

**A STUDY OF THE DEVELOPMENT IN THE SYSTEM OF CONCEPTS
OF CULTURAL-HISTORICAL PSYCHOLOGY**

ИССЛЕДОВАНИЕ РАЗВИТИЯ В СИСТЕМЕ ПОНЯТИЙ
КУЛЬТУРНО-ИСТОРИЧЕСКОЙ ПСИХОЛОГИИ

Means Problem in Cultural-Historical Theory

Nikolai E. Veraksa

Lomonosov Moscow State University, Moscow, Russia
Federal Scientific Center for Psychological and Interdisciplinary Research, Moscow, Russia
ORCID: <https://orcid.org/0000-0003-3752-7319>, e-mail: neveraksa@gmail.com

The article presents a dialectical analysis of psychological means as one of the problems within cultural-historical psychology. The author raises the question of what properties psychological means must have in order to serve as a tool for influencing the actor's behavior. As means are considered those presented in L. Vygotsky's works: sign, symbol, visual diagram, concept of opposition. This study offers a solution to a number of theoretical problems: it gives a description of the primary and ideal forms' structure as well as explains the possibility of their interaction (including in the process of mediation). The key properties of symbolic means are determined: the presence of material and ideal components, as well as experiences that presuppose the unity of affect and intellect. These qualities allow the sign to mediate the interaction of the primary and ideal form. The product of sign mediation is the formation of higher psychological functions in the child. The hypothesis is substantiated that it is advisable to consider relations of opposition as cultural means, and their mastering is necessary for the dialectical thinking formation as the highest psychological function. The study shows that one of the fundamental properties of opposite relations is their two-level nature. This property is demonstrated in the use of opposites in cycles as it involves a transition from content analysis to structure analysis and back. The theoretical research carried out is aimed at developing the cultural-historical concept, including the problem of psychological means. The work done has practical significance, because it provides a detailed description of the means' transformations that arise in the process of social interaction between an adult and a child.

Keywords: cultural-historical psychology, sign, symbol, visual diagram, concept of opposition, education, perezhivanie, environment.

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Проблема средств в культурно-исторической теории

Н.Е. Веракса

Московский государственный университет имени М.В. Ломоносова
(ФГОУ ВПО «МГУ имени М.В. Ломоносова»);
Федеральный научный центр психологических и междисциплинарных исследований
(ФГБНУ «ФНЦ ПМИ»), г. Москва, Российская Федерация
ORCID: <https://orcid.org/0000-0003-3752-7319>, e-mail: neveraksa@gmail.com

В статье представлен диалектический анализ психологических средств как одной из проблем культурно-исторической психологии. Автор ставит вопрос о том, какими свойствами должны обладать психологические средства, чтобы выполнять функцию орудия воздействия на поведение субъекта. В качестве средств рассматриваются те из них, которые представлены в трудах Л.С. Выготского (знак, символ, наглядная схема, понятие противоположности). Решается ряд теоретических задач: дается описание структуры первичной и идеальной формы и приводится объяснение возмож-

ности их взаимодействия, в том числе в процессе опосредствования. Определяются ключевые свойства знаковых средств: наличие материальной и идеальной составляющих, а также переживаний, предполагающих единство аффекта и интеллекта. Эти качества позволяют знаку опосредствовать взаимодействие первичной и идеальной формы. Продуктом знакового опосредствования является формирование у ребенка высших психологических функций. Обосновывается гипотеза о том, что отношения противоположности целесообразно рассматривать в качестве культурных средств, освоение которых является необходимым условием формирования диалектического мышления как высшей психологической функции. В статье показано, что одним из фундаментальных свойств отношений противоположности выступает их двухуровневость. Она выражается в том, что применение противоположностей носит циклический характер и предполагает переход от анализа содержания к анализу структуры и обратно. Выполненное теоретическое исследование направлено на развитие культурно-исторической концепции, включая проблему психологических средств. Прделанная работа имеет и практическое значение, так как в ней приводится развернутое описание трансформаций средств, возникающих в процессе социального взаимодействия взрослого и ребенка.

Ключевые слова: культурно-историческая психология развития, психологические средства, знак, символ, наглядная схема, отношения противоположности, обучение, переживание, среда.

