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Thought and Activity in Children

Comrades, my talk is prefatory to several of the reports given by our Kharkov comrades on the problem of the relationship between thought and activity in children and the conditions necessary for the emergence of different forms of thinking in childhood. We are interested not so much in analyzing the different forms of thinking in childhood, drawing on the descriptions that already exist in child psychology, as in determining the conditions under which changes in these forms occur. These studies, carried out predominantly with preschool-age children and young school-age children, were directed by A.N. Leontiev.

According to the classics of Marxism, thought is a reflection of objective reality, a reflection of objects and phenomena of this reality in their true connections and interrelationships. The question arises as to how children, who at birth have no concepts or ideas about reality, come to acquire a knowledge of reality, that is, what the conditions are that give rise to thought and its development in childhood.

In examining this question we have found that the problem of the history of the development of a child's intelligence is very closely linked with the problem of the logic of a child's thinking.

However, the interrelatedness of these phenomena does not mean that they are identical; as Professor Raevskii has correctly pointed out, it

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would be a grave mistake to confuse the two. This must be especially underscored because in manuals on psychology and in relevant investigations, these questions are frequently confused, and in explaining thought, the psychological problem of thinking is replaced by a formal, logical examination of it, as if the question were only one of distinguishing between operations of judgment and reflection, or between analysis and synthesis, and so on.

This does not mean that there is no need to analyze the forms and operations of childhood thinking, but such an endeavor does not exhaust the problem of development of a child's intelligence. Why? The development of cognition in the child begins with sensory perception of reality, ascends to the appropriate concepts, and then returns again to reality, for example, to practice. By specifying these logical steps, we may call attention to certain results of thinking, to the dynamics of these results; but we have not yet shown what process, or what activity, has led to these results, what has compelled the child to move forward through these stages of cognition.

Underlying the development of thought in the child, that is, the child's transitions from direct perception of a particular reality to a deeper understanding of that reality, is the development of the child's personality, changes in the child's relationships in his/her real life situations, and the development of the child's activity in general.

What is the nature of this process, the child's activity? First, it is not primarily or fundamentally a theoretical process—in any case, it does not emerge in that form. Let us take the development of a concept, or the acquisition of knowledge related to it; clearly, a child cannot discover a concept or knowledge by theoretical reasoning—this can be achieved only as the result of another sort of activity, an activity that is nontheoretical in nature.

[V.P.] Zinchenko has attempted to determine the conditions under which the simplest memory images, for example, occur in a child. When a child was directly presented with the task of memorizing some material, he/she found it very difficult; but when a game of sorts was set up, in which it was not specially required that the child should remember a particular idea, or keep it in mind, he or she was able to remember the material very well.

A preschool child frequently does something, or handles objects, without aiming at solving any theoretical problem, although as a result of such activity he or she in fact comes to learn some aspect of the real world.

One of the comrades at this conference decided to teach his child some number concepts. He tried to explain to the child, who was a preschooler, some elementary mathematical concepts by presenting them in the form of systematic problems; but nothing came of this. However, when counting was made a necessary element in a game, the child was able to learn simple arithmetic operations without this having been his special aim.

In criticizing [Brian] Sterner's philosophy, [Karl] Marx ridiculed the idealists for depicting a child as a metaphysician for whom the "nature of things" was nearer to his or her heart than a toy. In fact, a child is interested in toys, which are the outside world; he/she lives and plays. In the course of activity of this sort, he/she comes to know the real world. It is necessary to distinguish between a living reality that unfolds in a certain specific way and the logical outcome of that process.

[Ludwig] Feuerbach said, "What is obvious to the heart will not remain hidden to the mind." A human being lives and acts, satisfying his or her needs, by no means all of which are theoretical needs; and in the process of such activity new aspects of reality open up before him or her and become reflected in his or her consciousness.

Now for a few words about the concept of "activity." Although it is difficult to examine this question in any detail in such a short talk, we should at any rate distinguish this concept from others that resemble it or, better, are frequently confused with it. The fact is that the notion of the activity of a person is mentioned in various schools of psychology: in the psychology of abilities and in certain new currents, for this theory of abilities has undergone a modernization and now appears in the guise of a theory of mental functions.

