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On the Nature of Ability

It is understandable that the nature of ability in its general form should attract attention. This is perhaps the central problem of social pedagogy in our time. In this connection, the polemic that has arisen between S.L. Rubinshtein¹ and A.N. Leontiev is of enormous interest.²

On a first reading it is not so easy to discover the true crux of the dispute. Both authors recognize the same initial propositions and decisive facts; neither denies the importance of facts emphasized by his opponent. Apparently, the dispute is merely over a certain difference in the placing of emphases.

Both authors proceed from the following account of the situation. Developed human ability is a product of the individual's development within the humanly organized world, a product of the exercise of his organs on objects created by man for man. In no case is it inherited biologically together with the individual's anatomical and physiological organization; it is inherited only through the mastery of modes of human activity objectively embodied ("deposited") in the structure of the humanly transformed world, through the anatomy and physiology of the "inorganic body of man." At the same time, of course, neither author denies the role played by the natural preconditions of specifically human development and directly by the anatomical and physiological organization of the individual's body. The latter is beyond dispute: you will not train any specifically human abilities in a dog or monkey, however much you may exercise their organs on objects created by man for man.

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On the other hand, it is equally clear that “ability” in its fully developed form inheres in the structure of the organs of the human individual as little as the form of a statue inheres in a slab of marble or lump of clay.

“The abilities of people take shape not only in the process of the appropriation of products created by man in the process of historical development, but also in the process of their creation. The process of man’s creation of the world of objects is at the same time the process by means of which he develops his own nature” (Rubinshtein). At the same time, it is quite clear that “biologically inherited properties (predispositions) constitute in man only one of the conditions for the formation of his mental functions and abilities—a condition that, of course, plays an important role” (Leontiev).

So the dispute must be over a subtler point. Let us try to bring it to light.

In his article, Leontiev places a categorical emphasis on the circumstance that all human mental functions without exception (including abilities) are wholly a product of the exercise of the organs on objects created by man for man. As such, they have their material substratum in noncongenital systems of reflexes. “Of course, all normal people have morphological predispositions that enable them, for instance, to master a language. Formed during the period of emergence as a human being, they are one of the essential biological peculiarities of the species *Homo sapiens*. However, neither language itself nor those concrete mechanisms that activate the processes of speech in one or another language are contained in these predispositions; they are not ‘inscribed’ in the brain. To put it another way, in ontogenesis they do not ‘manifest themselves,’ they take shape.”

In other words, the entirety of an “ability” is given to the individual “from without”—by the world of objects and people, and the ability is developed (shaped) through the individual’s “assimilation” of the experience of other people, of those modes of changing the surrounding world that created the body of civilization, the objects that surround a person from childhood.

To what does Rubinshtein object?

He sees in this framing of the question a one-sided overestimation of “external determination” in the development of the mind and, correspondingly, an underestimation of the “internal conditions” and “preconditions” that mediate the specificity of external influences upon the system of mental acts.

“In the theory of internalization, a correct view of the socially conditioned nature of human thinking and human abilities is overshadowed by a mechanistic understanding of their social determination that severs any interconnection or reciprocal influence between the external and the internal and eliminates any dialectic of the external and the internal, of the social and the natural in man.”

This reproach, which is addressed not directly to Leontiev but to

P.Ia. Galperin as a consistent advocate of the theory of “internalization,” has in Rubinshtein a philosophical-logical premise that he carefully develops: any external influence on a system is mediated (refracted) through the internal nature of the system. Failure to take this circumstance into account, according to Rubinshtein, inevitably leads to a mechanistic interpretation of the “causal” conditioning of the mind by the external world, to the idea that man is merely a passive and receptive object and not a subject, an active party to his relations with the objective environment.

This reproach cannot be shrugged off, especially as Rubinshtein backs it up with a whole series of further arguments. His main argument is the following. If abilities are wholly “given” to the individual “from without,” being “deposited” in the forms of the world of objects and people, in conformity with which the individual trains his organs, making them “capable” of a certain type of action, then the process of developing an ability boils down simply to “mastering historically developed operations.”

But when the question is framed in this way what is extinguished is none other than the *subject* himself. Or, to be more precise, the individual from the very start is not regarded as a *subject* but only as an *object* of external influences, only as something that is shaped but not as something that shapes.

Ability here is reduced to “the functioning in set form of given operations, activated by indicators given in advance.”

To organize mental activity as an aggregate of well-perfected operations, activated by indicators given in advance, means, of course, to simplify the teaching task to an extraordinary degree and ensure faster and easier attainment of the direct, strictly delimited scholastic result. But at what price? At the price of eliminating thinking as such from so-called mental activity. By this route, without a doubt, it is possible (there is nothing strange about it) to achieve in each individual case a certain effect. But what will the final general result be like? The transformation of the student into a creature of the pedagogue, into a person who knows how to live only by his cribs and accomplish only those things that the teacher has “programmed” into him. He will be able to reproduce what has been instilled into him, but expect no more from him!