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Introduction: the focus of psychological means

The problem of psychological means was raised within the framework of cultural-historical psychology by L.Vygotsky and continues to remain relevant up to the present time. This problem has a number of contexts in which it is analyzed. One of such contexts is the orientation of psychological means. L.Vygotsky wrote: “The essential difference between a sign and a tool... is the different orientation of one or the other” [10, p. 90]. Some affect objects, others control human behavior. The latter are cultural means.

The question that arises in connection with orientation is the following: what properties should a psychological tool have in order to influence the human psyche? Answering this question, L.Vygotsky turned to the principle of signification. The principle is that a person himself creates artificial stimuli with the help of which he influences his own psyche [10, p. 85].

L.Vygotsky emphasized that a psychological tool performs mediating activity [10, p. 89]. It is useful to understand what is mediated. L.Vygotsky considered various signs. Since the sign is brought outward, one side of the sign must be material. But the effect is directed to the human psyche. Consequently, the means must also have an ideal side. Without this it cannot correspond to the general genetic law of cultural development: “Any function in the cultural development of the child appears on the stage twice, in two plans, first, at the social, then at the psychological, first between people, as an intersychic category, then inside the child, as an intrapsychic category” [10, p. 145].

It becomes clear that psychological means is aimed not only at managing human behavior, but also at transforming the social plan into a psychological one. It mediates the process of transformation. Let us make one addition. Let us turn to a road sign as an example. It is clear that a road sign has two sides: material and ideal. The material side characterizes the possibility of the subject’s perception of the sign situation, and the invisible ideal side corresponds to the meaning of the sign. In addition to the meaning of the sign and its appearance, there is another component of the structure of the sign, which is expressed in the experience of danger associated with the sign situation. There is every reason to include in the structure of psychological means also the experience connected with the sign situation, characterized by the unity of affect and intellect and reproduced in the imaginary, i.e. in the ideal plan.

Considering the ideal plan, E. Ilyenkov wrote: “the object is idealized only where the ability to actively recreate this object, relying on the language of words and drawings, where the ability to turn “word into deed” and through the deed into a thing is created” [16]. In fact, E. Ilyenkov spoke about two types of means: “words and drawings”, with the help of which an ideal image can be transformed into a real thing.

The preliminary conclusion is as follows: the means (sign) acts as an artifact, which implies a system of actions characterizing the cultural ways of operating this artifact. The sign is aimed both at controlling the subject’s behavior and at the process of transforming the social plan into a psychological one. It is also associated with the experience of the situation in which it is applied, influencing the child’s behavior.

Analyzing the environment in the cultural-historical theory of development

It is reasonable that the problem of cultural means in L. Vygotsky's theory includes the analysis of the environment. Such a statement is a direct consequence of the general genetic law of cultural development, according to which the highest psychological function initially exists in the external plane. But if this is true, the question arises as to how the realization of psychological operations occurs precisely in the external plan. The answer to it is partially contained in the description of the stages of development of psychological formations, in particular, in the characterization of the stage of external sign [11, p. 109]. As examples, L. Vygotsky cited the stage of "counting on fingers", the stage of "external mnemotechnical signs", egocentric "child's speech" [11, p. 109].

The adult controls the child's behavior, using words, indicating how to act in this or that situation [23]. The child, with the help of the adult, transforms his/her behavior in accordance with verbal instructions, assimilates these instructions, and, finding himself/herself in a similar situation, reproduces them aloud, independently instructing himself/herself, and then acts in accordance with the spoken instructions.

Thus, the environment includes a number of components. According to L. Vygotsky, the environment is the source of development. However, L. Vygotsky did not limit his characterization of the environment to the inclusion of cultural artifacts (signs) and participants of social interaction (subjects) in its analysis. He noted that the analysis of the environment should be based on the understanding of the relationship that is established "between the child and the environment at a given stage of development" [7, p. 75]. He emphasized that the influence of the environment on the child's psychological development is manifested in experiences [7, p. 76]. Experiences can be both positive and negative. L. Vygotsky gave an example with three children whose mother drinks and suffers from nervous and mental disorder: "Each of these children experienced this situation differently" [7, pp. 78–79].

