LEARNING FROM THE PAST

The "Learning from the past" section presents the works of Russian scholars that are inaccessible to English-speaking readers. The articles are not only of historical interest. The development of science is like a spiral, and the modern researcher can often learn a lot from the scientists of the past. The section opens with an article by B.F. Lomov.

Boris Fedorovich Lomov (1927 - 1989) was Russian psychologist, a founder and first director of the Institute of Psychology of the USSR Academy of Sciences, a popularizer of psychological science, a founder and first editor-in-chief of the Psychological Journal. The core of B.F. Lomov's systems approach is formed on the following six basic principles:

1. Mental phenomena should be perceived and analyzed from several aspects: as a qualitative unit, as an internal condition for the relationship and interaction of a subject with the environment, as a set of qualities acquired by an individual, and as a result of activities of the organism's microsystems. A holistic description of the mental phenomenon involves a combination of all of the above research paradigms.

2. Mental phenomena are multidimensional, and therefore they should be considered from different aspects and in different measurement systems.

3. The system of mental phenomena consists of many levels, the mind as a whole has cognitive, communicative, and regulatory dimensions, each of which is also differentiated into several levels.

4. The organization of human mental properties is like a pyramid. The main mental properties are at the top, the properties that underline them are at the bottom, and the facets represent different categories of mental properties.

5. The systems study of any mental phenomenon implies taking into account the multiplicity of its determinants: causal relationships, general and specific prerequisites for mental phenomena, mediating links, various external and internal factors. Depending on the conditions, the same determinants can act as prerequisites, an independent factor, or as a mediating link.

6. Mental phenomena should be studied in terms of their dynamics and development. Human life is a polysystems process. The mental development is emergence, is the formation and transformation of person's main traits and properties.

The systems approach was presented in a number of publications by B.F. Lomov. One of his last works "Systems Approach and the Problem of Determinism in Psychology" was published in the Psychological Journal in 1989. The article is republished with small abbreviations.

Systems Approach and the Problem of Determinism in Psychology

B.F. Lomov [a*]

[a]*Institute of Psychology, Russian Academy of Sciences, Moscow, Russian Federation*

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Abstract. The current state of psychological science and the logic of its development led us to the need for new approaches in psychological research and to their synthesis based on systems principle. From these positions, the problems of the mental development of the individual are considered in the unity of his/her biological and social factors. The question of determinism in psychology is raised, the nonlinear nature of the determination of mental phenomena is stressed. The types of determinants in relation to the tasks of psychological research are highlighted, the problem of determinations is discussed. The possibilities of solving practical problems are analyzed, taking into account the potential of the systems approach in psychology.

Keywords: Systems Determination, Systems Approach, Types of Determinants, Scientific and Practical Methods.

In reascent years the logic of development of psychological science has led us to the need for new approaches in psychological research and to their synthesis based on systems principle. This, necessary, requires a rethinking of its problems, a new formulation of traditional problems, further development of the methodology and general theory of psychology. But at the beginning I should note the contradictions that objectively accumulated in it.

First. The contradiction between new problems, on the one hand, and the old approaches (old principles, general theoretical concepts and schemes, a system of specific scientific research and scientific-practical methods).

Second. Contradictions between different general theoretical concepts and the corresponding different schools. Studying the same or essentially similar phenomena, psychologists adhering to different schools describe and explain them in different ways.

For instance, adherents of the school of L.S. Vygotsky, A.N. Leontyev, A.R. Luria interpret the system of mental phenomena in the context of the conception of Cultural and Historical Development and the Psychological Theory of Activity. In the school of S.L. Rubinstein these phenomena are studied as a process based on the principle of the unity of consciousness and activity; in the school of D.N. Uznadze - in the context of the theory of attitudes, in the school of A.F. Lazursky & V.N. Myasishchev - in terms of the concept of psychological relations; in the school of B.G. Ananyev - in terms of the Comprehensive Theory of Man and his heterochronous development; in the school of B.M. Teplov - V. D. Nebylitsyn - in the context of the study of individuality and individual psychological differences. These approaches to the fundamental problems of psychology in the schools listed above are different. In particular, this refers to the problems of biological and social determinants in the human mental development, the relationship between the conscious and the unconscious in his/her behavior, to the interpretation of behavior, activity and social interaction (It should be noted, then, that some contradictions between

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different schools are only seeming).

