Development of the Concept "Sign" in Cultural-Historical Psychology of L.S. Vygotsky: The Origins and Promising Areas of Research. Part 1

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The year 2024 marks the 100th anniversary of cultural and historical psychology. Taking in consideration the growing demand for the ideas and positions of cultural-historical psychology in the world professional community started in 1978 and continues to this day, we have to highlight a number of emerging problems. Without the analysis of these problems it is impossible to further develop the theory itself. Firstly, it is the variety of interpretations and readings of the theoretical foundations of cultural-historical psychology that have emerged over the past decades. Secondly, it is the transformation of the conceptual apparatus of cultural-historical psychology into a "screen" for eclectic and purely empirical constructions of modern research aimed at studying the problems of the development and structure of consciousness and higher psychological functions. At the same time, it is possible to truly understand Vygotsky's concept only on the basis of an analysis of the genesis, content and interrelation of those concepts that make up the methodology of cultural-historical psychology. This article examines the concept of "sign", which is one of the key concepts in the cultural-historical concept of L.S. Vygotsky. The aim is to reconstruct the path that the author of cultural-historical psychology himself took in determining the place and role of this concept in the holistic theoretical and methodological structure of the concept he developed.

Keywords: cultural-historical psychology, instrumental method, sociogenesis, development, tool, sign.

Развитие понятия «знак» в культурно-исторической психологии Л.С. Выготского: истоки и перспективные направления исследований. Часть 1

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В 2024 году культурно-исторической психологии исполняется 100 лет. Отмечая сегодня рост востребованности идей и положений культурно-исторической психологии в мировом профессиональном сообществе, начавшийся в 1978 году и продолжающийся по сей день, следует указать на ряд проявившихся проблем, без анализа которых невозможно дальнейшее развитие самой теории. Во-первых, это многообразие интерпретаций и прочтений теоретических основ культурно-исторической психологии, возникших за последние десятилетия. Во-вторых, это трансформация понятийного аппарата культурно-исторической психологии в «ширму» для эклектических и чисто эмпирических конструкций современных исследований, направленных на изучение проблем развития и строения сознания и высших психо-

логических функций. При этом по-настоящему понять концепцию Выготского можно только исходя из анализа генеза, содержания и взаимосвязи тех понятий, которые и составляют методологию культурно-исторической психологии. В данной статье рассматривается понятие «знак», являющееся одним из ключевых в культурно-исторической концепции Л.С. Выготского. Ставится цель реконструировать тот путь, который прошел сам автор культурно-исторической психологии в определении места и роли данного понятия в целостной теоретико-методологической конструкции разработанной им концепции.

Ключевые слова: культурно-историческая психология, инструментальный метод, социогенез, развитие, орудие, знак.

Introduction

...Without knowing the past, it is impossible to understand the true meaning of the present and the goals of the future.
M. Gorky, About the Poet's Library

Cultural-historical psychology, which emerged in the late 1920s and early 1930s, is today one of the most influential and dynamically developing *paradigms* (in the sense of T. Kuhn [19]), shaping the development of modern scientific psychological (and more broadly—humanitarian) knowledge. Vygotsky's ideas on the origins, structure, and development of the psyche and consciousness, which were practically excluded from open scientific discourse in 1936[1], were revived 20 years later (in the USSR) with the publication of the first volume of Selected Psychological Research. Outside of the USSR, the "first acquaintance" with Vygotsky's works would occur six years later in 1962, with the publication of the English translation of *Thought and Language,* introduced by J. Bruner [22]. Nevertheless, even during the period of official prohibition, Vygotsky's theoretical positions positions were further developed by his students and followers in *"removal form"*. The significant split between Vygotsky and some representatives of the "Kharkov group" (primarily its leader, A.N. Leontiev), which arose from discussions on the subject, sources, and driving forces of the development of the psyche and consciousness, did not completely sever these ties.

The greatest surge of interest and attention towards Vygotsky's work came in 1978 when the collection *Mind and Society: The Development of Higher Psychological Processes* by Michael Cole was published. It remains the most cited source on the subject of cultural-historical psychology in English-language literature. [25]. The interest continues to grow even today. Scientometric studies show a "positive trend in the number of publications containing key terms and figures from cultural-historical psychology in both Russian and English languages" [25], including such concepts as "tool", "sign", "zone of proximal development", "higher mental functions", "social situation of development", "collaboration," and others. Especially noteworthy are materials from L.S. Vygotsky's personal archives, published by E.Yu. Zavershneva and R. Van der Veer [2, 15, 16]. According to M. Dafermos, these materials sparked a true "archival revolution" and opened "new opportunities for the study and understanding of this scholar's legacy" [14].