A very weighty point is made here. What is called “ability” in the precise sense of the word cannot, indeed, be “decomposed” analytically into series of operations (skills) and indicators for their activation without extinguishing one of the most important components of “ability”—the capacity to act where there is no method of action given in advance or where there is no “indicator” for activating one or another of the given “operations.”

For it is just the capacity to act in such a situation that distinguishes the

“able” or “capable” person from the “incapable,” the more capable from the less capable, and in the final analysis the human being from the machine.

It is not enough to supply the student with set schemas of action (although it is not possible to get by without doing this). It is also necessary to give thought to the creation of internal conditions for their productive use (not to mention the possibility of the student himself finding new generalizations, new devices, new methods of action—operations). In order to successfully form thinking, it is necessary to take into account this interconnection between external and internal conditions in the determination of thinking.

Nothing provides such an obvious indicator of mental giftedness as the constant emergence of *new* thoughts in a person.

And not simply the capacity to reproduce memorized “operations” and activate them in accordance with prememorized indicators of applicability.

When we decompose “abilities” into series of operations through which they are exercised and series of “indicators” by which they are activated, it is precisely the “core of ability”—the subject—that is extinguished.

We obtain a situation similar to the one into which a chemist falls when he decomposes water into its component parts, into hydrogen and oxygen. On the one hand, it is reliably known that “water” consists of nothing but hydrogen and oxygen. On the other hand, it is evident that a simple sum of two parts of hydrogen and one part of oxygen does not yet constitute water. It is precisely the “water” that has disappeared.

In order to obtain water once more, a special reaction is required, a special kind of synthesis of hydrogen and oxygen, a special series of conditions under which this special synthesis will take place.

What conditions are required if the individual is not simply to have inculcated in him a series of operations and indicators, but is to acquire an *ability*?

Rubinshtein says: *internal conditions*—that is, certain mental mechanisms, given prior to and independently of the process of mastering “skills,” “operations,” and indicators for their activation—constitute that soil, that living trunk of the personality on which alone skills can be grafted. Without this the system of operations and of indicators for their activation will not be productive but only reproductive. In other words, a machine-like type of intellect will be obtained, the type of intellect that even today can be replaced successfully by a machine or electronic device.

In its general form, the argument is unanswerable. Lacking an answer to it, the theory of “internalization” cannot consider itself correct.

But, on the other hand, I can agree with Rubinshtein only up to the point where passes on to the concrete-psychological description of those “conditions” that he calls *internal*.

What is the “internal core” of ability and where does it come from? Is it given by nature, together with anatomical and physiological preconditions, together with the unconditioned-reflex basis of the systems of conditioned-reflex connections that take shape after birth?

Or is it—just like the system of “operations”—a fact created during ontogenesis, in the course of the exercise of organs on objects created by man for man? Is it therefore the same kind of “internalized” property of the individual as a concrete schema of action, an “operation?”

Rubinshtein fails to make this clear. He provides no direct answer. What is more, a number of his formulations compel me to suspect that he inclines toward a natural, anatomical-physiological interpretation of this “internal core.” There are grounds for suspecting this in the extracts that I have quoted.

But such an interpretation contradicts Rubinshtein’s own intention. Indeed, if the “internal core” of ability is to be understood as something given prior to and independently of the process of the individual’s assimilation of the historically accumulated experience of mankind, then the pedagogue must accept it as a precondition, set in advance, of all purposive pedagogical actions. And the entire sum of actions is again reduced to the training of “skills”—that is, of formal (formalized) operations that are activated by “indicators” given in advance.

But Rubinshtein himself wants education to be understood not as the formal mastering of knowledge (operations) but as the development of ability. Therefore, the “internal core” must also be a product of the purposive activity of the pedagogue and not of the physiological act of the individual’s parents.

A natural, anatomical-physiological interpretation of the “internal core” wholly and categorically excludes the possibility of the purposive formation of that very “core of ability” that is left out of the whole system of well-perfected operations activated by prememorized “indicators.”

In this case the pedagogue must teach the child precisely “operations” and the indicators for their activation. “Ability” in the true sense of the word will be for him an objective fact (i.e., an anatomical-physiological fact quite independent of his will and consciousness), a precondition formed prior to and independently of his influence on the child. As a result, whether the given individual will turn out to be “capable” or “incapable,” more or less capable of making productive use of the system of skills (operations) will also be a fact that depends in no way on the pedagogue.

Thus, in practice there is no effective difference between the type of “education” that, so Rubinshtein supposes, the theory of internalization dictates to the pedagogue and the type of education that he himself would like to see.

So I am inclined to suspect Rubinshtein of interpreting in a naturalistic fashion that “core of ability” that remains as a “residue” after removing from

the equation all strictly formalized elements (i.e., both well-perfected schemas of action or “operations” and strictly formulated indicators for their activation). I am inclined to attribute such an understanding of the “internal core” to certain errors in his formulations.

For the whole pathos of his position consists precisely in his quest for a means of purposive pedagogical influence on the child that will ensure the development and even the emergence of that mental function that constitutes the “core of ability”—the productive (and not reproductive) use of operations in accordance with indicators known in advance.

