

The concept of joint activity as a unit of activity theory.

Joint learning activity.

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1. The fundamentals of cultural-historical school.

I will discuss these fundamentals mobilizing to a large extent a point of view of my teacher, V.V. Davydov. In his opinion the foundations of cultural-historical theory were laid down by L.S. Vygotsky himself around 1927-28. Later he contributed largely to the development of it's fundamentals. But both during the life of Lev Semyonovich and after his demise his direct students, and later – his followers, played a significant part in disclosing the very essence of this theory, in it's elaboration and specification. Vygotsky's direct disciples preeminently are A.N. Leontiev, A.R. Luriya, L.I. Bozhovich, A.V. Zaporozhets, D.B. Elkonin, P.Ya. Galperin. According to Davydov it is impossible to grasp the essence of cultural-historical theory without taking into account that it was elaborated, clarified, extended, modified and refined to a large extent by disciples and followers of Lev Semyonovich, that is, by his scientific school. It should be noted that already in the 1930-s during the life of Vygotsky we can see the emergence of quite an original theory for that time – the general psychological activity theory, created preeminently by efforts of A.N. Leontiev and his followers. Activity theory, in the opinion of Davydov, is the direct successor to those principal ideas which were put as a basis of cultural-historical theory by Vygotsky himself.

In this regard Davydov criticizes those psychologists who allege that Vygotsky did not have the notion of activity. Vygotsky, being a connoisseur of German classical philosophy and a true Marxist, could not, in Davydov's judgment, pass by Marx's distinguished works dedicated to the problems of activity. Already in the beginning of 1925 Vygotsky began to thoroughly examine the social-historical notion of activity and it's application in psychology. Therefore we need to believe Leontiev when he claims that in 1925 Vygotsky began to elaborate the social-historical notion of activity in the context of psychology, and he made some steps in that direction. Vygotsky had a truly substantial social-historical and partly psychological concept of activity, which can be evidenced by several remarkable pages in one of his articles (which unfortunately has not been published until 1984), where he openly and directly used the term "activity" as a concept and demonstrated that human life, as compared to one of animals, is aimed at the future and becomes free by virtue of tools and words. Some of Vygotsky's theses, in particular the ones on social conditions of human development, were deepened by Alexey Nikolaevich Leontiev on the basis of his quite

elaborate psychological understanding of activity. Without distorting anything in the essence of Vygotsky's approach to conditions of human development, Leontiev replaced the term "social situation" with the notion of "development of activity".

The fundamentals of cultural-historical theory of Vygotsky, Leontiev and the whole Vygotskian scientific school were best laid down and framed by V.V. Davydov. In his interpretation they are presented in the following way.

First: the basis for development of a human is a qualitative change in social situation, or, in terms of Leontiev, a change in person's activity.

Second: learning and upbringing are universal points of human's mental development.

Third: the primary form of activity is carrying it out explicitly in the outer, social or communal plane.

Fourth: psychological neoformations which come into existence in a human are derivative from interiorization of the initial form of activity.

Fifth: significant role in the process of interiorization belongs to different sign and symbol systems.

And finally, the *sixth:* intellect and emotions being in an inner unity has an important value in the activity of the human consciousness.

Without going into detail on these principles of cultural-historical psychology V.V. Davydov still remarks that the problem of unity of intellect and emotions did not receive enough development. In his view the notion of collective activity (brought into psychological science by Vygotsky himself) has still not been elaborated. Moreover, since collective activity exists, then consequently it's bearer is a collective entity, a collective subject. The concept of collective activity and collective subject is also a new problem (though it has been raised long ago) which needs to be explored and elaborated on the modern level. However, if we are not able to say anything plainly about collective and social forms of human activity – Davydov asks the reader – then what can we say about so called interiorization? In views of Vygotsky and his followers interiorization is a process of turning of collective activity into individual activity, and of collective subject into individual subject.

Davydov also clarifies some of Vygotsky's approaches to human development. For instance, in his views Vygotsky has evolved from his first publication in 1915 to the end of his life. He never had clear and definite terminology, because the theory he created could not be elaborated as fast as he aspired. At the same time, on the basis of his general views, a child is born in a social situation, into a communal situation, born as a human being with all the inherent potential and further develops as a social and communal being.

