside the

head'', but persons are a part—an active part—of a complicated network including biological variables, cultural artifacts, natural environments, and ''culturally structured social environment.'' An outstanding element of mediation from a Vygotskian perspective relates to the last part of this network i.e. ''culturally structured social environments'' which are created by sign system (i.e. mostly by speech) in humans. Mediation, then, becomes instrumental in the context of social activities and organizations leading to specific patterns of behavior which relate every person both to the community and himself/herself. Culture evolves in this process and acts as a context on one hand, and as a regulator of behavior on the other.

The essential message of this article is that in order to relate the concept of culture as a regulative system of behavior to the concept of mediation, a new interpretation of Vygotskian mediation is required.

In recent Vygotskian literature mediation has been defined and interpreted in different ways. e.g. Wertsch (1979, 1983, 1985), for example, has mainly stressed on semiotic mediation. Mediation in this sense is based on signs as a means of controlling human behavior.

Minick (1987) has explained the concept of mediation in relation to the origin of the higher mental functions. According to Vygotsky, higher mental functions rely on the mediation by signs and sign systems, the most important of which is speech. Signs in this context are special type of stimuli which function as ''psychological tools'', and are directed toward the mastery or control of behavior processes.

Karpov and Haywood (1998), have distinguished two major types of mediation: (1) metacognitive or the acquisition of semiotic tools of self-regulation which can be named in the contemporary literature as executive processes; and (2) cognitive mediation based on school learning and systematic instruction. The authors have tried to develop an instructional procedure that incorporates both of Vygotsky's types of mediation.

But mediation possesses another aspect which deals with the primary function of speech as one of the most important sign systems, and that is a means of social interaction and communication. From this perspective, higher mental functions are not only mediated, meaning that they are established with the help of psychological tool, but they are social in origin. As Fernyhough (1996) states, the higher mental functions are dialogic and have evolved in the process of communication.

Although in both cases (in the existing classifications vs. the one which was introduced here) mediation plays a crucial role, it enters the whole system of processing as an *instrument* in the first case, and as a *mechanism* in the second. Vygotsky believed that these two aspects merge together in the course of development. Child's conception of the world becomes mediated when he/she uses speech on the one hand, and his/her representation becomes culturally structured reconstruction, on the other. It is in this process that ''intermental'' world of the child becomes ''intramental''. Vygotsky calls this internal reconstruction of the external operations as internalization.

The process of internalization consists of a series of transformations:

(a) An operation that initially represents an external activity is reconstructed and begins to occur internally;
(b) An interpersonal process is transformed into an intrapersonal one;
(c) The transformation of an interpersonal process into intrapersonal one is the result of a long series of developmental events, which are mostly based on sign operations.

In general, it can be concluded that the internalization of socially rooted and historically developed activities is the distinguishing feature of human psychology, which occur in the course of cultural development based on the signs and signification (Vygotsky, 1978, pp. 56–7).

In the process of internalization, the use of external signs is also radically reconstructed, and becomes as one of the most effective regulator of behavior. The central point is that this reconstruction takes the form of signification which finds its salient function in inner speech. Inner speech which is social in nature and origin, regulates the behavior, as the outer speech has had such an effect in the earlier periods of life, but this time from within.

On the contrary of outer speech which is initiated by the commands of others, inner speech is initiated by the commands of inside world, i.e. person's ''own'' decisions, motives, and plannings. Culture, cultural and folk models perpetuate their regulative function through the inner speech which is not only mediated, but produces a framework for behavior. Metaphors as a means of both social communication as well as transformation of motivational-emotional messages, may be explained as the extension of inner speech in the real world, the basic function of which is to introduce a change and/or a possibility of change in the mind. Rumi's candleman is searching for such a change. Although its initiation depends on the ''desire'' of an ''individual'' candleman, but it is a desire of a whole generations.

Acknowledgement

References

Aidman, V.A., Leontiev, D.A., 1991. From being motivated to motivating oneself: A Vygotskian perspective. Studies in Soviet Thought 42, 137–151.

Akhutina, T.V., 1978. The role of inner speech in the construction of an utterance. Soviet Psychology 16, 3–30.

Black, M., 1979. More about metaphor. In: Ortony, A. (Ed.), Metaphor and Thought. Cambridge University Press, New York, pp. 19–43.

Bournot-Trites, M., Jarman, R.F., Das, J.P., 1995. Luria's language theory within a cognitive theory: A Canadian perspective. Aphasiology 9, 123–135.

Cole, M., Wertsch, J., 2002. Beyond the individual–social dichotomy in discussions of Piaget and Vygotsky. Available from <http://www.prometheus.org.uk/Files/coleandwertschonpiagetandvygotsky.pd>.

D'Andrade, R.G., 1989. Cultural cognition. In: Posner, M.I. (Ed.), Foundations of Cognitive Science. The MIT Press, Cambridge, pp. 745–830.