Third. Contradictions between the internal logic of psychological science and the logic of its interrelationships with other sciences, or, in terms of Western science, between tendencies of internalism and externalism [4]. Obviously just like other sciences psychology has an internal logic of development; a change in problems under study, a change in approaches or paradigms, and the development of research methods obey this logic. But psychology cannot develop without close contacts with other sciences, both natural and social. The possibility of its formation as an independent science arose only when natural science and social science reached a certain level of development (psychophysics could not arise until physics reached a certain level, and social psychology could not emerge before the appearance of sociology). Psychology was formed and developed at the intersection of natural and social sciences. Taking a marginal (in this sense) position, it, as J. Piaget noted, is constantly being torn between physiology and sociology. The contradictions between internalist and externalist tendencies are especially clearly revealed when it comes to solving practical problems. In connection with the foregoing, the need for new approaches is maturing in psychology. In my opinion, many of the psychological problems posed by the present time (such as the dynamics and structure of social psychology, psychological stereotypes, prejudices, social illusions, psychological factors of radical economic reform, political reform, scientific and technological progress) can hardly be solved in the mainstream those approaches that have developed in previous years. One of the ways to overcome the noted above contradictions is the systems approach. The importance of new approaches was recognized in world psychology. At the XXIV International Congress of Psychology (Sydney,1988), various issues of methodology and general theory were widely discussed. The need was noted for the integration of psychological knowledge and the development of new theoretical concepts.

Discussions were held about the prospects of existing scientific schools, about the need to synthesize their achievements. It was emphasized, in particular, that such schools as Classical Behaviorism, Gestalt Psychology, Psychoanalysis, which played an important role in the development of psychology as a science, have already exhausted their heuristic possibilities a long time ago; the current Behaviorism, Humanistic Psychology and some other areas that have come to replace them also need critical rethinking. However, the main directions of research go outside the mainstream of these schools. The principal idea here is the creation of Integrating Psychology. Such a psychology would include the psychology of learning, psychology of motivation, personality psychology, and cognitive psychology [4].

Modern trends in Western psychology are based on different principles (or paradigms) compared to the classical schools. They are focused not so much on schools as on the subject areas of research and use achievements of different schools. For example, cognitive psychology can be viewed, in a certain sense, as a continuation of classical Experimental Psychology and Gestalt psychology. Its development was greatly influenced by the theories of J. Piaget (stages of cognitive development), J. Bruner (motivation aspects of perception, problems-solving strategies), W. Neisser (primary and secondary processes, cognitive schemes), J. Miller, E. Galanter and K. Pribram (plans and structure of behavior), P. Saugstad, K. Raaheim (convergent and divergent thinking); some ideas of S. Freud (memory, thinking, and imagination). As one can see, cognitive psychology is built on the basis of the synthesis of the achievements obtained in different schools; I can declare that this is a new type of scientific direction.

Attempts to synthesize the knowledge, accumulated in different schools, are also be observed in Russian psychology. I mean theoretical research aimed at identifying the relationship between the concepts of personality, activity and social interaction. On this basis, a tiered representation of human being as the subject was formed (K.A. Abulkhanova).

The desire to integrate psychological knowledge based on real problems rather than paradigmatic interests is, in my opinion, a promising trend, which corresponds to the inner need of psychological science.

What does the systems approach give or can give in this regard? I will not list its general provisions and principles; they are quite fully covered in the literature. I will only note the main thing: when studying this or that phenomenon, event, or process, one must consider it in several interrelated aspects:

- as a relatively independent unit possessing a qualitative certainty;
- as an element of some macrosystem in which

this phenomenon (event, process) must be included and the laws of which must be obey;

- as an integration of a number of microsystems that have their own specific patterns, which also manifest themselves in the phenomenon, event or process under study.

Any phenomenon has many dimensions; each of the above aspects reveals its specific dimensions. Hence, there is a need to clearly define the levels of what we are studying. Often discussions arising in psychology do not yield anything concrete because the disputing parties mean either different dimensions of the object in question, or different levels of its analysis. Another important consequence is that the systems approach requires the development of typology of the phenomena under study, since they inevitably act as multivariate. For instance, we are accustomed to the general formulation of the unity of consciousness and activity principle: consciousness is formed, develops and manifests itself in activity. But in reality, as K.A. Abulkhanova rightly notes: the relationships between them are diverse, from their almost complete coincidence to the contradiction between them. In other words, there are different types of relations between consciousness and activity, and they must to be studied. This also refers to problems of personality, social interaction and many others.

