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# **Piaget is dead, Vygotsky is still alive, or?**

*A Honorary book for professors  
Airi and Jarkko Hautamäki*

Pirjo Aunio, Markku Jahnukainen, Mirjam Kalland &  
Jussi Silvonen (Eds.)



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# Contents

Introduction.....	7
<i>Pirjo Aunio, Markku Jahnuainen, Mirjam Kalland &amp; Jussi Silvonon</i>	

## JOENSUU

The knowledge empire: The overwhelming all versus expression, thinking and imagination as ineffaceable rights.....	15
--	----

*Yrjö-Paavo Häyrynen*

Vygotsky's plural discourse on the human mind.....	37
--	----

*Jussi Silvonon*

Social status, education and life stories at the onset of middle age.....	61
---	----

*Hannu Perho & Merja Korhonen*

## HELSINKI

The effects of the Let's Think! intervention programme on children's early mathematical knowledge .....	75
---	----

*Pirjo Aunio & Jarkko Hautamäki*

The quest for learning to learn .....	95
---------------------------------------	----

*Sirkku Kupiainen*

Changes in academic and prosocial self-regulation from sixth to ninth grade.....	105
--	-----

*Helena Thuneberg*

Task-commitment and developmental tasks – A theoretical scenario with a case study ..... 127

*Jarkko Hautamäki*

Attachment and parental sensitivity in a low-risk Finnish sample – The avoidant and unresponsive Finns?..... 149

*Airi Hautamäki*

## **THE WORLD**

The architecture and development of mind and brain: An outline..... 185

*Andreas Demetriou*

The P. Galperin’s theory of planned stage-by-stage formation of mental action as a tool to improve teaching/learning activity ..... 223

*Andrei Podolskij*

Realising the cognitive potential of children 5 to 7 with a mathematics focus: Effects of a two-year intervention..... 245

*Michael Shayer & Mundher Adhami*

Using and developing activity theory: Subject position and discourse in multiagency settings..... 279

*Harry Daniels*

A dynamic-maturational model of attachment..... 295

*Patricia Crittenden*

Memories for Jarkko and Airi ..... 325

*Philip Adey*

List of contributors..... 331

## Vygotsky's plural discourse on the human mind<sup>1</sup>

*“To define a problem of investigation means not only to determine its specific subject matter, not only to find a question that needs to be clarified, but, first and foremost, to become cognitively aware of the theoretical task”*  
A. N. Leont’ev 1935 (Leont’ev 1995).

Louis Althusser claims in his papers on Marx and Freud that both of them established a new science, different from classical modern science (Althusser 1996). Both were, according to Althusser, critics of the Cartesian philosophy of consciousness. Althusser points out that to make a move to a new science requires an epistemological break with the old one. This break is never an easy one and does not happen in the first steps of the new theory. On the contrary: “The youth of a science is its maturity: before that age it is old, having the age of the prejudices on which it lives” (Althusser 1996, 19). New science starts with concepts borrowed from the old theories, and because of this the demarcation line between the old and the new science is within the new theory. New science achieves its youth in its old days.

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<sup>1</sup> The first version of this paper was presented at the first ISCAR Congress in Seville, September 2005. After that, several persons read the paper. I would especially like to thank Ines Langemeyer (University of Bochum), Holbrook Mahn (University of New Mexico), Tiina Kontinen and Jonna Kangasoja (University of Helsinki), and Mikael Leiman (University of Joensuu) for their comments. I would also like to thank Tiina Tonttila for comments and Greg Watson for the final language check.

In this article, I ask if we can learn something by reading the classics of the cultural-historical tradition, like Althusser<sup>2</sup>, as texts of epistemic contradictions and transformations. This was actually also Vygotsky's approach to science, which should be understood "dialectically in its movement, i.e., from the perspective of its dynamics, growth, development, evolution" (Vygotsky 1997b, 292). For Vygotsky, the concept of development does not include "just evolutionary but also revolutionary changes, regression, gaps, zigzags, and conflicts" (Vygotsky 1997c, 221).

