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Development and learning in the context of social interactions: L. Vygotsky vs J. Piaget

Vitaly V. Rubtsov (Russia)

*Professor, President of Moscow State University of Psychology & Education,
Head of the International UNESCO Chair "Cultural-historical psychology of childhood"*



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The key points of J. Piaget theory can be expressed with help of these four axioms:

1. Intelligence is constructed on the basis of action.
2. Action is a source of development.
3. Thought is a condensed form of action.
4. Cognition at all genetic levels is a product of real actions performed by the agent with objects.



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The law of mental development in the theory of J. Piaget

The basic law of mental development in J. Piaget's theory is the law of *decentration*, the law of transition from general egocentricity to intellectual decentration, which is expressed in the child's transition from egocentrism to an objective position in learning things, other people and him-/herself. The ground of the transition from an egocentric to an objective position is the process of *socialization*, that is, the *transition from the individually subjective to the social.*



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Intellectual development in the context of social interactions in the theory of Piaget

1. The fundamental of human intellectual development (the development of thinking) is a qualitative change in the forms of experience, based on the performance of one's own actions.
2. The means of performing individual actions under conditions of S – O interactions are the emerging structures (“knowledge” about the object and the structures of action subordinate to them).
3. The invariants of action (reflected experience) take shape of action schemes (an action scheme is a structure at a certain level of mental development, a mental system or integrity, which principles of activity are different from those of the parts).
4. Cooperation (collaboration) allows to fulfill the correct transfer of a concept, starting from the stage of concrete operations. The condition for such a transfer is a sociocognitive conflict – a new type of relationships between agents that replace the relationships of prestige and authority characterizing the preoperational stage of cognitive development.
5. The individual intelligence socialization (the transition from individually subjective to social) is the main direction of cognitive development. Socialization is impossible without cooperation and collaboration, without including individuals into the actions of various communities.



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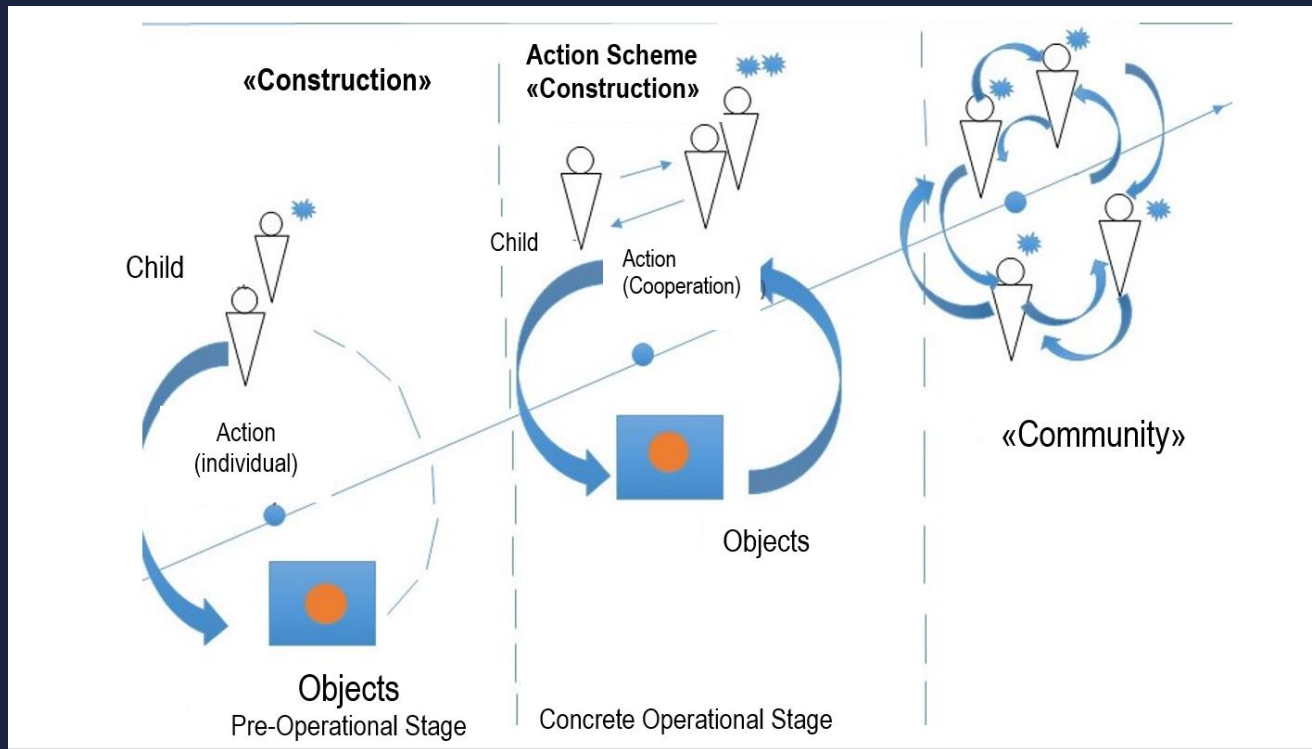


Figure 1 Individual intelligence socialisation (in the theory of Piaget)



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The role of social interactions in the development of children's thinking in the scientific school of L. S. Vygotsky. The law of development of higher mental functions

L.S. Vygotsky considered social interactions and social relations as the initial basis (source) of development. “Behind all higher mental functions and their relationships stand genetically social relationships, real relationships, homo duplex (a dual person - Latin). From here comes the principle and method of personification in the study of cultural development, that is, division of function between people, personification of functions. For example, voluntary attention – one possesses, the other one acquires. Dividing again in two what had been fused into one, experimental unfolding of a higher mental process (voluntary attention) into a small drama”.