In general, the systems approach provides us a broader theoretical basis for the development of ever-changing problems of psychology, and thus it allows us to overcome the first of the indicated contradictions. It also allows us to resolve the contradictions not only between scientific schools, and between internalist and externalist tendencies in the psychological science. In fact, when it comes to the individual psychological traits, it is very difficult to understand them, limiting oneselves only to what has been accumulated in psychology, or to explain them by the laws of mental development. Here we need to go to another type of analysis. We must consider person's life in macrosystems to which he/she belongs, and, therefore, turn to those sciences that study these macrosystems. First of all, I mean the social and biological systems to which man belongs.

Man (individual) is a member of society. He/she is included in the systems of social, economic, civil, ethical, national, family, political, and ideological relations. The entire system of social relations that characterizes a given society at a given historical epoch forms a macrosystem for an individual development. It constitutes an objective basis for the formation for person's life goals, he/her social needs and motivation sphere, value orientations and attitudes, he/her subjective relationships to reality. For instance, it is hardly possible to understand how such psychological traits are formed in a person, which are usually called "a sense of justice" or "a sense of duty" without an analysis of the system of moral and legal norms of a given society, or "a sense of boss" without an analysis of production and distribution relationships. In this regard, psychology should turn to sociology, ethics, economic, legal and other sciences that study society. At the same time, the problems of social interaction between people and their joint activities (or the relationship between the individual and society) acquire special importance in connection with the study of human life in society. Unfortunately, these problems have not been studied for many years in psychology, although they were raised long ago (in particular, in the Bekhterev' works). In recent years, these problems have been actively investigated by A.V. Belyaeva, A.L. Zhuravlev, V.N. Nosulenko, V.V. Rubtsov and others.

However, man also belongs to the biological system. Unfortunately, the issue of biological determinants of mental development has not received enough attention in Russian psychology. Moreover, any attempts to address them were declared biologization. If still some research was carried out in this direction, despite the ideological prohibition, they investigated only to one type of living matter organization: organism or even only one of the subsystems of organism, i.e. the brain. Meanwhile, the types of organization of living matter are diverse. According to V.I. Vernadsky, there are four fundamental types of organization of living matter: organismic, population-specific, biocenosis and biospheric.

I believe that in order to solve the problem of the relationship between biological and social determinants of the person's mental development, it is necessary to go beyond the framework of only the organismic type and to consider the person's development in the system of the listed types of living matter organization. This can substantially enrich our understanding of the mind and patterns of mental phenomena. True, this will require addressing such problems as the individual, the population and Homo sapiens, man and humanity, the psychological problems of human ecology, place and role of a men in the biosphere development, which sure greatly complicates the problem. But it is precisely by entering the field of macrosystem

laws, that we can ascertain the principal problems of psychological science in a new way, and substantially enrich our psychological knowledge.

Another research aspect is also important for the development of psychology, namely, the analysis of microsystems that underlie mental phenomena. Studies of the mind as an organized entity allow us to distinguish three main subsystems: cognitive, regulatory and communicative. In particular, the cognitive subsystem was studied most intensively: perceptual, mnemonic, and intellectual processes. Microgenetic (or actualgenetic) studies of perception, revealing its phasic nature, the relationship of its sensory and motor, as well as conscious and subconscious components, belong to this type of research. It also includes research on the different types of memory, the dynamics of thought process, mental states and other mental phenomena. This kind of research necessarily leads to the study of neuronal processes, which in relation to the mind can be considered as a microsystem. A further advance in this direction is the study of biophysical and biochemical processes underlying mental phenomena.

Thus, the systems approach organically links the “outputs” in the field of studying both macrosystems and microsystems. This makes it possible to include the problems of different scales in a single subject area of psychology, i.e., from the most complex mass phenomena to elementary material processes that underlie the mind as a special reality.

The systems approach, obviously, is not yet a theory. An approach is only an approach, a method of cognition in the philosophical sense of the word. The systems approach is, in essence, the implementation of the principles of materialistic dialectics in relation to a specific science. It opens up new possibilities for the development of both general and particular (special) psychological theories. It also allows us to order existing theories.