However, while noting the increasing demand for cultural-historical psychology in the global professional community, it is essential to highlight several problems that are becoming more prominent. *Firstly*, there is the wide range of interpretations and readings of the theoretical foundations of cultural-historical psychology that have emerged in recent decades. In this regard, M. Dafermos poses the question: "What should be the criteria of choice between different readings and versions of Vygotskian theory", considering that "radically opposite readings of Vygotsky's texts and different interpretations of Vygotsky's legacy have emerged" [14]. The emergence of different readings and interpretations of any theory is inevitable. Such tendencies provide the foundation for substantive discussions that define the development of the theory itself. The formation of various scientific schools within it, whose experimental research aimed at testing the hypotheses put forward by their authors, allows us to fill gaps and answer the questions left unanswered in the "parent" theory (for example, the scientific schools of L.I. Bozhovich, A.V. Zaporozhets, D.B. Elkonin, V.V. Davydov, and other disciples, associates and followers of L.S. Vygotsky). Nevertheless, the opposite end of these processes creates the risk of the "degeneration" of the theory, its superficial perception

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[1] The result of the introduction of the resolution of the Central Committee of the The Central Committee of the ACP(B) of July 4, 1936 "On pedological perversions in the system of People's Commissars"

and fragmentation. This brings us to the *second* problem, which is related to the transformation of Vygotsky's theory into "chewing gum, suitable for everyone and under any conditions"[2] [14]. The conceptual apparatus of cultural-historical psychology is often used as a facade, covering up fragile, eclectic, and purely empirical constructions. F.T. Mikhailov notes: "Cultural-historical psychology has turned into a myth. Many psychologists use Vygotsky's terminology merely for its effect, formulating personal scientific problems within the logic of overt empiricism" [21]. Thus, a methodology that defines ways of formulating and solving both fundamental and practical problems in various fields of social life is reduced to a simple cliché. Vygotsky himself was a staunch opponent of eclecticism in science and practice. "I do not want to stitch together a few quotes and claim to know what the psyche is; I want to learn from the Marxist method how to build a science, how to approach the study of the psyche. ... We don't need random remarks; what we need is a method!" [5]. And Vygotsky developed such a method, *an experimental-genetic method,* — based on a system (a synthesis) of the theoretical positions and concepts of his cultural-historical psychology. Thus, to understand Vygotsky's theory, it is essential to analyze the *content and genesis[3] of the concepts that form the methodology of cultural-historical psychology.*

This article examines the concept of the "sign" or "psychological tool", which is one of the key concepts in Vygotsky's cultural-historical theory. Vygotsky specifically emphasized that the fundamental principle of the new psychological theory should be "the tool-like nature of human activity in general, and the psyche in particular" [22]. However, the goal here is not to provide a new understanding or interpretation of this concept; such a task cannot be accomplished within the framework of a single article. Ut is crucial today to reconstruct the path Vygotsky himself took in determining the place and role of this concept within the comprehensive theoretical and methodological structure of the theory he developed.

"Mediation" and the Concept of Sign in the Early Works of L.S. Vygotsky (1923—1926)

The idea of mediation reflects the "whole approach" of Vygotsky's solution to the problem of cultural ("higher") development of the psyche. This concept runs like a red thread through all his works, even in the earliest scientific reports and publications, it was expressed in a rather general and not fully conscious form. In January 1924, in Petrograd, where the 2nd All-Russian Congress on Psychoneurology took place, Vygotsky delivered three reports, one of which was The Methodology of Reflexological Research Applied to the Study of the Psyche [15]. This report, with subsequent additions and edits, was later, in 1926, published as the article Methodology of Reflexological and Psychological Research. In this article, Vygotsky emphasized the importance of a new method for studying consciousness, the "psycho-reflexological method". He contrasts it with the *introspective method* (or *experimental self-observation method*), well-known in the Würzburg School, and with the classical reflexological method. While *classical reflexology* focuses on the study of "the entire behavior of a person" in its diverse and complex interactions with the environment (including the social environment), it still relied on the "classical experiment of forming a conditioned reflex (both secretory and motor)". This method excluded from its scope the hidden processes that are not directly observable but are crucial in organizing behavior, such as thinking. "Reflexology must take into account thoughts and the entire psyche, , if it wants to understand behavior. The psyche is merely inhibited movement, and objectively, it includes not only what can be touched or seen by everyone" [7]. In accordance with this position, Vygotsky proposed an *indirect (mediated) method* for studying "unmanifested (delayed) reflexes" (*thoughts*) through the system of reflexes in which they are reflected — "speech reflexes" that are "evoked" by a specially structured inquiry, that is, through a system of stimuli with precise consideration of every sound and strict selection of only those reflected systems of reflexes that can be scientifically and objectively significant in the given experiment" [7].