How does Vygotsky's theory relate to modern science in general and, in particular, to modern psychology? Nowadays, it is widely claimed that Vygotsky's theory represents a transition from "classical" to "non-classical" psychology (Asmolov 1998; El'konin 2001; Robbins & Stetsenko 2002; Zinchenko 2001). How does this transition to a non-classical, (or "organic psychology") really occur? How are the possible ruptures in Vygotsky's work related to our current disputes about the continuity and discontinuity between key figures in Vygotsky's school? I shall focus here on two questions; how is the transition from old to new apparent in Vygotsky's work and how are the shifts in his work related to our current discussions. I attempt to follow the *problematique* of Vygotsky's work, the change and development of his scientific language, methodological orientation, explanatory models and his "nomenclatura and terminology" (Vygotsky 1997b, 281), and relate these to the development of Vygotsky's conception of semiotic mediation.

I shall make distinctions regarding Vygotsky's theory into three phases: a socio-behaviourist phase of young Vygotsky, the founding phase of cultural-historical psychology (CHP1) and the late Vygotsky's work (CHP2)<sup>3</sup>. In making these distinctions, I am using the idea of

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<sup>2</sup> The concept of epistemological break dates back to Bachelard's and Canguilhem's studies (Bachelard 1987; Canguilhem 1979) and has been widely used in French post-structuralism (Bourdieu 1988; Foucault 1991a).

<sup>3</sup> For the periodization of Vygotsky's work see (Bozhovich 1977; Keiler 2002; Kozulin 1990a; Langford 2005; Minick 1987; Veresov 1999, 2005; Wertsch 1985). It could be possible to divide the first phase into several sub-periods, as Keiler and Langford do, but for my analytic needs here it is not necessary.

epistemological breaks in the sense Michel Foucault uses it. Foucault states in his *Archaeology of Knowledge* that Althusser's concept of epistemological break simplifies things by the assumption that there is one point where the break happens. According to Foucault, there are several thresholds of discontinuity in the development of science. The first is the threshold of positive discourse, a moment in which the discourse achieves its individuality and autonomy; the second is the threshold of epistemology where the rules and norms for the verification of knowledge are articulated; the third is the threshold of science, a phase of establishing rules and laws for the formation of propositions and the last is the threshold of formalization, after which the ways and strategies for legitimation of the discourse are formed (Foucault 1991a, 186–189).

In the case of Vygotsky, we will see how thematic continuity on one plane is related in a very complicated way to discontinuities on other planes of the development of his theoretical apparatus. The recognition of this dialectic of categories also helps us to understand the broader history of cultural-historical tradition, which is full of twists and turns, far from a simple linear progress from one generation to another.<sup>4</sup>

## Socio-behaviourism and the problem of consciousness

The first phase of Vygotsky's thinking, which I call here socio-behaviourism<sup>5</sup>, includes his pre-cultural-historical works till 1927, from early writings and first books *Psychology of Art* (Vygotsky 1971) and *Educational psychology* (Vygotsky 1997) to his essay on the crisis of psychology (Vygotsky 1997b). During this period, Vygotsky defines

<sup>4</sup> For example the model of three generations of activity theory (Engeström 1996) represents, in my reading, a missing reflection on the conceptual movements in Vygotsky's work.

<sup>5</sup> The similarity between Mead and Vygotsky is obvious, but Kozulin's claim that Vygotsky is simply a Russian version of Mead' (Kozulin 1986, 265) can be adequately applied only to this first period of Vygotsky's thinking.

consciousness as the object of his studies (positive discourse), but does this in such a socio-behaviourist explanatory framework (epistemological barrier) that it obviously contradicts his aim to develop a genuine cultural psychology.

According to Vygotsky, consciousness cannot be neglected without distorting the research object of psychology. In this respect, he makes a critical note on his contemporary behaviourism. “The question of the psychological nature of consciousness is persistently and deliberately avoided in our scientific literature. Attempts are made even to take no notice of it, as if it does not exist for the new psychology. – By ignoring the problem of consciousness psychology has deprived itself of access to the study of some rather complex problems of human behaviour. It is forced to restrict itself to explaining no more than the most elementary connections between a living being and the world.” (Vygotsky 1997a, 63; 1999a, 256.) To understand human activity we have to accept the consciousness as a phenomenon in its own right, having its basis in social interaction between human beings, and especially in speech.

Vygotsky conceptualizes here both interaction and speech in terms of special *reaction-reflexes*, which he also calls reversible reflexes. These are reflexes to irritants that in turn can be created by man. “A word that is heard is the irritant, and a word that is pronounced is a reflex producing the same irritant. The reflex is reversible here, since an irritant can become a reaction, and vice versa.” (Vygotsky 1997a, 77.) In Vygotsky’s conception, these reversible reflexes constitute the foundation for social behaviour and serve for the collective co-ordination of activity. Reflexes coming from other people have a special role, because “they make me comparable to another, and make my actions identical with one another. *Indeed, in the broad sense, we can say that the source of social behaviour and consciousness lays in speech.*” (Vygotsky 1997a, 77. Emphasis added.) Thus, according to Vygotsky, consciousness is a real issue in human psychology, so we cannot exclude it from our scientific vocabulary.