First and foremost, we must distinguish the concept of activity from the concept of function, for the concept of mental function is especially firmly entrenched in bourgeois psychology, from which it is often borrowed uncritically by our investigators. The concept of function, as it appears in contemporary psychology, on the one hand, traces its roots to the old metaphysical concept of ability or faculty and, on the other, has taken something from modern physiology, in which the term "function" has a definite meaning, assuming a specific, direct, biological relationship of the organism to external reality that is realized by a specific organ and depends directly on the structure of that organ. In turn, the structure of the particular organ depends on the related function. In this sense, respiration, the secretion of bile, and the movement of certain

organs are functions. However, the process of a person's activity, about which we shall be speaking and which leads to knowledge of the real world, is not a function in this sense, although one must assume that it has its foundations in such organic or physiological functions.

In this sense, thinking is also a complex activity, which emerges and develops as the child's life progresses, that is, in the course of his/her upbringing. Before thought puts in its appearance, other kinds of activity are formed; and these prepare the way for the emergence of a rational orientation toward the real world. For this to occur the right kind of experience and knowledge is necessary. But the mere accumulation of experience is not enough for thought to emerge automatically. The nature of that experience must itself change to conform to a change in the nature of the child's activity.

In the first years of life, a child advances from direct familiarization with objects to mastery of their purpose; the child learns to use these objects. Thus, in games and practical activity a child very early begins to ascertain various relationships among objects in practice. This change in the content of the child's activity subsequently leads to a change in its structure. Having learned initially to use an object in accordance with its purpose, the child then goes on to use it in new, altered conditions and accomplishes a number of auxiliary operations to make this possible. Action acquires, so to speak, a "multiact" or "multiphase" structure. The acquired ability to transfer an action to new conditions is itself altered to fit those conditions and acquires a generalized character. A kind of thought emerges that, however, cannot yet be isolated from the child's play and practical activity, a kind of thought that has been called visual-operational thought. V.I. Asnin examines the characteristics of the process of transference and the conditions for the emergence of visual-operational thought in children. At first this process can take place only in situations in which the child is involved in direct actions with objects. Intellectual operations emerge and take shape with this as a foundation; they become separate from [such activity] and acquire relative independence only later. Of course, the accomplishment of any object-related act in the absence of the object will always cause some difficulties, even in adults.

Stanislavskii effectively demonstrated how difficult it is to master an act so well that it can be accomplished even without the object, in imaginary situations. An actor who comes on the stage for the first time to learn the art of theater has considerable difficulty accomplishing the simplest action if he or she is deprived of the object. When he or she is

required to sew on an imaginary button, or light a cigarette, the actor makes quite gross mistakes, leaving out essential aspects; for example, he/she may begin to sew without first having threaded the needle.

This linkage with an object, this inseparability of object and its related operation, is very characteristic of young children, as it generally is for anyone who begins to learn how to handle a new object; for even an adult can find himself or herself in a situation that requires mastering completely new acts.

In a study of the play of the early preschool child (Fradkin), it has been shown to what degree a young child's play is tied to the directly perceivable situation and cannot even take place unless all the objects necessary for it are present.

For example, a game may have Masha drink tea from a teacup. For this, the teacup, the teakettle, and Masha are necessary in order to accomplish these acts. It is sufficient to remove only one of these objects to upset the game. But the older preschooler begins to demonstrate new capacities in the process of playing. A child of this age does not become perturbed if some object that usually fulfills a specific function is not present. He/she will arbitrarily replace it with some other object, which sometimes only very remotely resembles the first, and will shift the relevant function and the relevant means of action to it.

We have assumed that this aspect of the development of activity in the child is of crucial significance for the emergence of visual-operational thought. Thereafter a child is able to operate freely with ideas of an object when the object itself is not present, as if at the level of imagination or imagic thought the child freely associates ideas and tries out new combinations of these mental pictures.

The conditions for the emergence of this new activity are evidently constituted in play. There are some very important findings to indicate that play, in a certain sense, precedes imagination in a child's development. When play emerges for the first time, imagination, as an internal, "theoretical" process, is still extremely frail; but it develops and expands its capacities in association with the development of play. The studies by Khomenko, and, to some extent, those of Kontsevoi and Titarenko explore the conditions of occurrence and some of the characteristic features of visual-imagic thought.