Davydov, V.V., Radzikhovskii, L.A., 1985. Vygotsky's theory and the activity-oriented approach in psychology. In: Wertsch, J.V. (Ed.), Culture, Communication, and Cognition. Cambridge University Press, Cambridge, pp. 35–65.

Deleau, M., 1989. Actualite de la notion de mediation semiotique de la vie mentale. Enfance 42, 31–38.

Engel, S., 1988. Metaphors: How are they different for the poet, the child and the everyday adult. New Ideas in Psychology 6, 333–341.

Engels, F., 1976. In: Dialectics of Nature. Progress Publishers, Moscow, pp. 170–183.

Eysenck, H.J., Arnold, W.J., Meili, R. (Eds.), 1975. Encyclopedia of Psychology. Fontana/Collins.

Fernyhough, C., 1996. The dialogic mind: A dialogic approach to the higher mental functions. New Ideas in Psychology 14, 47–62.

Garton, A.F., 1992. Social Interaction and the Development of Language and Cognition. Lawrence Erlbaum Associates, Publishers, Hove (UK).

Ghassemzadeh, H., 1992. The integrative aspect of activity in a Vygotskian perspective. In: Kostaskova, J. (Ed.), Psychological Development and Personality Formative Processes. Proceedings of the 6th Prague International Conference. Institute of Psychology, Prague.

Ghassemzadeh, H., 1993. Reflexiones sober le estudio de la personalidad en Iran. Boletin de Psicologia 40 (Sept.), 25–35.

Ghassemzadeh, H., 1994. El concepto de activitad en Vygotsky y un intento de integrar la relacion entre Self y activitad. Boletin de Psicologia 44 (Sept.), 7–26.

Ghassemzadeh, H., 1999. Some reflections on metaphoric processing: A move toward a meta-sign formulation. New Ideas in Psychology 17, 41–54.

Hunter, D.E., Whitten, P. (Eds.), 1976. Encyclopedia of Anthropology. Harper & Row Publishers, New York.

Ivanov, V.V., 1977. The role of semiotics in the cybernetic study of man and collective. In: Lucid, D.P. (Ed.), Soviet Semiotics: An Anthology. John Hopkins Press, Baltimore.

Johnson-Laird, D.N., 1985. Metal models. In: Aitkenhead, A.M., Slack, J.M. (Eds.), Issues in Cognitive Modelling. Lawrence Erlebaum Associates, Publishers, Hove, UK, pp. 81–99.

Karpov, Y.V., Haywood, H.C., 1998. Two ways to elaborate Vygotsky's concept of mediation. American Psychologist 63, 27–36.

Kondratov, A., 1969. Sounds and Signs. MIR Publishers, Moscow.

Kozulin, A., 1986. The concept of activity in Soviet psychology. American Psychologist 41 (3), 264–274.

Kozulin, A., 1988. Vygotsky in context. In: Vygotsky, L.S. (Ed.), Thought and Language. The MIT Press, Cambridge (pp. xi–Lvi).

Kozulin, A., 1990a. The concept of regression and Vygotskian developmental theory. Developmental Review 10, 218–238.

Kozulin, A., 1990b. Mediation: Psychological activity and psychological tools. International Journal of Education and Mediated Learning 1, 151–159.

Kozulin, A., 1990c. Vygotsky's Psychology: A Biography of Ideas. Harvester Wheatsheaf, New York.

Lakoff, G., Johnson, M., 1980. Metaphors We Live by. University of Chicago Press, Illinois.

Langer, J., 1969. Theories of Development. Holt, Rinehart & Winston, Inc., New York.

Leontiev, A.N., 1978. Activity, Consciousness, and Personality. Prentice-Hall, Englewood Cliffs, NJ.

Leontiev, A.N., 1981. Problems of the Development of the Mind. Progress Publishers, Moscow.

Luria, A.R., 1959. The directive function of speech in the development and dissolution: Part I: Development of the directive function of speech in early childhood. Word 15 (2), 341–352.

Luria, A.R., 1969. Speech development and the formation of mental processes. In: Cole, M., Maltzman, I. (Eds.), A Handbook of Contemporary Soviet Psychology. Basic Book, New York, pp. 121–162.

Luria, A.R., 1973a. The frontal lobes and the regulation of behavior. In: Pribram, K.H., Luria, A.R. (Eds.), Psychophysiology of the Frontal Lobes. Academic Press, New York, pp. 3–26.

Luria, A.R., 1973b. The Working Brain. Basic Books, New York.

Luria, A.R., 1979. The Making of Mind: A Personal Account of Soviet Psychology. Harvard University Press, Cambridge.

Luria, A.R., 1982. Language and Cognition. Wiley-Interscience, New York.