Simultaneously, Vygotsky emphasizes the objectiveness of his approach and make clear the necessity of an objective psychology:



“Scientific psychology – – must materialize [the facts of consciousness], translate what objectively exists into an objective language, and once and for all unmask and bury the fictions, phantasmagoria, etc.” (Vygotsky 1997a, 67). Here Vygotsky understands the human personality as “fully determined by the social environment” and claims, “personal experience is formed and organized as a copy of the organization of the various elements in the environment” (Vygotsky 1997g, 157–158). Consequently, the problem of mind is “resolved without any waste of energy” and, furthermore, the consciousness is “wholly reduced to the transmitting mechanisms of reflexes operating according to general laws”. Vygotsky concludes that we do not need to assume any other processes except reflexes and reactions to explain the whole mechanism of the human mind (Vygotsky 1997a, 73). The Cartesian problematic is resolved here by neglecting the active psyche, or to use the expression of Merlin Donald, the consciousness is explained by explaining it away (Donald 1991).

Here the theoretical context of Vygotsky's discourse is explicitly behaviourism (Pavlovian reflex-theory, reactology, reflexology and American behaviourism). He is committed to behaviorism, to its concepts and to the attempt to create an objective psychology. This is clearly reflected in the titles of his presentations from this period – *The methods of reflexological and psychological investigation* (Vygotsky 1997e) and *Consciousness as a Problem for the Psychology of Behavior* (Vygotsky 1997a). Yet, he wants to make consciousness a central object of psychology, which obviously contradicts his behaviourist vocabulary. The explanatory categories and the definition of the subject matter of research are seemingly not in balance. This “resistance of the object” (Holzkamp 2006) results later as a reformulation of the explanatory concepts. The behaviourist vocabulary forms an epistemological barrier, which has to be overcome in making theoretical steps forward possible. As a reflection on this problem Vygotsky consequently claimed in 1926 that Marxist psychology can “only to a certain point” (Vygotsky 1997i, 81) follow the path of American behaviourism and Russian reflexology. Vygotsky's theoretical point of reference now changes from

behaviourism to *Gestaltpsychologie*. He optimistically claims that the objective, immanent driving forces of psychological science act “in the same direction as the Marxist reform of psychology” (Vygotsky 1997i, 81). Vygotsky’s analysis of the methodological crisis of “international psychology” is a transitional work from socio-behaviourism to cultural-historical framework.

In his essay on the crisis of psychology, Vygotsky concludes that the only positive solution for the crisis can be in the construction of “psychological materialism” (Vygotsky 1997b, 332), which continues the Feuerbachian line in psychology.<sup>6</sup> What is needed is a methodology for a genuine psychological materialism. “Whether psychology is possible as a science is, above all, a methodological problem” (Vygotsky 1997b, 328). Vygotsky finds the model for the new methodology – the functional-genetic method – in Marx’s *Das Kapital*.<sup>7</sup> Marx starts his analysis of the capitalist mode of production from the commodity form of goods and derives from this form all the general laws guiding the market economy. The “genetic germ” opens up all the mysteries of the whole special mode of production. Vygotsky declares that this is also how psychology has to proceed. It has to find the “germ”, the historical point from which an understanding of the development of the psyche becomes possible. “He who can decipher the meaning of the cell of psychology, *the mechanism of one reaction*, has found the key to all psychology” (Vygotsky 1997b, 320. *Emphasis added*).

The last sentence above clearly shows a contradiction in the Crisis essay. On the one hand, Vygotsky is talking about “the mechanism of one *reaction*”, staying in the old vocabulary of socio-behaviourism. On the other hand, simultaneously, he makes an essential and definitive move in his methodology, by inventing the historical-genetic mode of

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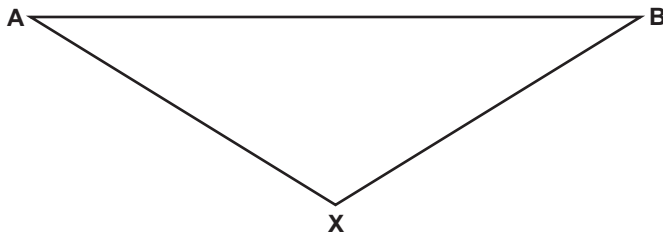
<sup>6</sup> Keiler (1999) is an excellent introduction on the influence of Feuerbach on Vygotsky’s thinking.