At this level of development the child is already forming judgments about particular objects that need not be directly related to practical or play actions being carried out at the particular moment but are applied

to objects or phenomena that are, at the time, absent. However, initially the child is unable to tie these judgments together; he/she must now move onward to the process of discursive thinking, the process of reasoning.

As Lukov's study has shown, a child begins to connect his/her judgments with one another quite early, contrary to what a number of bourgeois authors have believed. We have been able to discern a certain connection between judgments even in children of very early preschool age, and such a connection was not merely emotional or affective, but reflected certain connections among phenomena the child was observing. Of course, in connecting these judgments a child reflects only the reality that is directly before him or her; and the specific sequence of objects, the particular order of their appearance at the given moment, is of crucial importance for tying a child's judgments together. This linkup occurs in an extremely naive form.

If various objects are shown to a small child and then tossed into a vessel filled with water, it is enough to show the child, for example, a number of floating objects for him or her to begin to assume that all subsequent objects will also float, as if earlier judgments, in a certain sense, began to shape later judgments. This linking of judgments in a certain sense reflects the existing relationship among phenomena, albeit in a limited and one-sided sense.

Then, a more complicated linking of judgments emerges. The child, in trying to predict in an analogous situation what will happen to an object if it is put in the water, will no longer take his/her bearings merely from what has happened with the group of preceding objects but also from the features of the object at hand, which, according to the child's experience, should provide a basis for saying whether the particular object will or will not float. Whereas in the preceding level of development the child based his predictions on a certain expectation, or orientation, formed as a result of perceiving a number of analogous phenomena that followed one another in time, now, at this higher level, the child operates on the basis of deeper premises based on generalizations formed in the process of his/her previous experience or in the course of the experiment itself. For example, a child would assume that light objects floated and heavy objects sank, and so forth. This new connection of judgments sometimes caused a child to alter certain judgments incorrectly; but in general, they more deeply and correctly reflected reality than did the child's earlier judgments. When, for example, a child was

shown a toy tin trowel, on the basis of his experience he correctly assumed that it would float. But when the child was shown a number of iron objects that sank before his very own eyes, that is, when the relationship "iron objects sink" was specifically shown him, he altered his point of view, so to speak, and not only uttered some pessimistic reflections about the tin trowel, but, having noticed that, nonetheless, the trowel floated when placed in the water, he refused to acknowledge the fact and claimed all the same that the trowel had sunk. Then the child tried to sink the trowel with his hand, and, when that succeeded, declared triumphantly that it had, after all, floated completely by accident, not "as it should have done." Thus, although the child's judgment about the trowel was altered erroneously, as a result of its inclusion in the child's chain of reasoning, the change itself derived from a deeper understanding of the conditions under which bodies float.

Indeed, at this stage of development in a child's reasoning, he/she refers continually to his/her own practical experience, to acts that must be carried out with objects for them to sink or float: a wooden locomotive will not float because it should travel on rails; a wooden pencil box will sink if you place a brick on it; an iron lid will float if you put it gently in the water, and so forth. If a child is asked whether some unfamiliar object will float or sink, he/she will first try to put it in the water, delaying the verbalization of his/her own conjecture about the matter. Even contradictions that arise between the child's own presumptions and reality become, for the child, something that must be resolved practically. He/she will sink a tin lid, which, according to his/her assumptions, should sink, and try in vain to force an aluminum strip to float by placing it gently in the water, since according to the child's notion of it, it should float. One quite young little girl who had to place in water a number of large objects that sank and a number of small objects that floated naturally assumed that a little safety pin would float. When the pin did not do what she had expected, she first became confused, and then opened it in the water, declaring: "This pin is not small enough; it got bigger in the water."

From this example it is clear that contrary to Piaget's assumptions, a small child is not insensitive to contradictions, but in fact tries to modify his or her former reasoning in the face of new facts, although the lack of enough relevant information sometimes prevents him or her from performing this operation correctly. The child's continual reference to his/her own and others' experience and to means of operating with objects

shows how the changes occurring in a child's reasoning depend on his/her development in general, on the broadening of his/her experience, and on the development of his/her practical and play activity.