Experiences allow the child to realize the relationship with the environment [20]. Experience, according to L. Vygotsky, is a multidimensional formation. First, experience is a unit of analysis that preserves all the properties of the whole, as which a person in a situation is considered. Secondly, the experience represents "all features of the individual and all features of the environment" [7, p. 80]. Thirdly, both the features of the environment and the features of personality are selected with the help of experience and constitute the situation in which the development of higher psychological formations takes place [7, p. 80]. Fourthly, experience

being one of the forms of manifestation of the unity of affect and intellect, allows the subject to pass from the emotional state to cognitive analysis, that is, to realize the relations with the environment. Thus, experiencing determines the social situation of development, i.e. the composition of those higher psychological functions that are in the process of development at a given age stage. But in the process of experiencing, the sign situation is also reproduced, as we tried to show.

The understanding of the ideal made by E. Ilyenkov is of undoubted interest: "The ideal exists where there is the ability to recreate an object in space, relying on the word, on language, in combination with the need for this object, plus the material support of this act". [16, p. 219]. The quoted fragment clearly demonstrates the idea that the word (or sign), i.e. cultural means, mediates the transformation of an ideal image into a real object. But exactly the reverse transformation also takes place: "These two counter series of metamorphoses are actually closed in a cycle: Thing — thing — word — word — thing — thing. In this constantly renewing cyclic movement only the ideal, the ideal image of the thing exists" [16, p. 220]. So, we can say that the highest form is represented in the social situation of development, i.e. in the environment that arose due to experience, and that it interacts with the primary form and is involved in the emergence of higher psychological functions.

Speaking about the role of the environment in child development, it is important to note another type of situations that L. Vygotsky distinguished when analyzing learning [21]. These are situations that lead to development, in which the zone of nearest development is created. Learning involves mastering cultural norms. However, the need to master cultural norms contains certain limitations related to the child's personal development.

Thus, E. Ilyenkov emphasized that culture appears as "the power of the social whole over the individual" [16, p. 221].

At the same time, S. Rubinstein pointed out the importance of the personal aspect of child development: "...all human psychology ... is the psychology of personality. ... All mental processes constitute ... mental content of the life of the individual" [19, p. 515]. Adhering to the definition of personality given by A. Losev in his work *Thing and Name* as "self-asserted individuality" [18], we note that the space of self-affirmation can be creative activity.

Speaking about the emergence of a creative idea, L. Vygotsky emphasized its important feature: "This feature is the aspiration of imagination to embodiment, this is the true basis and driving force of creativity. Any construction of imagination, proceeding from reality, strives to describe a full circle and to be embodied in reality" [6, p. 36]. He connected the significance of obtaining a

creative product not only for the creator himself, but also for other people: “Creative imagination in its full form seeks to externally confirm itself with such a cause, which exists not only for the creator himself, but also for all others” [6, pp. 36–33].

As follows from the quoted fragment, in L.Vygotsky’s reasoning, the necessity of embodiment of a creative idea through the creation of a creative product and its subsequent presentation with recognition of its social significance is noted. Thus, we have all the grounds for singling out, within the framework of the cultural-historical concept of the development of higher psychological functions, another type of situations related to the possibility of supporting children’s personality in creativity. We called this situation the space of children’s realization [4]. By its structure it complements the situation including the zone of the nearest development due to the possibility of realization of children’s individuality through the embodiment of children’s ideas. The child here acts as the author of the idea, and the adult acts as a child’s helper.

The problem of natural and cultural

L.Vygotsky did not limit the role of the environment to these features. He pointed out one more essential circumstance, which is connected with the analysis of interaction between the primary and the higher or ideal form: “The final form, the one that should appear at the end of development, not only exists in the environment and is in contact with the child from the very beginning, but it really interacts, really influences the primary form” [7, p. 88].

Since L.Vygotsky introduced the concept of primary form, which can probably be interpreted as a psychological formation preceding the child’s mastering of the ideal form, it is difficult to call it a psychological tool or means. Due to the above-mentioned circumstances, we can assume that the primary form represents some initial level of development of the corresponding psychological function, i.e. its natural form. Then the ideal form can be regarded as the highest psychological function or cultural form.