Surely those six principles of cultural-historical theory laid out by Davydov require serious and detailed experimental and theoretical working-through. However I would like to point out again that according to Vygotsky the beginning of human development is a collective (communal, joint) or social activity carried out by or with assistance of a collective subject in a cultural environment. The mediums of said culture are signs and symbols; it is thanks to signs and symbols that in the process of learning and upbringing the individual activity of a person becomes important, and the individual subject becomes clear, and then said subject gains individual consciousness. So, in the very general outline, the pattern of origin of the individual consciousness is this: collective-social activity, culture, signs and symbols, individual activity, individual consciousness.

The cultural-historical theory, especially in its activity rendering, is a grand contribution to modern science. At the same time when passing it on to young scholars Davydov particularly noted: “The cultural-historical theory of Vygotsky even in its activity rendering is still not truly a theory, but rather a hypothesis. But, as you know, true science finds the source of its development in formulating theories and proving their legitimacy for different areas of social practice. It is young scholars – philosophers, logicians, psychologists, pedagogues, culture studies experts – who are able in the nearest future (hard to say how many years from now) to turn this cultural-historical hypothesis into a full-scale truly fundamental modern theory”.

Below I will briefly discuss the substance of some general notions of cultural-historical theory.

2.Social situation of development “Zone of Proximal Development”

In Vygotsky’s cultural-historical theory¹ the social situation is seen as the source of development. According to Vygotsky “any function in the cultural development of a child appears twice, in two aspects, first in a social plane and then in a psychological plane, first between two people as an inter-psychic category, and then inside of a child as an intra-psychic category”. (Л.С. Выготский, 1983, т. 3, с. 145)². Social

¹ Wertsch J.V.(Ed.)(1985) Culture, Communication and Vygotskian perspectives. Cambridge University Press. Luria A.R.(1932).The Nature of Human Conflicts: or Emotion, Conflicts and Will. N.Y.; Liveright. Leontyev A.N. The Problem of Activity in Psychology. The Concept of Activity in Soviet Psychology.N.Y.1981. P.140-162. Пузырей А.А. Культурно-историческая теория Л.С. Выготского и современная психология. М.,1986. С.117

² Vygotsky L.S. Mind and Society. The Development of Higher Psychological Processes. Harvard University Press.1978. L.S. Vygotsky calls the mentioned above statement to be a general genetic law of development. The development of higher psychological functions (children’ s, speech and drawing, reading, writing, development of mathematical operations and logical thinking. formation of concepts and child’ s world outlook, etc.) is socially determined. The individual comes out to be the social which has been already acquired.

interactions appear to be genetically social, and in its primary form any function is shared among participants of said interaction. “All superior psychic functions and their inter-relations have at their back those genetically social relations, real relationships, homo duplex (the man doubled, lat.). Hence the principal and the method of personification in cultural development research, i.e. dividing functions between people, personification of functions. Take voluntary attention, for instance: one acquires, the other masters. It’s separating again of that which has been merged into one (compare to modern labor)”. (Л.С. Выготский, 1986, с. 54 – в публикации А.А. Пузырей).

Social interactions define the mechanism of distribution of functions on one hand and the means or method to master those functions on the other. For example, guided social interactions which initially serve as an instrument for social realization of processes of cognition and communication later begin to take the role of cognitive function of self-regulation and mental representation of information. These social interactions activate the not yet developed cognitive functions, which allows the student to act on a higher cognitive level. The gap between that which a learner is able to do on his/her own (the actual level of development) and that which he/she is capable of with proper guidance is called “zone of proximal development”. Therewith, according to Vygotsky, learning is successful only when it goes ahead of development, when it awakens and brings to life those functions which are yet in a process of maturing or are in a zone of proximal development. This, in his view, is the way education plays a crucial role in development.³

For understanding the vital role of social interactions in the process of learning, the key notion in Vygotsky’s theory is difference in ways of formation of “worldly” (spontaneous) and “scientific” concepts in children. Spontaneous concepts arise when a child encounters real objects with their specific features, in which the child finds, after a long comparison, some common features, and puts them into a certain class of objects with the help of a word.