<sup>7</sup> Vygotsky’s reading of Marx was ahead of his contemporary Marxists. See the criticism on contemporary Marxism in Crisis (pp. 313–314). His reconstruction of Marx’s method foreshadows the Marx renaissance in 1960s and 1970s (Althusser 1970; Ilyenkov 1982; Mamardashvili 1987; Reichelt 1973; Rosdolsky 1972; Zeleny 1973).

explanation. Now genesis, emergence, and development are the central focus of his theory. The idea of development as mediated activity will then be explicated in the historical theory of higher mental functions.

## Cultural-historical theory I – instrumentalism

Here Vygotksy is interested in the *differentia specifica* of the human mind, in its culturally mediated nature and in humans' capacity to master their own activities. The question now arises, as to how this self-directed activity is possible, and what is the function of the sign in it? Vygotksy's first answer is that the sign is a tool, an instrument of human behaviour. He developed this argument around 1928 and it is very clearly present in his article *The Problem of the Cultural Development of (the) Child* as well as in some other parallel papers (Vygotksy 1929; Vygotksy 1929a, 1929b; Vygotksy 1989a, Vygotksy 1997c). Vygotksy illustrates the idea of a mediated act(ivity) with a triangular figure which nicely clarifies his first, *instrumental* interpretation of signs.



**Figure 1.** Mediated act (Vygotksy 1997e, 86)

I shall make two remarks on this triangle. First, with this model Vygotksy breaks away from behaviourism and presents a mediational, – or maybe one could even say, the first really mediational – cultural model of the human mind. Second, the conception of sign is presented here

only in a meaning of a tool-like, instrumental sign. There is some ambivalence, even incongruousness in this conception.

I shall offer a brief clarification for the first point. Vygotsky makes an analogy between tools and psychological instruments, which he also calls artificial psychological tools. By their nature, they are social and not organic devices. They are “directed toward the mastery of (mental) processes – one’s own or someone else’s – *just as technical devices* are directed toward the mastery of processes of nature” (Vygotsky 1997d, 85. Emphasis added).

The sign as a tool reorganises the whole structure of psychological functions. It forms a structural centre, which determines the composition of the functions and the relative importance of each separate process. “The inclusion in any process of a sign remodels the whole structure of psychological operations”, just as the inclusion of a tool reorganises the whole structure of a work process (Vygotski 1929, 421).

In this model, mediation is understood as a being-in-the-world. Thus, mediation does not mean a division between man and the external world, but – on the contrary – it indicates an analysis of an agent’s being in the world. Mediational activity is a process by which an individual adapts the human essence and thus becomes socialized.<sup>8</sup> In this sense, Vygotsky says that psychology must reconquer the right to examine the individual “as a social microcosm – – as an expression or measure of the society” (Vygotsky 1997b, 317). This is a non-individualistic approach towards the social being of an individual person.

Let us take a closer look at the second point. Vygotsky does not give a qualitatively new role for psychological tools, they are just like any other tools. “We should not conceive of artificial (instrumental) acts as supernatural or meta-natural acts in accordance with some new, special laws.” Artificial acts are natural, as well. They can, without exception, to

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<sup>8</sup> Engeström seems to miss this point. “In the early work of the cultural-historical school, led by Vygotsky, the unit of analysis was object-oriented action mediated by cultural tools and signs (see Vygotsky 1978, 40). Mediation by other human beings and social relations was not theoretically integrated into the triangular model of action.” (Engeström & Miettinen 1999, 4.) Signs are carriers of “the others” (El’konin 2001) and respectively sign mediation is always societal mediation per se.

the very end, be decomposed and reduced to natural ones, just like any machine (or technical tool) can, without exception, be “decomposed into a system of natural forces and processes” (Vygotsky 1997d, 86). The higher forms of behaviour “have no more means and data at their disposal than those which were shown by the lower forms of that same activity” (Vygotski 1929, 418).