In connection with the above, the following explanation should be made. First of all, it is necessary to understand whether or not the interaction of the primary and higher form corresponds to the basic genetic law. L. Vygotsky spoke about the paradox of development, which consists in the fact that the highest psychological function appears from the very beginning of the process of its formation. He saw the resolution of the paradox in the fact that initially the highest psychological function, although it exists in the social situation of development, but it is represented by an adult, not a child. Thus, it

turns out that the transition to the inner plan is carried out under the constant influence of this higher psychological function on the child.

Note that, strictly speaking, higher psychological functions are not single cultural means. Then it becomes unclear how the formation of a higher psychological function in a child takes place in the sense that the stages of its development must be represented in an external social plan. This is where the difficulty lies, because it is necessary to explain how and at the expense of what this external representation is achieved.

Taking into account what has been said, it makes sense to try to solve several tasks: 1) to describe the structure of the primary form; 2) to understand the structure of the ideal form; 3) to explain the possibility of interaction between the primary and ideal form. The solution of these tasks is partly presented in the characteristics of the main stages of development of mental operations [11, pp. 108–109]. Taking into account the characteristic of the first stage, we can say that the structure of a primitive operation includes the observed material side, and an unreflexive, natural way of action. The fourth stage, on the contrary, “is characterized primarily by the fact that the external operation goes inside, becomes an internal operation” [11, p. 109]. In other words, the fourth stage is characterized by the fact that the operation stops to be visible. It is transformed into an invisible ideal operation, which is eventually mastered by the child. This point should be considered in more detail. First, it must be borne in mind that the highest form belongs to the adult. Moreover, it is ideal, i.e. invisible. The fact that the primary form has material characteristics and belongs to a child is also of interest. Given the properties of both forms: the materiality and unreflexivity of one and the ideality and reflexivity of the other, it is appropriate to ask how they can interact with each other and where the result of this interaction is located.

Most likely, we should assume the possibility of using the sign as a means, the use of which allows the interaction of primary and higher forms. We can describe this interaction as follows: the primary form interacts with the ideal form through mediation by means of a sign. The result of this mediation is the first step in the formation of the higher psychological function, which is formed in the external plan of social interaction. The second step will consist in the fact that the product of the first step, the primary form transformed by mediation, is included in the interaction again with the higher form and is again mediated by the sign, etc. The primary form changes with each step, developing and approaching the ideal form. The changes occur because the newly achieved result is constantly correlated with the higher form.

The question remains as to how the process of mediation is accomplished, and what happens to the natu-

ral function or primary form? Apparently, one of the processes of sign mediation is learning. L.Vygotsky noticed that “learning and development do not first meet at school age, they are actually connected with each other from the first day of a child’s life” [9, p. 383]. They unfold in the social situation of development, and their results are steps in the development of higher psychological functions.

We have not considered the question concerning the fate of the natural in the process of interaction of the primary and higher form. In this case, we are inclined to understand under the natural function those primary processes that A. Leontiev called “sensual tissue” [17, p. 133].

We find confirmation of the naturalness of the first levels of building the representation of reality in the child’s perception in L.Wenger. Discussing the first steps of perceptual development, he wrote: “Up to a certain point there is a control of reactions at the “analyzer” rather than at the “subjective” level. When directly observing the processes of tracking and fixation in children of the first-second month of life, a peculiar, as if “mechanical” character of eye movements draws attention. These movements, as many authors note, are clearly passive: it is not the child who looks at the object, but the object under certain conditions “fixes” and leads the child’s eye ...” [2, p. 220].

Thus, the following are involved in the formation of a higher psychological function: Primary form, ideal form, and sign. The adult operates with the sign and the secondary form. The child operates with the primary form and partially with the sign. The operation of the sign is limited to the child’s interpretation of its meaning. The mediation of the sign can look like a process of discussion of children’s behavior by an adult or as instruction of the child. In this case, the result is, on the one hand, the result of understanding of that part of the higher form, which was available to the child in the process of imitation, and, on the other hand, the result is, again with the help of a sign. It would be desirable to note that in spite of the primary form’s disfigurement, the natural psyche is preserved, because the experience based on it is the material for the construction of the result in the form of the next step in the formation of the higher psychological function in the external plan.