Justifying the method of "indirect research of the psyche", Vygotsky described an experiment he conducted to study "logical memory". What interests us first and foremost is the experimental design and Vygotsky's approach to interpreting the data. The participants (students at a pedagogical technical school) were presented with a series of 50-100 words serving as objects for memorization (e.g., "mechanics", "lamp", "Ural", etc.). Along with these series of "object-words",

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[2] M. Dafermos points out that this situation is characteristic of the English-speaking regions of the Western world, but the same tendencies are also manifested in Russian scientific circles.

[3] The problem of understanding the genesis of the key concepts of cultural-historical psychology is very important, because, as follows from Vygotsky's diaries with comments by E. Yu. Zakvershneva, he was always very critical not only towards the ideas of his opponents, colleagues, and disciples, but also towards his own previously expressed theses. It means, that even during Vygotsky's short life, cultural-historical psychology was not just a system of concepts "cast in a monolith", but a system of developing concepts, and their structural and content relations were constantly revised.

they were presented with a series consisting of the names of well-known Russian writers ("Kantemir", "Trediakovsky", "Lomonosov", etc.), arranged chronologically. The participants were instructed to silently recall one of the names from the second series in a predetermined order immediately after hearing a word from the first series. For example, when the experimenter said "mechanics", participants had to recall the name "Kantemir". Furthermore, the participants had to mentally answer a question regarding the connection between the first and second words. At the end of the main stage of the experiment, during which participants were asked to recall all the "object-words" both in the original and reverse order, the experimenter conducted an inquiry into "the processes of memorization, association, and recall". Vygotsky notes that only those "statements" of the participants that had an *objective nature*, specifically the silent speech they articulated to themselves, were recorded. [12].

In analyzing this research, Vygotsky is primarily focused on the possibilities provided by the psychoreflexological method, which allowed for the objective registration of "unmanifested reflexes" occurring in the form of "silent speech", thereby turning this method into a tool for studying consciousness. For Vygotsky, the most important outcome of this experiment was not the simple recording of the participants' verbal responses but the experimental validation of a new method. This method made it possible, in Vygotsky's view, to move beyond a simplistic associative interpretation of the structure of consciousness, suggesting that "the reflex is a social animal, like the person, and it is necessary to study the sociology of reflexes—the laws of their communal existence and their arrangement into groups and chains" [12].

As E.Yu. Zavershneva points out, "The experiment involved methods of voluntary mediated memorization, i.e., active construction of logical connections in memory, where thinking was engaged in the process of memorization <...> However, neither these methods nor the mechanisms governing memory were fully studied in this experiment" [15]. This was partly due to the specific aims of the study and partly because the conceptual and terminological apparatus to explain the observed phenomena within the framework of reflexology had not yet been developed. Moreover, no clear research agenda had been formulated based on a methodology that could overcome the limitations of contemporary reflexology. Nevertheless, some "hints" of the key ideas and principles of Vygotsky's future cultural-historical psychology can already be identified in this early work. For example, a) the thesis about the association of reflexes into specific systems of complexes

will later emerge in the theory of the systemic structure of consciousness and higher psychological functions, and b) the thesis about the need to study the "sociology of reflexes", concerning the mechanisms of self-awareness and the understanding that "speech is a system of reflexes of social contact", will later be transformed into the principle that consciousness arises from "forms of collective-social activity" and the recognition of the role of the *sign* (*a cultural tool*) in the development of higher forms of consciousness and behavior.