This instrumental argument of the nature of signs is also very explicitly made in the *Essay of the History of Behavior*. Vygotsky and Luria are using in this text the concept of *re-arming* to describe the cultural mechanism of development. While developing, the child not only grows and matures, but also receives a number of new skills and new forms of behaviour. In the process of development, “the child not only matures, but is *re-armed*. It is this “re-arming” that accounts for a great deal of the development and changes we can observe as we follow the transition from child to civilized adult.” (Luria & Vygotsky 1992, 110.) These behavioural devices, acquired by the child in the process of cultural development, “alter the fundamental psychological functions of the child, *arm them with new weapons* and develop them” (Luria & Vygotsky 1992, 117. Emphasis added). Vygotsky states in *Concrete Human Psychology* in 1929: “The essence of intelligence lies in tools” (Vygotsky 1989a). By talking about re-arming, about the weapons of development, he very clearly emphasizes the instrumental interpretation of the tool-like function of signs.

Vygotsky conceptualised in the first phase of his cultural-historical theory sign mediation in terms of psychological tools as instruments. This was also the conceptual background to Vygotsky's experimental methodology. The method of double stimulation (Luria & Vygotsky 1992; Sakharov 1994; Vygotsky 1987) is influenced by the assumption that secondary signs included in the psychological operations are instruments or tools for the acting individual. Internalization, according to this interpretation, is a direct process of moving the external sign-tools into internal ones. Leont'ev, in his 1931 major study of memory, makes this point clear; “Only through a kind of process of “ingrowth” are they

converted into internal symbols” and, in this way into higher psychological functions (Leont’ev 1981, 363).

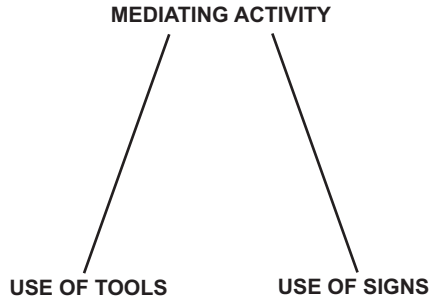
The concept of the psychological tool is a transitional phenomenon (Keiler 1999, 2002); by using it, Vygotsky makes a breakthrough from socio-behaviourism into mediational, thus cultural analysis. His understanding of the function of sign, however, changes radically in the next step of the development of his theory, as we will see.

## **Cultural-historical theory II – semiotics**

In his late works, Vygotsky re-evaluates the concept of personality (already in 1930, Vygotsky 1997f), includes the idea of experiencing subject in his theoretical framework (Vygotsky 1994, 1998) and finally reformulates the concept of sign (Vygotsky 1987, 1997h). The concept of the zone of proximal development as a specification of socio-genetic law appears only in this last phase of his thinking (Chaiklin 2003). On the methodological plane, we can see a transition from the instrumental method to semiotic analysis. I will concentrate here on changes in his concept of sign.

The fact that two conceptions of sign, instrumental and semiotic, are in this phase present simultaneously, side by side, in Vygotsky’s work makes it extremely difficult to reconstruct his argumentation. It seems to me, however, that semiotic interpretation takes the dominant role in Vygotsky’s late works. Consequently, I claim here that only the transition from the instrumental to the semiotic sign concept completes the shift from socio-behaviourism to mature cultural-historical psychology.

In the *History of the Development of Higher Mental Functions* (Vygotsky 1997c) Vygotsky gives another figure for mediated activity. In this picture, he simply devises mediated activity in two groups: one mediated by tools, another mediated by the sign.



**Figure 2.** Forms of mediated activity (Vygotsky 1997d, 62)

Vygotsky emphasises that, “The central fact of our psychology is the fact of mediation” (Vygotsky 1997h, 138). Now, the concept of psychological tools is missing, the higher functions are defined as something qualitatively new which one cannot reduce to lower ones, and the mediation is analysed from the point of view of sign-mediated social interactions.

## Sign and meaning

If the lower forms of activity are characterised by the immediacy of psychological processes, *the higher psychological functions are characterized by sign-mediation*. The consequence of this idea of mediation is that all methodological approaches relying on the postulate of immediacy (or on the “postulate of directness”, Leont’ev 1978, 47) are unable to explain the specific nature of human actions. This is also the reason why the theoretical analysis of the very nature of mediation is so important for Vygotsky. It is clear for him that the sign mediation “is the most important distinguishing characteristic of all higher mental functions” (Vygotsky 1999b, 41), and that higher psychological functions have to be defined as “*a qualitatively new mental formation that develops according to completely special laws and is subject to completely different patterns*” compared with the lower ones (Vygotsky 1998, 34.