As opposed to that development of a scientific concept begins with working out the concept itself. In such a case from the very beginning the child has better awareness of the concept than of the object which it is related to. This way is only possible within a specially organized teaching of scientific knowledge to children and

³ On the concept “zone of proximal development” see.: Vygotsky L.S. *Mind in Society* (1978.P84-90) Newman D., Griffin P. and Cole M. *The Construction Zone: Working for Cognitive in School* Cambridge University Press, 1989. The concept of ZPD corresponds to a number of similar concepts, worked out in the theory of «the next stage» by E.Turiel, R. Sigler and others, and also in the theory of «scaffolding» by Brunner and D.Wood. For analysis of the concept correlation in different theories see; Griffin P., Cole M.A. *Dialogue with Future through Today’s Activity*. Cognition and Communication. M.;Science, 1988. P.189-207.

is a result of such teaching. “Determinative for scientific concepts ... is the fact that they are acquired and developed under the guidance and with the help of a teacher, and that knowledge here is given to children in a certain system”. (Ж.И. Шиф, 1935, с. 32).⁴

3. Tools and signs in human activity.

The symbolic context of social interactions is the most important thesis of Vygotsky’s theory. The inherent human way of regulating one’s behavior and psyches Vygotsky associated with the use of signs and symbols which serve as means for managing one’s activity. Notably, building and utilizing special symbolic objects is the basic means of forming of all superior psychic functions.

Vygotsky’s views on the significance of joint activity for development of superior psychic functions are very well illustrated by broadly known experiments on forming attention in children. The experiments were designed in the following way: (see: Л.С. Выготский, т. 3, с. 219–225). Two cups, with a nut hidden in one of them, are covered with lids. The lids are marked in a way that one can define the location of the nut. In these experiments Vygotsky was trying to see how attention becomes voluntary and in what case children begin to use color markings to define where the nut is. In our view in this experiment we see a specific transition from the activity of an adult to the activity of a child, and this transition is made through a pointing gesture of the adult and is recorded by means of a sign – the color combination (light gray, dark gray). The child can understand the adult’s mode of operation and define where the nut is only if the connection between action and change in object’s state is specifically emphasized by the adult and affixed by the child. In other words, the child can understand which cup holds the nut only when he/she uses the color combination presented to him/her as means to analyze both the adult’s and his/her own mode of operation.

According to Vygotsky there are significant differences between a sign in its instrumental function and a tool. The main difference of a sign from a tool is that a tool as per its Hegelian formula is placed between human – subject of operation – and outer reformative object and mediates the person’s impact on the object of activity, whereas a sign always mediates the relation of one person to another (particularly, one’s relation to oneself as the other). In other words, a sign always serves as means of organizing an act of mastering one’s own psyches, consciousness, personality. If we expand Vygotsky’s idea, the psychological meaning of interactions is defined by a system of symbols which hold the whole of social relations, the whole of the culture, so the person’s activity and behavior in situations of interaction with others is ultimately determined by sign-symbolic nature of those situations. The human being appears a creature dwelling in the realm of symbols and involved in sign situations.

⁴ Ж.И.Шиф Развитие научных понятий у школьников. Исследование к вопросу умственного развития школьников при обучении обществознания (вводная статья Л.С.Выготского), М.;Л., 1935.С80. Ж.Пижаге. Речь и мышление ребенка. М.; Л.. 1932.С398. А.А. Пузырей Конкретная психология человека// Вестник МГУ; Психология; Серия 14. 1986,№1.

On the other hand the meaning of interaction is only uncovered on condition of it being included in some common, joint activity, performing which individuals pursue certain goals and carry out actions and operations together. This explains the transition to analyzing joint activity as co-operation, to ways of its distribution between participants, to particular qualities of exchange of actions while solving common problems, to processes which support this activity such as communication, mutual understanding and reflection – a special competence of evaluating possibilities for one's action from the standpoint of plans and programs of the joint activity.

4. Social interactions and education.

We can say that two things laid down by Vygotsky became cornerstones of the new approach to the problem of learning activity. First is that scientific community clearly realized that social interactions and cognitive development are neither mixed nor independent processes, they are also not reversible (in the sense of “isomorphic”) processes, they are not even equivalent processes. They rather are interdependent processes, for generation and development of one internally depends on development of the other. Deriving benefit and getting effect from specific social interactions, which means to really find oneself in the space of development and make a step up in one's own achievement, is possible for a child when it corresponds to some actual level. But this actual level itself is also the result of previous and future social interactions.