Thus, as a result of the change in the content and structure of practical and play activity, the rudiments of theoretical activity emerge and reasoning begins to take shape already at preschool age as a consequence of a child's mastery of objects and his/her own actions.

It is interesting that alterations in the child's consciousness to a certain extent lag behind changes in the nature of the child's activity. For example, the naive pedanticism in the intelligent execution of some function with some particular objects, the pedanticism a small child shows in practical and play situations, is singularly reproduced by the older preschool child at the level of visual-imagic thought. The studies by Titarenko have demonstrated that a child will accept the most fantastic situations in a fairy tale, although he/she will reject any interference with the basic functions of an object. For example, a child will accept without objections various situations in which a broom behaves like a human, speaks, and so on; but if one of the characters in a story tries to use a broom as a pen, this produces a rejecting reaction in the child, who exclaims, "Even a bad pen writes better than a broom." A child does indeed acquire command over his/her own actions and transfers functions from one object to another, first in his/her play activity as such; later this results in changes in the nature of the child's thinking, helping to develop his/her reasoning process.

The forms of thinking in the preschool child that we have examined are not unique to this stage of development, since, for example, visual thinking may be observed even in adults and certain forms of reasoning, as we have shown, appear even in preschool-age children. Rather, they constitute stages of mastery of a certain content, of certain aspects of reality; and hence, although they correspond to certain general previous age groups and visual-operational thinking generally emerges earlier than visual-imagic thinking, they are not linked unequivocally to a particular age; and age is not a factor that automatically ensures that these forms of thinking will emerge.

What is the relationship of these stages to the teaching process? It seems to me that this relationship is dual in nature. The teaching process in the first instance determines the nature of the activity that will bring a child to know objective reality.

As we have tried to show, this activity cannot, by its very nature, be

reduced to a function, fully formed from birth, of some organ; it is shaped and developed in the course of the child's life activity, depending on the child's experience. In some cases the development of this sort of activity may take place spontaneously, as when an adult, without realizing it, forces a child to behave a certain way, when the objective circumstances themselves constrain the child to carry out some action, or under normal conditions when an educator consciously directs the child in a certain task, organizes the child's activity, or gives the child certain information, that is to say, when the child's thought is shaped in the process of teaching.

But there is also a secondary, inverse influence, consisting in the fact that the child passes through several stages in the development of his/her activity, and in these different stages the process of learning takes place differently: the child acquires knowledge about reality not only to varying extents but also by different methods.

A certain teaching process also takes place at early preschool age, and children acquire relevant knowledge that serves as the foundation for their further development. But such a process cannot take place by means of systematic learning in the form of a lesson. Indeed, such activity, when it is necessary to subordinate a number of actions to some more long-range purpose or to concentrate on theoretical tasks, is impossible for young children. Even play, if it is in the form of complicated, thematic games, creates certain difficulties for them. Nevertheless, we find that children learn a great deal in the process of direct manipulation and handling of things and direct contacts with adults.

In the cradle, in the first years of life, the teaching process takes place in a unique way: the child has before him/her objects of various shapes. An object is shown to the child using various movements: it is shaken, a rattle is banged about, and so forth; and the child is forced to reproduce these movements, name the object, and in this way becomes familiar with things, their properties, and their names.

When a child enters the preschool age, his/her capacities increase considerably, although they are no less unique than in the preceding stages, for the child has already been acquiring geographic, physical, and mathematical notions, but in play, not in geography or physics lessons. If an interesting game is organized about the North Pole, for example, then a number of very important questions arises: What is a pole? What kinds of icebergs are there? Are there any animals there? The preschool child thus comes to learn a lot about these things, although this knowledge is not acquired through systematic learning.

When a child enters school, he/she gains access to new ways of acquiring knowledge; and the child's activity, his/her attitude toward his/her friends and teacher, and the goals he/she sets for himself/herself become immeasurably more complicated than those that characterize the period of preschool play. However, these complications also undergo their own path of development.