Types of means considered in the context of cultural-historical theory

First of all, let us note a few more points related to the understanding of means in the cultural-historical theory of development. Firstly, L.Vygotsky considered signs “as auxiliary means in solving any psychological task facing

a person (to remember, to compare something, to inform, to choose, etc.)” [10, p. 87]. Secondly, the solution of a psychological task can rely on an internal or external sign: “higher mental functions are built initially as external forms of behavior and rely on an external sign” [8, p. 71]. Characterizing the sign, L.Vygotsky wrote: “Any artificially created conditional stimulus, which is a means of mastering behavior — other’s or own — is a sign” [10, p. 78]. L.Vygotsky considered language, writing, counting, drawing, etc. as external means or signs. [10, p. 25].

L.Vygotsky gave a special place in the developmental process to story-role play. In the game he singled out the role, which, in our opinion, acts as a symbolic cultural means, the result of mediation of which is arbitrary behavior, i.e. behavior independent of the visible field.

The general trend in the understanding of means within the framework of cultural-historical theory, defined by the followers of L.Vygotsky, includes consideration not only of sign systems, but also of concepts and images. Thus, as a result of the work carried out under the guidance of A. Zaporozhets, sensory standards were considered as means of perception [15, p. 109]. The subtlety of A. Zaporozhets’ understanding of sensory standards is that he connected their mastering with words. In this case, sensory standards acted as certain achievements of culture. The inclusion of the word allowed A. Zaporozhets to consider sensory standards as interiorizable sign means, mastering of which turns perception into a higher psychological function.

In the course of research on perceptual means, perceptual operational units have been identified: “Concretely, perceptual operational units act as the content allocated by the subject when performing this or that perceptual task. The development of perception is associated with the change of operational units of perception” [1, pp. 26–27].

Operative units of perception are fundamentally different in their structure from signs as psychological means. The point is that L.Vygotsky considered psychological means, as has already been shown, first of all as material instruments used to influence the human psyche. The means included all kinds of signs, schemes, images, etc., which are artifacts of culture. The inclusion of operational units of perception in the composition of psychological means made it possible to consider the content of the human psyche itself as a source of development.

Thus, two lines in the development of psychological means began to take shape: culturally conditioned and individual. The presence of these two lines is clearly presented in the works of P. Galperin: “In the true relation between the subject and the instrument, the following question comes to the fore: What is this thing,

a means for the one who approaches it, who takes it? If for him it is a thing in which the way of its action (in the direction of a known goal) is not fixed, then it is natural that the thing receives the logic of such action from the subject himself. If, on the contrary, it is a thing made for a certain purpose, requiring special ways of use, then, obviously, the subject, to whom it appears in this way and who for the sake of these instruments turns to it, will submit to these objective requirements, to this system of operations fixed behind the instrument" [13, p. 50].

This fragment shows that there are two ways of interacting with a thing: the first one is based on cultural, i.e. the generally accepted way of using it, taking into account prescribed forms of activity, and the second one, which actually ignores cultural actions and focuses on subjective and individual variants. Another conclusion that follows from this example is the following. A psychological tool can be presented to a child, but presentation does not guarantee its adequate use. It is necessary to create special conditions.

L.Wenger, based on the cultural-historical theory of development of higher psychological functions, began to consider visual models as effective means of mental development in preschool children. In order for visual models to become an effective means of cognitive development, it was important to teach children to build and apply visual models as psychological means of solving various cognitive problems. L.Wenger and his collaborators developed an appropriate educational system that allowed to effectively influence children's mental development through mastering the skills of building and applying visual models in their activities [2].

We distinguish between sign and symbolic means. The main difference between a sign and a symbol is that a sign has a rather clear, definite meaning. The external side of the sign is relatively unimportant from the point of view of this meaning. The main role of the external side of the sign is to steadily hold its meaning. The sign immediately orientates the consciousness of the subject to the perception of the meaning.