It should be noted that the "theoretical edifice" of psychological science is a complex multi-storey structure. It would be wrong to imagine the general theory of psychology as a set of ideas and principles located on the same level. We mean the macro-, meso- and micro-levels of the analysis of mental phenomena, and, accordingly, different levels of theoretical abstractions, generalizations, and syntheses. I consider the question of the structure of the "theoretical edifice of psychology" to be most important, requiring special research.

The core of the theory of any level is the knowledge of the objective laws of the phenomena to which it belongs (although, of course, the theory is not limited to one level alone; it includes many other levels). When it comes to the laws, the problem of the determination of the phenomena under study becomes central. How and why does this or that mental phenomenon arises? How and why does it develop? How and why does it disappear or does turn into something else? These are the principal issues of psychological research. The problem of determinism in psychology is one of the most fundamental.

Throughout its history, this problem has not gone off the stage. Previously, many researchers believed that the principle of determinism applies only to the natural sciences. As for the person spiritual life, it did not find application: here complete freedom dominates; spiritual life, including mental phenomena, is not subject to objective laws; it is supposedly a special world that is not connected with objective reality; human behavior is goal-directed, and therefore there is no need to objective determination.

In the history of sciences many antinomies such as "matter and spirit", "need and free will", "objective reality and subjectivity", "causality and goal-directedness" have arisen. These antinomies have not yet found the satisfactory solutions. And at present, the attempts are also undertaken to consider mental phenomena as so they do not obey the principle of determinism.

The first attack against indeterminism in the understanding of mental phenomena was done in the middle of the last century (I do not mean philosophy, in which such attacks began much earlier). Psychophysics was perhaps the first scientific discipline that tried to reveal the logical connections between external influences on the senses and the corresponding sensations. At the same time, psychophysiology began to develop by studying the relationship between the brain functioning and various mental phenomena.

Both these disciplines dealt with specific phenomena. In psychological science new issues erose that required access to broader interpretations of the mind determination. At the beginning of twenty century, the so-called classical behaviorism and reflexology emerged. Representatives of these directions tried to regard various acts of behavior as reactions to external influences. The stimulus-response formula became a general principle of causal (more precisely, deterministic) explanation of

behavior. It doesn't matter if we mean American behaviorism or Russian reflexology, or Pavlov's scientific school. Certainly, this was a serious step towards the establishment of the principle of determinism in psychology. But the psychology science has to pay a very high price, since such an approach required to exclude all the phenomena of the so-called subjective world from the general scheme of analysis, to eliminate them. They were declared unscientific. The formula "stimulus- response" expresses the linear (one-dimensional) determinism of the Laplace type, borrowed from classical mechanics.

The accumulated experimental data and the results of observations have been more and more demonstrating the limitations of the "stimulus-response" formula. The need arose to return to the so-called "subjective" concepts. New approaches began to appear: the so-called "Subjective Behaviorism", the Functional Systems Theory, and the Theory of Activity (in its various forms).

The formula, proposed by S. L. Rubinstein, according to which external causes act through internal conditions, has played and continues to play an important role in the development of a deterministic understanding of the mind and behavior. This was an important step in the development of the principle of determinism. Concepts such as goal, motive, perception, thinking, and others began to be included in the analysis of human behavior. A strong blow against linear determinism was struck by studies that showed that any influence of external stimulus on a person does not occur strictly and unambiguously, but only with a certain probability.

Psychology has entered a new round in the spiral of development of scientific knowledge. It has returned to its old problems, but on a new level. Naturally, the question arises of where do the purposes, motives, and internal schemes of behavior come from? Is the process of their formation and development natural? If so, how should one approach toward the laws of their formation and development?

I believe, it is impossible to reveal these laws if we regard the individual' behavior as something that exists in itself. It is necessary to take behavior in the broader context of social and natural systems to which the individual belongs, in which he/she is included. In other words, we should move to another level of analysis, to the macrosystem level. Such an analysis makes it possible to understand why a particular individual sets certain goals, why certain motives arise in him/her.

Psychology is also interested in the forms in which these goals and motives appear in a particular individual. These forms are different. For example, the goal can act as a perceptual image, as an image-representation, and as a "logical structure" (a system of judgments and inferences). In what form will the goal appear depends on the specific conditions in which the individual has to act, and what are his/her mental features.