For against what is Rubinshtein always polemicizing?

Against conceptions according to which “thinking is mainly the manipulation of generalizations obtained in set form, and mental activity is the functioning of operations that are activated automatically by indicators given in advance. . . . Thus, thinking is the business only of the teacher, not of the student!”

This conception, he continues, in its basic orientation “artificially emphasizes the receptive aspect of thinking, the ability to assimilate the given, and masks its active, creative aspect—the ability to discover the new.”

If Rubinshtein does indeed treat the nature of the internal core—that is, of the active, productive, and creative element within “ability”—in a naturalistic, anatomical-physiological fashion, then he himself makes it impossible to pose the question of means of pedagogical action that ensure the emergence of this element in mental activity.

According to his own research program, “I emphasize the investigation of the *process* of thinking and investigate thinking not only where it manipulates set generalizations but also—and even especially—where it . . . moves toward *new* generalizations.”

This means that the trick lies *not* in training the individual to act in accordance with a memorized schema, activated by an “indicator” of its applicability given in advance, but in placing the child in a situation within which he will be compelled to act as “himself,” as a subject. This situation, evidently, must possess the following characteristics.

First of all, it must be sharply conflictual—that is, such that the “operations” and “indicators” for their activation that are already known to the individual *do not work*, and the individual must himself find a means of overcoming a difficulty, must discover a course of action that is *new* to him (though not new to the pedagogue). He must himself “discover” the sole means of action or “operation” that leads to the goal. Or, conversely, he must discover a new (to him) “indicator” of the applicability in an unforeseen case of operations known to him.

The art and tact of teaching, which the pedagogue acquires by “experience,”

consists precisely in always knowing how to place the child in a situation such that its “resolution” is within his reach, given the level and store of knowledge with which he approaches the task or difficulty, and is possible by only one means—through the child’s independent “discovery” of the operation that is required and that gives a “way out” of the difficulty.

For “activeness”—as the “internal condition” for mastering an operation and the indicator of its applicability—awakens, as is self-evident, only and exclusively when the individual confronts a difficulty and has to overcome it *by his own efforts*, without coaching, without a hint or “prompt.”

Therefore, the art consists in being able to create a “difficult” situation from which there is objectively *a single way out*, which is known to the pedagogue and is a pure “operation” but is not known to the child, who must find it independently as something “new” and not as an “operation” in accordance with a given indicator.

Under this condition the “operation” will be mastered—not, however, by means of training and repetition, but through the individual’s independent action, by awakening his productive activeness.

This, it seems to me, overcomes the conflict between the advocates of the “theory of internalization” and Rubinshtein, keeping the strong points of both approaches while getting rid of the weaknesses for which each side reproaches the other.

For “ability” consists in the capacity to act in accordance with the logic of that reality within which operations and indicators for their activation are “deposited,” relying on mastered schemas of action but not floundering in perplexity where already mastered formalisms have exhausted their potential and led to difficulty, to antinomy.

For it is in the form of an antinomy, of a formally insoluble contradiction that a person always encounters a *question* that has to be solved and to which there is as yet no *answer*; no ready means of action leading to an answer and solution.

This is precisely how Karl Marx understood the problem of *ability*, or the problem of the difference between *understanding* and simple formal mastery of the known.

Here is the decisive place. Describing Roscher, Marx writes:

Roscher undoubtedly has a considerable—and often quite useless—knowledge of literature. . . . But . . . what avails me a fellow who, even though he knows the whole of mathematical literature, yet understands nothing of mathematics? . . .

If only such a professorial schoolboy, by nature totally incapable of ever doing more than learn his lesson and teach it, of ever reaching the stage of

teaching himself, if only such a Wagner were, at least, honest and conscientious, he could be of some use to his pupils. If only he didn't indulge in spurious evasions and said frankly: 'Here we have a contradiction. Some say this, others that. The nature of the thing precludes my having an opinion. Now see if you can work it out for yourselves!' In this way his pupils would, on the one hand, be given something to go on and, on the other, be induced to work on their own account. But, admittedly, the challenge I have thrown out here is incompatible with the nature of the professorial schoolboy. An inability to understand the *questions* themselves is *essentiellement* part and parcel of him, which is why his eclecticism merely goes snuffling round amidst the wealth of set *answers*.*

Notes

1. S.L. Rubinshtein, "Problema sposobnostei i voprosy psikhologicheskoi teorii," in Rubinshtein, *Problemy obshchei psikhologii*, 2d ed. (Moscow, 1976), pp. 219–34.
2. A.N. Leont'ev [Leontiev], "O sotsial'noi prirode psikhiki cheloveka," *Voprosy filosofii*, 1961, no. 1, pp. 26–40.

*Letter to Ferdinand Lassalle of June 16, 1862; see K. Marks [Marx] and F. Engel's [Engels], *Soch.*, vol. 25, p. 404; English translation from www.marxists.org/archive/marx/works/1862/letters/62_06_16.htm.