Based on an analysis of the article "Consciousness as a Problem of the Psychology of Behavior" (1925), we can speak of a new stage in Vygotsky's work and his search for an entirely new approach to solving the problems of the origin and development of consciousness — an approach distinct from both "objective" (behaviorism, reflexology, reactology) and subjective-empirical theories. Here, Vygotsky introduced the concept of "historical experience" for the first time, understood as the use of the experience of previous generations in behavior, labor, and, broadly, in our entire life, , which cannot be transmitted through biological mechanisms. He formulated the specific relationships between the "historical", "social", and "personal" experience of a person during his development. "Historical and social experience clearly do not represent anything psychologically distinct because they cannot be separated and are always given together. Let's connect them with a plus sign" [10]. Vygotsky sees "consciousness" as a particular case of social experience, emphasizing that "the individual element is constructed as derivative and secondary, based on the social element and in its exact likeness" [10]. At this stage, Vygotsky only vaguely indicates the connection between "historical", "social", and "individual" in the development of consciousness. However, he does not yet identify the element that would embody all these components and act as the "mediating" link in the process of cultural (i.e., socio-historical) development. This next step is outlined by Vygotsky in 1927, in his work "The Historical Meaning of the Psychological Crisis", where he points to "the necessity of developing concepts that could not only explain and describe the psyche but also facilitate mastery over it" [17].

Instrumental Psychology: A New Stage in Vygotsky's Work and a New Research Program

By 1928, Vygotsky published several works with titles referencing "cultural development": "Anomalies in the Cultural Development of a Child", "The Genesis of Cultural Forms of Behavior", and "The Problem of Cultural Devel-

opment of a Child". These works mark a new stage in the scholar's work—one associated with the development and justification of the *instrumental method*, which, according to Vygotsky himself, not only "provides the principle and method for the psychological study of the child" but also serves as a key to practical mastery in education and school teaching of higher (purely human) forms of behavior. [10]. At the core of this method is the idea of the mechanism of *cultural development* as a process in which the child masters "*cultural tools*" — language, writing, various counting systems — "which humanity created in the course of its historical development". Functionally, the instrumental method is based on the *double-stimulation method*, in which the child's activity (behavior) is organized simultaneously by two sets of stimuli. One set acts as an auxiliary tool (*a stimulus-tool*) for carrying out a psychological operation directed at the second set of stimuli (*stimulus-objects*). Drawing from Marxist classics, Vygotsky makes an analogy with tools, noting that just as technical tools "restructure the entire organization of the labor operation", so "*psychological tools*" (*cultural means, signs*) "restructure the entire organization of the psychological operation" [9]. However, Vygotsky later emphasizes the distinction between technical tools and psychological tools, going so far as to contrast them. [23]. In his work "The Instrumental Method in Psychology" (1930) he pointed out that although it is possible to draw an analogy between them to a certain extent, "the essential difference between a psychological tool and a technical tool is in the direction of their action: the psychological tool is aimed at the psyche and behavior, while the technical tool, although also inserted as an intermediary

between human activity and an external object, is intended to bring about changes in the object itself; *the psychological tool does not change the object; it is a means of influencing oneself (or another)* — on the psyche, on behavior, rather than a means of affecting an object. In the instrumental act, therefore, the activity is directed towards oneself, not towards the object" [10].

To truly understand the role and the meaning of *signification* (the creation and use of signs, artificial signals) in the development of higher forms of behavior, it is essential to emphasize Vygotsky's idea that the *sign* is a *means of influencing another, a means of social connection*, as he noted in his work "Concrete Human Psychology" (1929) [6]. As an example, consider an experimental study on the mastery of attention.

In this experiment, two identical bowls were placed in front of a child. A nut was secretly hidden by the adult in one of the bowls, while the other bowl remained empty. Both bowls were covered with identical white cardboard lids. A dark-gray mark was placed on the lid covering the bowl with the nut, while a light-gray mark was placed on the other lid (Fig. 1). According to the rules of the game, the child had to choose and point to the bowl containing the nut. If successful, the child got to keep the nut; if not, they had to give one of their own nuts to the experimenter.