Another important thing is that content of the notion of Zone of Proximal Development suggests a new paradigm of development, and accordingly a new approach to teaching-learning psychology. The notion of learning as a natural and individual process separating participants of educational situation into teachers and learners is being replaced by the view of learning as a process of co-action, co-operation and joint activity. Notably the main mechanism of this process which makes it cultural and socially determined is mediation of cognitive acts by means of interaction between activity participants. In this case a new problem comes to the fore: not only what to teach, but also how to teach, i.e. a problem of organizing effective joint forms of learning activity.

5. Organizing joint learning activity.

The search for effective forms of co-simultaneity (co-operation as a form of interaction) in Vygotsky's scientific school is related to many researchers' work on the concept of “organization of joint activity” which is characterized by:

- distribution and exchange of actions;
- mutual understanding;

- communication;
- reflection as a special kind of operation with modes of cooperative work.

The concept of joint-distributed action (co-action) is a way to refine Vygotsky's idea of distribution of a psychological function as a condition of mastering it in a social situation. Method of research on properties of organization of joint activity in relation to genesis of cognitive actions in a child has a paramount importance in this regard. Distinctiveness of this method is due to modeling of interaction situations with the help of sign means-schemes and activity models. In such models researchers generally record structure of individual actions, manner of their distribution between participants and sequence of their implementation. Working with such scheme gives a group of children a possibility to organize their communication and cooperation by recording in it the changes of the interaction modes which correspond to different strategies of problem solving. This method of researching interactions in relation to genesis of learning-cognitive actions is in part an important result of social-genetic psychology of learning activity which we have developed.

Let us look at a version of this method as exemplified by a well-known problem on inclusion of classes by Piaget.

6. Experimental research of organizing joint actions and its role in children's intellectual development

The table below contains data on correlation between modes of group work and solving of the problem which were acquired on the basis of class inclusion method of Piaget. This data suggests that success of a joint action (problem solving) is achieved not only on condition of cooperation, but also on the basis of organization when the mode of interaction becomes a subject matter of special analysis and activity on the part of children.⁵

⁵ See.: Rubtsov V. Organization of Joint Actions as a Factor of Child Psychological Development//International Journal of Educational Research. Vol.13.№6.1989.P.622-636. The described types of interaction seem to be essential to compare with type of interactions studied by Casder C. and Forman E. (Cazder C., Forman E. Exploring the Intellectual Value of Peer Interactions: One Issue in Implementing Vygotskian Perspectives in the Classroom, Conference «Culture, Communication and Cognition». October,23-26.1980. Chicago) and with role interaction studied by Flavell J.H. (Flavell J.H. (1967). Role-taking and communication Skills in Children. In «The Young Child» (W. Hartup and H.Smothergill. Eds. Washington D.C.) and also with interaction and communication based on mediation of «Vizart» concept by prof. M. Cole, P.Griffin and others. See: M., Griffin P.(1980) Cultural Amplifiers Reconsidered. In D. Oslon (Ed) Social Foundations of Language and Thought. –N.Y.

Table

Correlation of organization mode and the task	Characteristics of the mode of collaborative work
Problem is not solved.	Interaction without cooperation.
No connection between mode of group effort and the problem.	Problem solving is based on consistent association of participants of operations with objects without any distribution and exchange of operations. No relation to operations of the other as means of solving the problem.
Problem is solved.	Interaction based on cooperation
Group effort and solving of the problem are parallel processes. Connection between mode of interaction and the problem is not subject to analysis by the participants.	The mode of operation of the group of children when solving a problem is based on combining operations with objects with their consistent substitution with one another. Relation to the other is expressed through regarding his operation as equal to one's own.
Problem is solved.	Cooperation based on organization
Group effort and solving of the problem are mediated processes. Connection between cooperation and the problem is subject to analysis by the participants.	The mode of joint action of children when solving a problem is based on mutual exchange of operations. Relation to the other participant is based on regarding his operation from the standpoint of organizing collective work of the group (the basis of the joint action itself).