The difference between a symbol and a sign is that the meaning of a symbol is less certain. In addition, the external side of the symbol, i.e. its shell, has a clearly expressed own visual content. Accordingly, two types of meanings can be distinguished in the symbol: external, associated with the shell of the symbol, and internal, characterized by its hidden meaning. Thus, the symbol is a sign that has a dual subjectivity. In fact, L.Vygotsky showed that symbolic means are characteristic of play activity [12]. He noted that the preschooler's play is characterized by a double perspective, i.e., on the one hand, the child can see the real object-substitute, and, on the other hand, simultaneously hold in consciousness

the imaginary object that is substituted with its help. This peculiarity of the imaginary situation arising in play activity indicates the accessibility of the symbolic form of reflection for preschool children [4; 5; 22]. The structural features of the symbol allow us to consider it as a means of solving the tasks faced by the subject in a situation of uncertainty.

In the works of V. Davydov showed the existence of two types of thinking means, to which empirical and theoretical concepts were attributed: "The formation of a theoretical concept occurs in the transition from the general to the particular (from the abstract to the concrete)" [14, p. 380].

When the transition from the general to the particular or from the particular to the general does not occur, empirical generalizations are formed. If we compare scientific concepts and empirical generalizations, the former can be considered in the context of cultural means because of their universality, while the latter, i.e. empirical generalizations, are the result of individual experience. They do not imply a systematic analysis of the content in the context of the part-to-part relationship, and the generalization itself is partial, accidental.

To summarize the consideration of types of means in the context of the cultural-historical theory of development of higher mental functions, we can note the following. In fact, L.Vygotsky singled out and named the main psychological means that are currently used in developmental psychology: verbal signs, visual models, symbols and concepts.

In the course of the analysis it was shown that along with cultural means there are individual subjective formations (operational units) that are used to solve psychological problems. They arise individually, but their application can be highly productive.

In the search for psychological means, there is one more possibility left to discuss: to consider the relations of opposites as cultural means aimed at the development of children's psyche. First of all, we should note that L.Vygotsky himself emphasized the relations of opposites as units of analysis. In particular, he pointed them out by contrasting the method of analysis by units with the method of decomposition into elements. L. Vygotsky emphasized that psychology "must find these ... units in which these properties are represented in the opposite form" [11, p. 16].

In order for opposites to act as psychological means, it is necessary to point to such a higher psychological function, the formation of which is impossible without these means. Since this function has not been sufficiently studied, it is not fully represented in modern psychological research. We believe that dialectical thinking acts as such a function. In this regard, opposites can be considered as means corresponding to this function. It is im-

portant to take into account that the dialectical thinking process is carried out at two levels: at the level of form and at the level of content, where the movement of thoughts is characterized by the transition from one level to another.

Conclusion

The problem of means of mental activity was posed within the framework of cultural-historical psychology of development by L. Vygotsky. Up to the present time it has not lost its relevance. Cultural means are characterized by their orientation. In this article, the task of determining the properties of sign means used to solve various psychological tasks was carried. As the analysis has shown, sign

psychological means are characterized by the presence of a material component (shell), an ideal component (meanings and ways of action), as well as experiences that imply the unity of affect and intellect. These qualities allow the sign to mediate the interaction of primary and ideal form. The product of sign mediation is the formation of higher psychological functions in the child.

It should be noted that L. Vygotsky described many of those psychological means that are used in modern early childhood education. He identified cultural or sign means. His followers identified means characteristic of individual types of activity (operator standards).

The article also provides a description of the two-level thinking tools considered in the context of dialectical thinking and the symbolic tools used in the process of imagination.

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Information about the author

Nikolay E. Veraksa, PhD in Psychology, Dr., Professor, Lomonosov Moscow State University, Moscow, Russia; Federal Scientific Center for Psychological and Interdisciplinary Research, Moscow, Russia, ORCID: <https://orcid.org/0000-0003-3752-7319>, e-mail: neveraksa@gmail.com

Информация об авторе

Веракса Николай Евгеньевич, доктор психологических наук, профессор факультета психологии кафедры психологии образования и педагогики, Московский государственный университет имени М.В. Ломоносова (ФГОУ ВПО «МГУ имени М.В. Ломоносова»), г. Москва, Российская Федерация; Федеральный научный центр психологических и междисциплинарных исследований (ФГБНУ «ФНЦ ПМИ»), г. Москва, Российская Федерация, ORCID: <https://orcid.org/0000-0003-3752-7319>, e-mail: neveraksa@gmail.com

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