Initially, the children solved this task through trial and error, winning and losing about equally. In these "natural conditions" (i.e., without the adult's assistance), the "*sign*" present in the situation (the color of the lids) was not distinguished by the children as a spe-
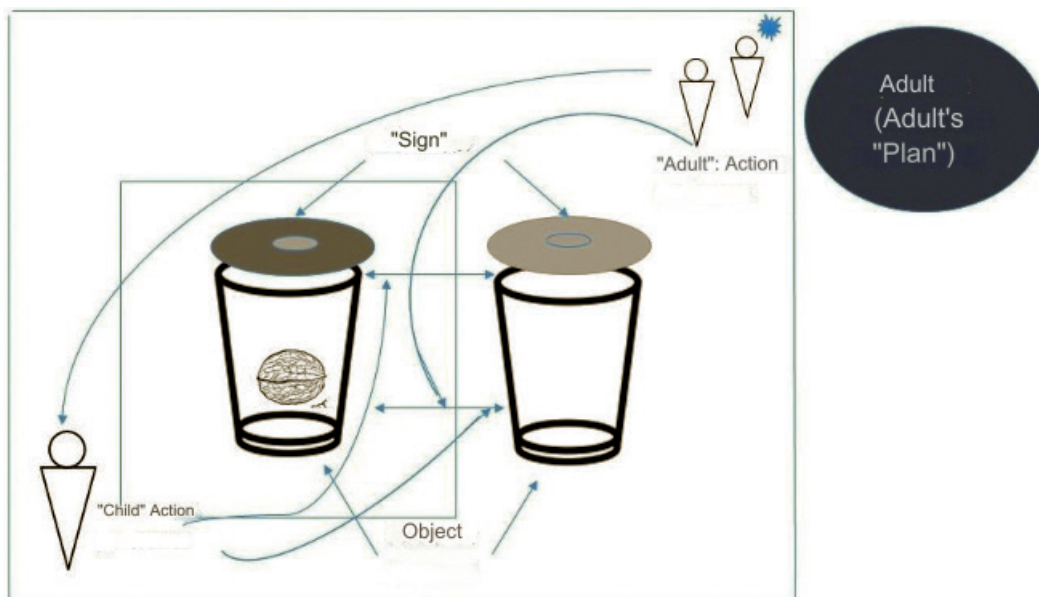

Fig. 1. An experimental scheme in experiments on mastering attention[4]

[4] The scheme is based V.V. Rubtsov work "Development and Learning in the Context of Social Interactions: L. Vygotsky vs J. Piaget" [24].

cific means to organize their behavior. Thus, it did not become a *sign* in the true sense, as it did not acquire its corresponding function. Vygotsky noted that even after a substantial number of trials, when it seemed that the child was developing a positive reaction to the dark-gray mark, this reaction was not confirmed in critical trials or when returning to the original situation [11].

The experiment was then altered. The adult now placed the nut in the bowl in the child's presence and *pointed* to the dark-gray mark with their finger. Following this, the situation changed dramatically. The child began winning without making mistakes and successfully transferred this problem-solving method to control trials where the marks were of a different color. Furthermore, the solution remained effective even after several days.

For Vygotsky, the most crucial moment in the experiment was the *pointing gesture*. Through this gesture (*which could be replaced by a word with the same function*), *the adult initially directed the child's attention*, highlighting specific characteristics and properties of the environment that the child needed to connect with their response. In this case, the property was the correspondence between the location of the object (the nut) and the color of the mark. As V.V. Rubtsov noted, the gesture expressed the "attention of the adult", which the child needed to master [24].

Through the pointing gesture, the adult set up the child's focus on the property, catalyzing the processes through which the child began to identify the color mark as a possible tool for organizing their own behavior [18]. When the child started to "operate" with the external tool in solving the task (i.e., establishing the connection between the color mark and the nut's location), this tool began to serve the same function as the adult's pointing gesture. The only difference was that, earlier, the *child had been directed by the adult through the gesture*, which was the *adult's tool for influencing the child's behavior*. the child directed their own attention using the tool discovered in the situation of collaboration with the adult. Now, when a child establishes (*discovers for himself*) *the designated connection of "objective" and "symbolic" structures, he directs his own attention through a means discovered (and acquired) in a situation of cooperation, "embodying"* the previously existing method of interaction between a child and an adult. Mastery of such tools fundamentally transforms the structure and mechanisms of natural psychological functions, making them *voluntary* (i.e., under the child's control).