Emphasis added). The use of signs results in a completely new and specific structure of behaviour in man, a structure that breaks with the traditions of natural behaviour and creates new forms of cultural-psychological activity (Vygotsky 1999b, 47).

Between 1932–1933 Vygotsky re-evaluated the concepts of meaning and sign. In a seminar of his research group, he stated that the social nature of sign was not understood correctly in the earlier works of the group. “(Introduction: the importance of sign; its social meaning.) In older works we ignored that the sign has a meaning. – – We proceeded from the principle of the constancy of meaning, we discounted meaning. – – Whereas before our task was to demonstrate what ‘the knot’ and logical memory have in common, now our task is to demonstrate the difference that exists between them.” (Vygotsky 1997h, 134.) There is no sign without meaning. “The formation of meaning is the main function of sign. Meaning is everywhere where there is a sign – – *meaning* is inherent in the sign.” (Vygotsky 1997h, 134, 136.) Here the focus of analysis moves from the sign being an instrument to the sign as being a meaning container.

By the formation of higher psychological functions, a new form of activity – free activity – will emerge. Free action is independent of immediate needs and of stimulus from the environment. Free action is proactive, directed to the future. The possibility of free action is dependent on the use of signs. (Vygotsky 1999b, 64–65.)

Including symbolic functions in the psychological operation creates conditions for a connection of elements between the present and future, which creates “*a completely new psychological field for action*” (Vygotsky 1999b, 35. Emphasis added) that leads to the formation of intention and of a target action planned in advance. This new relation of action to personality, which arises due to the word and leads to the mastery of action is manifested in free action, controlled and directed by the word. “If the act, independent of the word, stands at the beginning of development, then at its end stands the word becoming the act. The



word, which makes the action of man free.” (Vygotsky 1999b, 67–68.)<sup>9</sup>

According to Vygotsky, speech is the medium by which we learn to master our behaviour and which makes us free of the immediate influence (stimulus) of the environment. “The word subordinates motor reactions to itself; this is the source of *the power of the word over behaviour*” (Vygotsky 1998, 169. Emphasis added).

The analysis of sign-meaning unity leads to the concept of word meaning, which then becomes a central category in *Thinking and Speech*<sup>10</sup>. This leads to the idea of the semantic and systemic nature of mind. “Consciousness as a whole has a semantic structure”, this is why “semiotic analysis is the only adequate method for the study of the systemic and semantic structure of consciousness” (Vygotsky 1997h, 137). Consequently the method of cultural psychology “must be that of semantic analysis. Our method must rely on the analysis of the meaningful aspect of speech; it must be a method for studying verbal meaning.” (Vygotsky 1987, 47.)<sup>11</sup>

Vygotsky claims that the primary function of speech is communication, social interaction. Communication requires signs and meanings. This leads us back to the question of internalisation and to the relations between the sign, meaning and interaction.

## **Sign, the zone of proximal development and the dialogical mind**

On the plane of ontogenesis “*social relations, real relations of people, stand behind all the higher functions and their relations*” (Vygotsky 1997c, 106. Emphasis added). Vygotsky formulates this as the famous

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<sup>9</sup> See Jones (2002) for a more detailed analysis of the free action in Vygotsky.

<sup>10</sup> Jim Wertsch claims that there are two different conceptions of word meaning side by side in *Thought and language* (chapter 5 versus chapter 6) (Wertsch 1996).

<sup>11</sup> Kozulin translates: “Clearly, then, the method to follow – is semantic analysis – the study of the development, the functioning, and the structure of [word meaning], which contains thought and speech interrelated” (Vygotsky 1989b, 6).

socio-genetic law, according to which “every function in the cultural development of the child appears on the stage twice, in two planes, first, the social, then the psychological, first between people as an intermental category, then within the child as an intramental category” (Vygotsky 1977c, 106). The key to psychological development lays in social interaction. Even the child’s relation to the physical objects “passes through another persons” (Vygotsky 1978, 30). Vygotsky reformulates on the psychological plane Marx’s sixth Thesis on Feuerbach about the human essence as “the ensemble of the social relations” (Marx 1984)<sup>12</sup> by saying that “the mental nature of man represents the totality of social relations *internalized* and made into functions of the individual” (Vygotsky 1997c, 106).