[L.S. Vygotsky, 2003, p. 1023].



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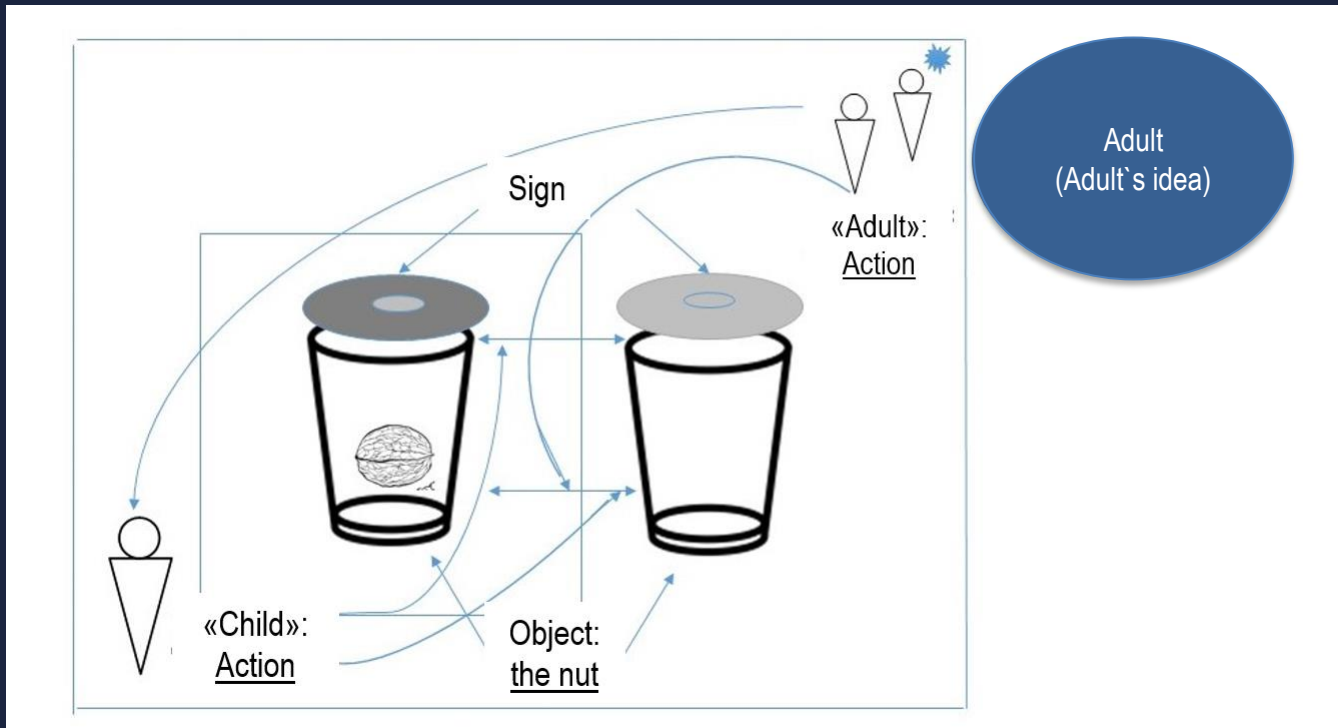


Figure 2 The scheme of capturing attention in a situation of “child - adult” interaction in the experiments of L. S. Vygotsky



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«...Transition (from interpsychic functions to intrapsychic, that is, from the forms of a child's social collective activity to their individual functions. - V. R.) is a common law ... for the development of all higher mental functions that primarily emerge as forms of activity in cooperation and only then are transferred by the child into the area of their psychological forms of activity.

... It is not the gradual socialization, which is introduced into the child from without, but the gradual individualization emerging on the basis of the child's internal sociality is the main path of child development”

[L.S. Vygotsky, 1956, p. 343–344].



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Socio-genetic method of research of development in learning

1. The study of social interactions and the process of concepts mastering cannot be limited to studying them just as parallel processes.
2. The method of experimental research of the concepts formation process should be socio-genetic (compare with the "genetic modeling method" of L. S. Vygotsky). The ground of this method is the principle of inter-mediation of subject structures and joint activity structures: the subject content of the object, which determines the content of the concepts mastered, is mediated by means of interaction of those participating in the social situation.
3. The organization of adult-child interactions and interactions among children themselves is a needed prerequisite for the implementation of joint actions as the interactions and relationships of the participants themselves determine their understanding of the relationship among various actions with the object, object's structure properties and relevant concepts.
4. The method of joint actions, which corresponds to the system of mastered concepts, characterizes the basic didactic unit that defines the requirements for organizing the social situation.
5. It is necessary to specifically explore and design the social situations based on mediation of the subject content of the object via the ways of interaction of its participants; to analyze the child-adult communities and joint forms of activity emerging in this context, and consider them as the initial forms of origin and development for emotional-semantic and symbolic-semantic structures that determine the processes of concept system mastering.