In 1930, in the joint work "Studies on the History of Behavior", L.S. Vygotsky and A.R. Luria wrote: "The first

functional relation to an object is the first step toward the development of cultural forms of behavior — it is the first step toward establishing an active, not merely mechanical, connection between the child and the external world" [13]. The emergence of such *functional relations* to an object becomes possible because the external tool becomes, in the truest sense, a *sign* — a way of social interaction that becomes a tool for individual self-regulation [1]. Voluntary attention (like any other higher psychological function) is thus "the social within me". Hence, Vygotsky's famous proposition that "the sequence of cultural development in a child is as follows: first, others act in relation to the child; then the child interacts with the surrounding environment; finally, the child begins to act on others, and only in the end does the child begin to act on themselves" [11]. This conclusion, drawn from experimental data, encapsulates a key idea that Vygotsky outlined back in 1924: "The mechanism of self-awareness and the recognition of others is the same; we are aware of ourselves because we are aware of others, and by the same means that we are aware of others because we, in relation to ourselves, are the same as others are in relation to us" [7]. D.B. Elkonin also addressed this problem in his diaries in 1981, asking how it becomes possible to *organize behavior through a sign*. His answer was: "...a sign introduced by another person is a novelty in the organization of the first individual's behavior. This is the meaning of any sign operation; the significance of a sign lies in the function of the other person through which it is introduced into the organization of behavior (decisive, controller, generally helpful, reminding of someone)). A sign, in this sense, is like a gift — reminding one of the giver. Thus, the sign is inherently social and, for this reason, organizes behavior" [28]. It follows directly from this that a *sign operation*, or a *mediated form of behavior*, is "the trace of the active presence of another in behavior" [29], — the Other present within us through the function the sign plays in our behavior.

In the experimental example described, we see the principle that for any external tool to become a *sign* — a *psychological tool* — it must first serve as a means of social communication between subjects.

In Figure 2, the schematic representation illustrates the principle according to which "...an instrumental operation is always a social influence on oneself" [6]; the sign mediates the relationship with oneself as if one was another person. Initially, the sign functions as a specific means of communication between two subjects, and then it "inserts itself... between the person and their brain. It supports the operation directed toward the object, but its real object is the operation itself, the neural process" [11]. The thesis that the sign "inserts itself"[5], in

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[5] The term "pushed in" can most likely be understood as a purposeful act of applying a "communicative tool" to transform an individual psychological operation directed at the object of action (memorization, comprehension, etc.).
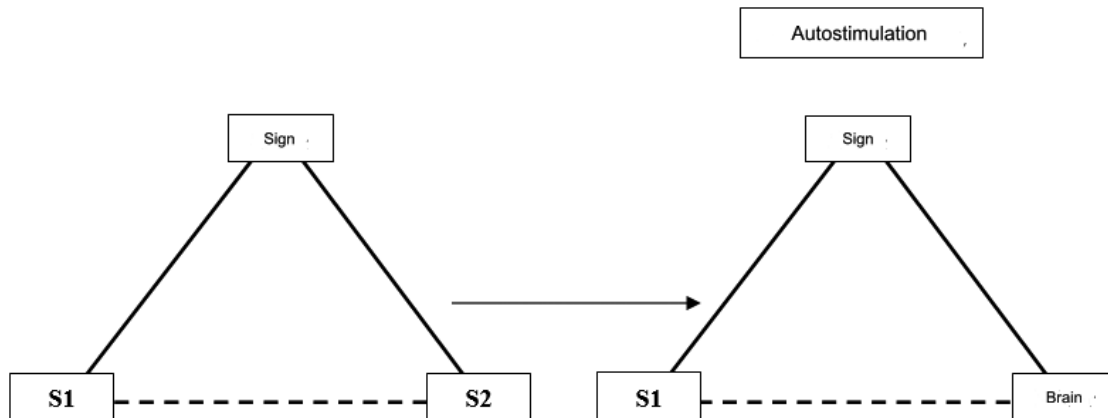
Fig. 2. A diagram showing the social nature of the "sign"[6]