In his diaries, D. B. El’konin sees the sign mediation as a key category in Vygotsky’s thinking. For El’konin, however, mediation is a problem, too. He talks about the riddle of symbolic mediation. He is asking a seemingly simple question: “Why is a sign, in contrast to a tool, directed “inwardly” and, most importantly, how does it organize behaviour? If you look at it in natural terms, there is nothing in a sign that could do this.” (El’konin 2001, 10.)

Elkonin gives the following answer. The “sign” is introduced by another person, it initiates the behaviour of one person through another person. The sign is, so to say, an introduction of another person into the organization of a person’s behaviour. In this respect it is possible to understand a sign as a kind of social gift. A gift serves as a reminder of the giver. “That is why a sign is social, and that is why it organizes behaviour. – – The main significance of the sign is social, i.e., the organization of one’s own behaviour through another. – – Sign is efficacious because it is, so to speak, a mark of another’s active presence in one’s behaviour.” (El’konin 2001, 11.)

This remark of Elkonin opens up new questions, and directions for the inquiry. The first is the dialogical nature of the mind. If the other

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<sup>12</sup> On more detailed analysis of the meaning of Marx’s F-thesis, see Labica (1998).

is present in the meaning of a sign, then we can understand the human mind as dialogical sign activity, and the individual as a “social microcosm, as a type, as an expression or measure of the society” (Vygotsky 1997b, 317). This leads us beyond the individual – society dichotomy to a conception of the sociality of the individual. Another essential consequence of Elkonin’s remark is a semiotic understanding of the zone of proximal development. With the ZPD, there is mediation only if there are meanings (Kozulin 1990b). In the last phase of Vygotsky’s theory, meaning construction, symbolic mediation becomes a key to the interactions going on in the ZPD.

Zinchenko also expresses the dramatic nature of development in the zone of proximal development. “In a first approximation, the process of development in cultural-historical psychology may be described as a drama played out over the balance between real and ideal forms, their transformation, and their conversions back and forth from one to the other. The actor, and sometimes the dramaturge, is the subject of development. The stage is his life in the world, or the world is his life.” (Zinchenko 2001, 34.)

## Some conclusions

According to Ratner, “a great strength of Vygotsky’s psychological system is its logical consistency” (Ratner 1998, xiv). However, if we only emphasize the logical consistency, we might lose insight from the development of Vygotsky’s concepts. Instead of trying to postulate a supposed consistency in Vygotsky, the focus of this paper has been on the dynamics of the development of his concepts (see also Yaroshevsky & Gurgenedze 1997, 368).

We can now summarize the results of our analysis of the development of Vygotsky’s cultural-historical psychology and semiotic conceptions of the sign-speech system (see table one below).

**Table 1.** The development of Vygotsky’s theory of signs as semiotic mediators (CHP = cultural-historical psychology, EB = epistemological break)

	Socio-behaviourism	EB 1 Mediated activity.	Early CHP	EB 2? Semiotic Mediation,	Late CHP
Explanatory concepts	Speech as a system of social reflexes				Signs as instruments, psychological tools
Methodology of inquiry	Analytical-objective method		Instrumental method of double stimulation		Semiotic analysis of the systemic and semantic structure of consciousness

Vygotsky’s explanatory concepts move from a socio-behaviourist “speech-as-reflex” conception to a cultural historical idea of mediated activity. This move represents a break with the old “classical” explanatory model and through this break Vygotsky opens up a way to a new scientific approach to the psyche of human beings. This can be conceptualised as a transition from classical to non-classical psychology, as Asmolov and others do (Asmolov 1998; El’konin 2001), or as a break with “modern” science. In Althusserian terms, we could say that there definitely is an epistemological break between these two phases in Vygotsky’s thinking. Foucault, however, reminds us that the break does not happen at one single point. The socio-behaviourist phase can be understood as the beginning, as the positive discourse of consciousness, which transforms to the genuine theory of higher psychological function through several epistemological shifts and breaks. The first break between the socio-behaviourism and the cultural-historical theory is obvious (Langford 2005; Veresov 1999). What remains to be explained is the meaning of the transition from instrumental sign conception to semiotic understanding about sign mediation. Is there another break, the final move to the mature theory of higher psychological functions? In Althusser’s terms: does the cultural-historical psychology reach its youth only in Vygotsky’s late semiotic conception of signs?