Instruction in the senior and junior classes has fundamental differences. In the junior classes the children are intimately involved with concrete tasks, and the teachers are always endeavoring to intervene in their activity and to show them how to do something or other, trying in this way to bring them closer to the content of the lesson, making this or that part of the lesson interesting to all, as if continually supporting the children and setting an immediate goal for them. In the senior classes the lesson must assume a somewhat different form, and the end of formal schooling involves a switchover to lecturing. The child is given more remote tasks, the teacher is guided by this goal, and the child is obliged, to some extent, to learn independently to concentrate his/her attention and exert his/her willpower to keep pace with the teacher in moving toward that goal.

This inverse influence, although secondary, has real importance, because each stage of development has its own characteristic form of activity, and it is impossible to develop a systematic method of teaching without taking this factor into account.

In bringing my talk to a close, I should like to stress one point that seems important to me and that I mentioned at the very beginning of my talk.

This point is that we cannot investigate a child's thought and its development by separating it into particular operations, particular techniques, even if we do this well and correctly from a logical point of view; for we can find analysis, synthesis, induction, or deduction in younger or older children. These operations have a very complex character in children; and, proceeding from their perspective, we cannot ascertain why for some things a child will form quite advanced concepts while other aspects of reality find no reflection in the child's consciousness at all.

This means, then, that to understand a child's thought we must go beyond it. To quote the felicitous expression of Köhler, intellectualism is at its most helpless in explaining intelligence.

The failures, or successes, or the particular achievements of a child's

thought can never be exhaustively explained in terms of ability or inability to perform certain intellectual operations. Often, when trying to explain the inadequate performance of some pupil, a teacher points not to the absence of a capacity to understand the particular subject, but to the absence of sufficient interest in it, to lack of attention, and so on. A child's active engagement, as it were, passes this subject by, does not achieve the required results. This absence of a necessary purposefulness pertains not only to the object as a whole but also to its particular parts; it also explains why a child cannot relate properly to certain tasks and certain types of work.

As the little experience we have concerning work with children who are behind in mathematics shows, these children, in a number of cases, are behind not because they are unable to perform certain mathematical operations or because the correlation of these operations is especially difficult for them. Sometimes this is explained by a wrong attitude, by an improper manner, which has come about as a result of certain flaws in the course of previous years of study. Instead of solving the mathematical problem he has been given, a child will concentrate all of his efforts on getting his results to match the textbook or those of his friends. It makes no difference to the child whether he/she is multiplying or dividing, so long as a correct answer is achieved. In other cases there is a more or less pronounced effort to achieve plausible results that would correspond in general to the particular visual situation, described in terms of the problem, although the mathematical content remains unknown. Thus, the first thing to be done is to alter the child's attitude toward the problem and compel him/her to tackle it, because it has been found that, up until then, the child was doing only what outwardly resembled this work.

The importance of giving intelligent general direction to a child's activity to ensure his understanding of new ideas has been demonstrated quite well by the famous master of the dolls theater, Obraztsov. He relates how for a long time he vacillated in deciding to perform Gogol's play *The Wedding* for small children, thinking that this play was too complicated and that the children would not understand it. But the children took a strong liking to the play, and got right into all the ins and outs of Podkol'osin's matchmaking, becoming quite excited about his fate. However, when the curtain came down, the children did not get up. They thought that this was not the end. In their view, Podkol'osin was obliged to get married.

Thus, they understood much of the play; what they did not understand depended not on their insufficient intellectual capacities, but on their particular attitudes toward the play. The children's active engagement followed its own path; they were too involved in the pretending activity, and the internal content of the outward appearances receded into the background. Comrade Konseva observed some similar facts in her study of young schoolchildren's understanding of a fairy tale. In the studies by Khomenko and Aranovskaia, we tried to alter the nature of a child's attitude toward an artistic work directly, and even young children began to understand the deeper allegorical content of it.

Intellectual operations never occur in isolation: they always have some connection with a broader context of a child's activity. In studying thought in a child one must not forget what Engels said concerning the development of human thought in general: "Scientists and philosophers have up to now paid insufficient attention to the study of the influence of people's activity on their thought" (Engels, *The Dialectics of Nature*, 1930, p. 16). We must henceforth avoid this mistake.