7. A problem of education based on a system of developing interactions and cooperation.

Reformation of group work is the new paradigm of education. Among numerous experimental results that a researcher may find when analyzing the problem of joint activity organization one should take notice of the difference between two main types of organizing joint learning acts and corresponding psychological mechanisms of regulating joint activity. For the modern level of development of the problem they are perceived as a fundamental fact and are related to differences in the modes of distribution of activity between participants which manifest themselves in analysis, reformation and modeling of the means of joint work given by an adult. For instance activity organization of the first type is characterized by repetition, copying of modes of distribution of activity, which the adult suggests to children in the form of certain models and schemes. When put into a situation where this mode of interaction appears limited (cannot provide for correct solving of the problem) participants no longer can

act according to dependent models of cooperation. In such a situation children's work either falls apart, or the activity has to be redeveloped with the help of additional means.

When organizing activity of the second type everything changes. Children are not only able to implement a mode of cooperation set by an adult, but also with certain engagement and help from the adult they are able to redevelop it. This demands analyzing means and modes of future activity, and most importantly, analyzing their very capability to perform their own action in co-action. In these situations we see change in ways children interact between each other and with the adult, change in their activity, change in a function of a teacher; we see formation of skills of joint planning and modeling of activity. In this form the substantial connection between the mode of co-action and problem solving emerges.

The existence of these two types of organizing activity is evidence to different forms of child's development and different paradigms of education – through imitation of actions of the adult and through reforming (transforming) the very modes of interaction of the child with another child and an adult. Transition from one form to the other is defined by individual level of development of the child included in joint activity, and also by the child's age. For instance, data indicates that in primary school age preferential development is given to the first type of organizing joint activity, and in middle school age the second type develops. Results demonstrate that such forms of cooperative school work, so widely known in educational practice, as “mutual control”, “mutual exchange of knowledge and ways of problem solving” and so on are most acceptable in middle school age. These procedures may be easily introduced into learning activity of 13-15 year old children, but in primary school age they demand special mastering by the students. For example in middle school age mastering interaction models will not be difficult for the students at all: the cooperative mode of performing activity is available to them from the very beginning. In primary school age mastering of such mode and corresponding models of interaction becomes a special task: for a child in this age the challenge is not only in solving the problem, but also how to interact to do it cooperatively.

This means that it is necessary to broaden the list of known learning acts. Besides the acts of transforming, modeling, control and evaluation of the problem solving method we can rightfully discuss a special system of joint actions. Among such actions are:

- including different models of action and their mutual coordination into an activity,
- joint modeling of examples of organizing joint activity set by adults,
- communication and mutual understanding in the process of co-action and search for new ways to organize cooperation.

Only when the whole system of joint actions is present the learning activity, which relies on interaction of adults and children, becomes effective for the child's development, because it becomes a condition for emergence of learning interactions.

Experimental data presently accumulated within the context of ideas of Vygotsky's scientific school related to the role of social interaction in educational process bring attention to new margins of children's cognitive development, by virtue of which we have a real basis for further elaboration of contents and methods of teaching, and as a matter of fact – basis for creation in the very near future of new pedagogy. It's main principle is cooperation of children and adults which creates conditions for emergence of learning interactions and consequently – for a child's own creative search while mastering culture and history, and eliminates the authoritarian style of managing a child's thinking.

8. A problem of education based on a system of developing interactions and cooperation.

Reformation of group work is the new paradigm of education. Among numerous experimental results that a researcher may find when analyzing the problem of joint activity organization one should take notice of the difference between two main types of organizing joint learning acts and corresponding psychological mechanisms of regulating joint activity. For the modern level of development of the problem they are perceived as a fundamental fact and are related to differences in the modes of distribution of activity between participants which manifest themselves in analysis, reformation and modeling of the means of joint work given by an adult. For instance activity organization of the first type is characterized by repetition, copying of modes of distribution of activity, which the adult suggests to children in the form of certain models and schemes. When put into a situation where this mode of interaction appears limited (cannot provide for correct solving of the problem) participants no longer can act according to dependent models of cooperation. In such a situation children's work either falls apart, or the activity has to be redeveloped with the help of additional means.

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