Different answers to these questions implicate different understanding about recent development of the cultural-historical theory. If we

place the emphasis on the first break only, it is natural to see the two last phases in Vygotsky's thinking, so to speak, as two sides of the same coin. This is how Vygotsky has been read especially in the CHAT-tradition (see Engeström & Miettinen 1999). If we place the emphasis on the second break, there are two epistemologically different modes of psychological inquiry. Zinchenko makes this point clear: "It is time for us to realize that today we are dealing with *two scientific paradigms*: cultural-historical psychology and the psychological theory of activity." (Zinchenko 1995, 40. Emphasis added.)

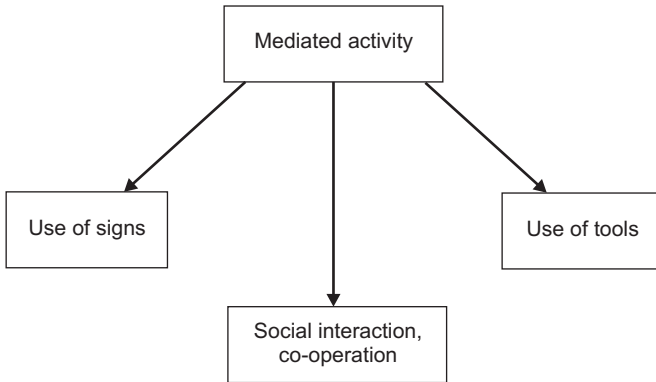
If we take even a most superficial look at the historical moment after Vygotsky's premature, we easily realise the diverse ways his work was read already at the time. The obituaries, written by Leont'ev and Luria in 1934 are most telling in this respect. Luria emphasises the speech-mediated, semiotic nature of higher psychological functions:

"Vygotsky analyzed the origin of such complex mental functions as logical memory, active attention, will, speech, thought; being one of the first psychologists in his country to introduce the 'developmental' method into the experimental study of these problems. His attention was drawn to the fact that speech plays the most important part in the development of complex behavior; *it is speech that creates new functions inter-connected through their meaning.*" (Luria 1935, 238. Emphasis added.)

Leont'ev makes a move towards the activity approach, which will become his endeavour for the next decades.

"Interpretation of the mediated structure of human psychological processes and mental phenomena in general as human activity was for Vygotsky the cornerstone, *the foundation, of the entire psychological theory he developed* – the theory of sociohistorical ('cultural' as opposed to 'natural') development of the human mind." (Leont'ev 1997, 43. Emphasis added.)

In Vygotsky’s methodology, there is a strong emphasis on the systemic nature of mediation. In his systemic and relational approach activity is mediated by tools, signs, symbolic systems and by other people. Vygotsky’s clue is always to relate these mediators to each other, because they function as a systemic whole, as a “psychological system” which “includes the complex combination of symbolic and practical activity” (Vygotsky 1999b, 61). From the methodological point of view one cannot separate signs, tools and social interaction from each other. This can be presented by slightly modifying Vygotsky’s original figure of the modes of mediation.



**Figure 3.** Systemic conception of mediatio

It is clear that Vygotsky’s own research interest was in semiotic mediation and joint activity, but he always emphasised the systemic approach and the need to relate all different forms of mediation to each other.

From this point of view, the cultural-historical tradition can be seen as a network of theories that have different research interests with partly compatible, partly competing interpretations of the basic nature of mediation (Hydén 1988). It is important to note that every research

interest opens up different *problematiques*.<sup>13</sup> The concept of object-oriented activity, developed after Vygotsky in activity theory, offers a good example. Object-orientation brings to cultural-historical theory an element what was missing in Vygotsky's writings, and opens up new directions for research. The interpretation of the concept of the object can, however, be different inside the mediational framework of analysis. It can be more instrumental or more semiotic. The debate between these interpretations is one of the basic components in the development of the cultural-historical theory itself.

In my reading, there is a really distinct semiotic phase in Vygotsky's thinking. However, his conception of sign mediation remains, in many respects, open to different interpretations. In this respect, we can see Vygotsky as a founder of discursivity in the sense Foucault interprets this word: "Founders of discursivity are unique in that they are not just the authors of their own works. They have produced something else: the possibilities and the rules for the formation of other texts. They have established an endless possibility of discourse." (Foucault 1991b, 11.)

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<sup>13</sup> This actual multi-voicedness of cultural-historical tradition was nicely reflected already in 1973 in Yrjö-Paavo's and Jarkko's *Human educability and educational politics* (Häyrynen & Hautamäki 1973). For current variations in theoretical discussion, see Podolsky's and Daniels' contributions in this volume.

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