Minick, N., 1987. The development of Vygotsky's thought: An introduction. In: Vygotsky, L.S. (Ed.), The Collected Works of L.S. Vygotsky—vol. 1. Problem of General Psychology. Plenum Press, New York, pp. 17–36.

Nadin, M., 1983. The semiotic processes of the formulation and expression of ideas. In: Bain, B. (Ed.), The Sociogenesis of Language and Human Conduct. Plenum Press, New York, pp. 377–391.

Newman, F., Holzman, L., 1993. Lev Vygotsky—Revolutionary Scientist. Routledge, London.

Ortony, A. (Ed.), 1993. Metaphor and Thought. Cmabridge University Press, Cambridge.

Paivio, A., 1979. Psychological processes in the comprehension of metaphor. In: Orthony, A. (Ed.), Metaphor and Thought. Cambridge University Press, Cambridge, pp. 150–171.

Pavlov, I.P., 1960/1927. Conditioned reflexes—An investigation of the physiological activity of the cerebral cortex. New York, Dover Publications, Inc.

Robbins, D., 2001. Vygotsky's Psychology–philosophy—a Metaphor for Language Theory and Learning. Kluver Academic/Plenum Publishers, New York.

Rumelhart, D.E., Norman, D.A., 1985. Representation of knowledge. In: Aikenhead, A.M., Slack, M. (Eds.), Issues in Cognitive Modeling. Lawerence Erlbaum Associates, Publishers, Hove (UK), pp. 15–62.

Sapir, E., (1921/1949). Language—An introduction to the study of speech. A Harvest Book, New York.

Schusky, E.L., Culbert, T.P., 1967. Introducing Culture. Prentice-Hall Inc., Englewood Cliffs. NJ.

Triandis, H.C., 1990. Theoretical concepts that are applicable to the analysis of ethnocentrism. In: Brislin, R.W. (Ed.), Applied Cross-cultural Psychology. Sage, Newbury Park, CA, pp. 24–55.

Van Der Veer, R., 1986. Vygotsky's developmental psychology. Psychological Reports 59, 527–536.

Van Der Veer, R., Valsiner, J., 1988. Lev Vygotsky and Pierre Janet. On the origin of the concept of sociogenesis. Developmental Review 8, 52–65.

Vygotsky, L.S., 1929. The problem of the cultural development of the child. Journal of Genetic Psychology 36, 415–434.

Vygotsky, L.S., 1962. Thought and language. In: Hanfmann, E., Vakar, G., (Eds., Trans). MIT Press, Cambridge.

Vygotsky, L.S., 1966. Development of the higher mental functions. In: Leontiev, A., Luriya, A., Smirnov, A. (Eds.), Psychological Research in the USSR, vol. I. Progress Publishers, Moscow, pp. 11–45.

Vygotsky, L.S., 1978. Mind in Society: The Development of Higher Psychological Processes. Harvard University Press, Cambridge, MA.

Vygotsky, L.S., 1986. Thought and Language, Revised Ed. MIT Press, Cambridge, MA.

Vygotsky, L.S., 1987. The Collected Works of L.S. Vygotsky—vol. I: Problems of General Psychology. Plenum Press, New York.

Vygotsky, L.S., 1999. The Collected Works of L.S. Vygotsky—vol. 6. Scientific Legacy. Kluwer Academic/ Plenum Publishers, New York.

Vygotsky, L.S., Luria, A.R., 1993. Studies on the History of Behavior: Ape, Primitive, and Child. Lawrence Erlbaum Associate, Publishers, Hillsdale.

Weiss, G., 1973. A scientific concept of culture. American Anthropologist 75, 1378–1413.

Wertsch, J.V., 1979. From social interaction to higher psychological processes—A clarification and application of Vygotsky's theory. Human Development 22, 1–22.

Wertsch, J.V., 1983. The role of semiosis in L.S. Vygotsky's theory of human cognition. The sociogenesis of language and human conduct. In: Bain, B. (Ed.). Plenum Press, New York, pp. 17–31.

Wertsch, J.V., 1985. Vygotsky and the Social Formation of Mind. Harvard University Press, Cambridge, MA, USA.

Wertsch, J.V., Tulviste, P., 1996. An introduction to Vygotsky. In: Daniels, H. (Ed.). Routledge, London, pp. 53–74.

Williams, R., 1983. The impact of informatics on social sign systems. In: Bain, B. (Ed.), The Sociogenesis of Language and Human Conduct. Plenum Press, New York, pp. 353–375.

Yaroshevsky, M., 1989. Lev Vygotsky. Progress Publisher, Moscow.

Zinchenko, V.P., 1985. Vygotsky's ideas about units for the analysis of mind. In: Wertsch, J.V. (Ed.), Culture, Communication, and Cognition: A Vygotskian Perspectives. University Press, Cambridge, pp. 94–118.