the end, between "the person and the brain" is essential for understanding the structure and mechanisms of the formation of higher psychological functions. The ability to "control the brain" by regulating the flow of neural processes, altering the structure of natural (innate) psychological functions, is based on two significant foundations of human activity. **The first foundation** lies in the regularities of natural development, which are rooted in the mechanism of conditioned reflex formation. "When we... deliberately intervene in the processes of our behavior, this is done only according to the same laws to which these processes are subject in their natural course, just as we can modify and subordinate external nature to our goals only according to its laws" [9]. Vygotsky demonstrated this thesis in the context of studying mnemonic techniques. He showed that a new way of memorizing can be broken down into its conditioned-reflex components, just like the formation of associative connections in natural memory. The inclusion of a sign as an intermediate element in the natural process of forming a conditioned reflex "gives a new direction" to these processes, forming a new construction, a "combination of neural connections", which can no longer be decomposed further and becomes "the minimal unit of analysis that retains all the properties of the psychological function" [10]. This idea was further developed in A.N. Leontiev's work "Development of Memory: An Investigation of Higher Psychological Functions", carried out under Vygotsky's supervision in 1931: "...Mediation of the act of memorization does not change the biological laws of this function; it only changes the structure of the operation as a whole. By organizing the appropriate "stimulus-tool", which ensures the reproduction of the impression received, we master our memory by mastering its stimulation, i.e.,

we control it based on the subjugation of its own natural laws" [20].

Leontiev rightly notes that it is not enough to point out that the higher forms of memory are governed by the same general neurophysiological laws as natural memory. Hence, the **second foundation** is the very fact of human social life, which imposes new tasks and specific demands, primarily the need to organize joint (collective) activity, whose regulation requires the development of means to manage one's own behavior and that of group members. Initially, these are primitive means, such as the "message sticks" of Australian tribes, "knots for memory", "knot writing", and so on. Eventually, these means were refined and led to the emergence of uniquely human, symbolic behaviors like speech, counting, and writing. It is the development of such mediated behavior that sets the condition for the transition from a biological to a *historical type* of development: "...The use of means that organize a person's behavior stops the development of psychological functions through direct changes in their biological basis and opens the era of their historical, social development" [20]. This is the key difference and profound connection between natural (innate) and higher (cultural) psychological functions — with the onset of the "era" of cultural-historical development, it is not the "brain substrate" as the natural basis of the psyche that transforms, but the methods of regulating (managing) the natural processes and mechanisms of psychological activity. Such regulation is based on the functional (instrumental) use of sign-symbolic systems historically developed by humanity, which are acquired by the individual during ontogenetic development "under the influence of the social environment", i.e., in the context of joint (collective) human activity.

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[6] The term "pushed in" can most likely be understood as a purposeful act of applying a "communicative tool" to transform an individual psychological operation directed at the object of action (memorization, comprehension, etc.).

This "acquisition" does not occur instantaneously, like an "insight". Vygotsky showed that the development of sign operations in a child (significative function), and consequently of all higher forms of behavior, has its own history and progresses through several stages. The first is the *stage of "primitive psychology"*, where the use of signs or external means is absent, and the child relies only on the possibilities and resources of natural functions. Nevertheless, this stage is significant, as it is where the child first encounters difficulty, i.e., the inability to solve a task solely by natural means. The second stage is that of *syncretism or naive psychology*, i.e., an undifferentiated unity of two sets of stimuli (stimuli-objects and stimuli-tools). At this stage, the sign does not yet perform its functional role, i.e., it does not serve as a means to transform the operation directed at the object. As Vygotsky notes, at this stage, "the child takes the connection between things for a connection between thoughts" [9]. In the next, third stage, of the *external cultural sign*, the child discovers (either independently or with the help of an adult) a new way of forming connections, and as a result, the solution to the "internal" task (for example, memorization) is transformed into a rather complex and multifaceted external activity. The third stage passes relatively quickly, and the child transitions to the fourth stage — the stage of internally mediated sign operations, where "the external technique becomes internal". Vygotsky identifies three types of this transition of an external tool into an internal one: "complete incorporation", "incorporation through stitching", and "mastery of the structure of the external technique". The last of these types — mastery of the structure — can be reasonably considered the emergence of the child's *significative function*, i.e., the sign operation as a way of acting in situations where solving the task by "direct" (natural) means is impossible. Thus, Vygotsky demonstrated that the formation of sign operations, like all psychological functions, occurs in the process of their development, i.e., their qualitative transformation from "lower" (natural, primitive) forms to "higher" (cultural, voluntary, systemic) ones. The gradual development of sign operations is also confirmed in the work of L.S. Sakharov, conducted under Vygotsky's supervision, which investigated the process of concept formation as the acquisition of meaning by a meaningless word. Sakharov identified three stages through which a word passes in acquiring its significative function: 1) the word as an individual sign, a proper name for a thing; 2) the word as a family sign, uniting a group of things by an associative feature; 3) the word as an abstract concept [26].