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Adult-child communities characterize:

- distribution of initial actions and operations (determined by a group of transformations that provide participants with a search for a general way to construct the object under study);
- exchange of methods of action (determined by the need to include individual actions in new ways of interaction);
- communication, which is the ground for having distribution, exchange (of what?) and participants' understanding of the limitations of the actions they perform; given this communication the participants plan the conditions of the activity so, that they are adequate to the task and search for joint ways of acting;
- mutual understanding, conditioned by the need to include individual methods of action of the participants into joint activities (allows you to establish the ratio of the possibilities for their own actions as well as for the actions of other participants in the activity);
- reflection, which is the basis for establishing the participant's attitude to their own action (limitations and opportunities), for determining the boundaries of this action transformation, for initiating (modelling) the search for new forms of interaction and cooperation.



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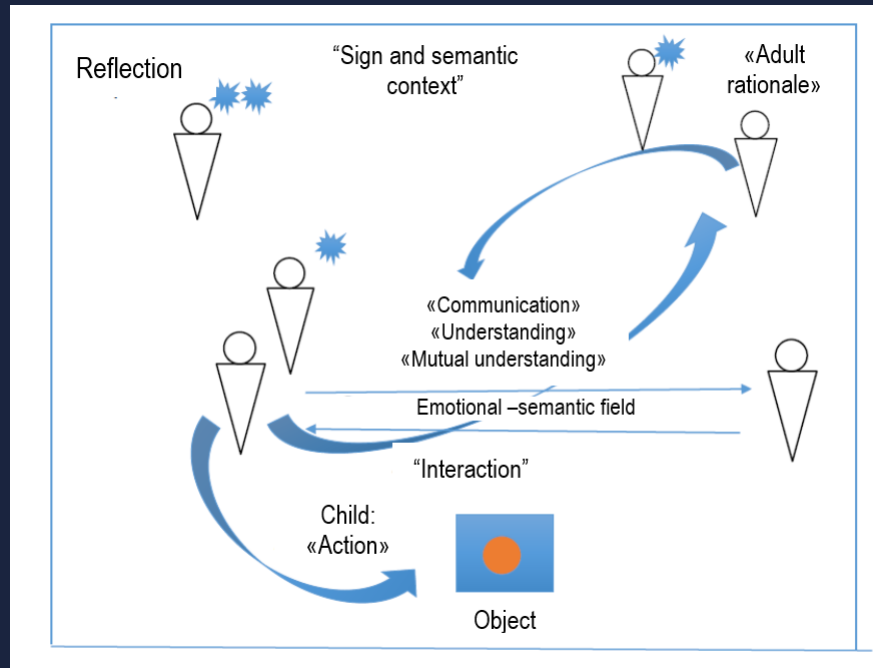


Figure 3 Affective-cognitive conflict as a mechanism of social situation change



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Learning activity is characterized by the following traits:

- In the process of the activity children together with the adult (usually teacher) study scientific (in Davidov's terms - theoretical) concepts and corresponding means of activity.
- Children master new means of action while solving particular learning tasks and performing particular learning actions.
- Learning activity is organized by the adult (adults) as a collective activity, based on learning discussions, dialogues and open interaction between children and adult.
- While solving learning tasks and performing learning actions in the form of collective activity, children develop abilities for analysis and planning of their own actions, as well as reflection as a particular ability for considering one's own actions in the context of joint activity.



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The experience of organizing learning in the form of joint activity testifies, that zone of proximal development:

- is based on a particularly organized joint activity, aimed at dealing with specific tasks and learning corresponding generalized means of their solution;
- is based on the initiative and autonomous search for ways of solving classes of tasks, as children discover these solutions and learn the general means of solution in the process of interaction with each other and with the adult;
- is based on broad use of signs and models;
- is constructed as a learning community of children and adult.



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$$5249 - 5040 = 209$$

$$5249 - 240 = 5009$$

$$321(5) - 301(5) = 20(5)$$

$$102(7) + 6030(7) = 6132(7)$$

$$8888 - 8000 = 888$$

$$8888 - 8000 = 888$$

$$8888 - 8000 = 888$$

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Child – adult learning community is characterized by:

- learning motivation
- communication
- mutual understanding
- the way of learning interaction between children and adult



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Works on justification of socio-analytical research method

Rubtsov V. V. Organization and development of joint actions among children in the learning process. – New York: Nova Science Publishers, 1994.

Rubtsov V. V., Konokotin A. V. Formation of Higher Mental Functions in Children with Special Educational Needs via Social Interaction in Evaluation and Treatment of Neuropsychologically Compromised Children. – Elsevier Inc, 2020.



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