Returning once again to the problem of the interrelation between the "historical", "social", and "individual", which Vygotsky raised back in 1925 and resolved through the sign +, we can conclude that in The History of the Development of Higher Psychological Functions, which "closes" the "instrumental period" of the scholar's work, this problem is approached from a new perspective. "The integration of a normal child into civilization generally represents a unified blend with the processes of their organic maturation. Both developmental plans — natural and cultural — coincide and merge with one another. Both series of changes interpenetrate and form a single sequence of social-biological formation of the child's personality. Since organic development occurs in a cultural environment, it becomes a biologically conditioned historical process" [11].

Conclusion

The "instrumental period" of Vygotsky's work conventionally ends in 1931. In 1932, Vygotsky began formulating a new research program, where the concept of "meaning" emerged as the key, "central" element. In the theses for A.R. Luria's report (1932), based on the materials from the expedition to Uzbekistan, Vygotsky noted: "A sign operation without the analysis of meaning tells us nothing. Memorization with the help of a knot can be genetically the lowest or the highest: a symbol of a higher order" [16]. This was followed by an even clearer indication of a change in approach to the central problem of the new program: "Previously, we were interested in the effect of memorization, external progress being brought to the surface. Now we are interested in going inside, the inner atomic structure of the word, because incorporation cannot be understood from repetition but from internal mediation. How did we understand it? As the representation of the word. This is incorrect. Meaning, in the psychological sense, is the internal structure of a sign operation. A sign mediates through meaning" [16]. This period of Vygotsky's work warrants special attention (as we will do in subsequent publications of this cycle of articles), as despite its relatively short duration, it is one of the most productive and intellectually dense periods. It was during this time (1932 to 1934) that a rather intense debate unfolded, marked by active criticism and self-criticism between Vygotsky and several of his colleagues (e.g., A.N. Leontiev, A.R. Luria, and others) regarding the subject matter of past and future research. This period saw a rethinking of many central issues in cultural-historical psychology, including the method of investigation, the structure of consciousness, and the mechanisms of its functioning. It was also when

the new concept of the "zone of proximal development" was introduced[7].

Vygotsky's ideas about the mediating role of signs in development and the relationship between "sign" and "meaning" were later developed in the works of V.V. Davydov, G.A. Zuckerman, B.D. Elkonin, L.I. Elkoninova, Yu.V. Gromyko, E.A. Bugrimenko, and others. V.V. Rubtsov's work developed and experimentally substantiated the socio-genetic method for studying development in learning, in which the relationship between the content of the studied object, the structures of joint activity, and sign-symbolic structures in the process of concept formation is specifically examined. This method is implemented in a series of studies by Yu.V. Gromyko, A.Yu. Korostelyov, A.G. Kritsky, O.B. Konstantinova, and A.V. Konokotin, where the role of signs (sign-symbolic means) in the process of concept formation in conditions of co-distributed learning activities is specifically considered. In addition, the development of the ideas of cultural-historical psychology has gained significant importance in the works of O.V. Rubtsova, who developed the Multimedia-Theater activity technology — a system of role experimentation in which students (adolescents) assimilate "new cultural signs" presented through various "experienced" and "lived" social roles and realized in the patterns of role behavior within joint activities. These studies, their results, and their connection to the fundamental principles of L.S. Vygotsky's theory will be discussed in subsequent articles.

In conclusion, it should be emphasized that cultural-historical psychology is a thoroughly developed and dynamically evolving system of concepts and corresponding terms. The question of understanding the content and genesis of the conceptual and terminological apparatus is not a "frivolous" or secondary aspect of scientific work, but one related to understanding the reality that is the subject of study. Vygotsky wrote: "Language, and scientific language in particular, is a tool of thought, an instrument of analysis..." [5]. Therefore, the use of scientific terms and concepts (including "sign", "tool", "sign operation", "signification", "mediation", etc.) as simple "labels" without understanding their origin and content, established within the framework of a particular scientific concept, leads to a significant distortion of both the concept itself and the work conducted using its methodology.

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[7] V.K. Zaretsky notes that with the advent of this concept, "the conceptual framework of cultural-historical theory can be considered complete, since it contains a concept linking together a number of breakthrough ideas of L.S. Vygotsky about the specifics of human development, about his consciousness, about the role of culture and the interaction of a child with other people" [17].

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