Therefore, while investigating goal-setting, the psychologist cannot limit oneself to only macrosystem analysis. He/she should also turn to the processes of perception, memory, imagination, thinking, emotional processes on the basis of which the goal is formed, while bearing in mind different levels (especially conscious and subconscious), that is, the psychologist should also carry out a microanalysis of the goal-setting process.

All of the above leads to the conclusion about the need for a critical rethinking of the concepts of determinism that were formed in psychology at the dawn of its development and are still urgent today. For a long time, the linear concepts of determination prevailed in psychology. The scholars tried to present human (and animal) behavior as a direct, unidirectional chain of causes and effects: "cause - effect", "new cause - new effect", etc. The most striking example here is classical behaviorism. He played a certain progressive role in the psychology development, since it permitted the transition from general speculation to scientific research, from introspection to experiment, but at the same time it showed that this path is a dead end. First of all, because it does not give the possibility of a deterministic explanation of the mental phenomena that could arise in similar conditions. Any psychologists who have to conduct experimental (or generally empirical) research are often faced with the fact that, no matter how carefully they achieve identical conditions, the results may be different, often directly opposite. So, one and the same individual in seemingly identical conditions, but in different tests and at different moments, behaves differently.

When psychologists try to determine logical connections, they usually use statistics, averaging the data obtained. In doing so, results outside the overall range are often discarded, assuming this are random outliers or artifacts. However, the average values do not always really reveal essential and necessary connections. Sometimes, on the contrary, they may hide these

connections. And what is viewed as an artifact sometimes may express these connections more fully and may lead to a deeper understanding of the phenomena under study. It should be emphasized that different, including contradictory, data, consequences, effects can arise in similar or even identical situations.

The problem of explaining of the variety of consequences under the action of the same causes is fundamentally unsolvable in case of a linear approach. But it can be solved with the systems approach. The linear approach relies only on external causes. In psychology, the approach that ignores the importance of internal determinants of personality development is still widespread. In practice, this approach is realized in the assertion that any child can grow up to be an outstanding person in science or art, one just needs to organize the appropriate external influences. That is why genetics was banned because it stressed the importance of internal determinants in the individual's development.

From the point of view of the systems approach, the determination includes determinants of different types. Causal relations are central to this system. However, determination is not limited to causal relations only. It also includes external and internal factors, general and special prerequisites as well as mediators. Causal relations are most essential, necessary, and repetitive. The other determinants do not generate, do not cause events, effects, but are regarded as consequences. They affect these consequences, by accelerating or slowing down their occurrence, by strengthening or weakening them, changing them in one direction or another.

Consider the types of determinants the listed above.

Causal relationships. There are several important points to note here.

1. Usually, psychologists try to look for direct connections between causes and effects. Such attempts lead to illusions, to errors like "Post hoc ergo propter hoc". An event immediately preceding some other event is not always the actual cause of it. It should be emphasized that in real life the effect may not arise immediately after the cause, but after a while. Freud was the first who paid attention to this statement. Analyzing the reasons for certain behavioral features of his patients and their subjective world, he tried to trace their life path, as if by removing layer by layer of what had been accumulated during their life. In the long run, he found a real reason that had been hidden deeply in the history of the individual's life. When one investigates human behavior, one usually tries to find some single event that might be the cause. In real life, information about events is accumulated in the individual's memory and the consequence is as a result of many events. When this information reaches some critical mass, a consequence arises. In this sense, one can observe cumulative causes.

2. The most important role in the organization of human activity and behavior is played by the processes of anticipation. A person organizes his/her behavior, keeping in mind not only the past and the present, but also the future. In my studies which I conducted together with E.N. Surkov, showed that anticipation is included even in the organization of unconscious movements, such as postural reactions, locomotion, and others. G.K. Sereda and A.K. Osnitsky demonstrated that memorization and reproduction also depend on anticipation. One usually thinks of memory as referring only to in the terms of the past. But it is not so. The predictions that a person makes are certain guidelines for memorization.

3. A person, as is well known, has a very wide range of possibilities for self-regulation. And this aspect strongly affects on causal connections. As O.A. Konopkin has demonstrated that human being is capable of regulating many aspects of his/her activity and his/her resources; the final effect of the activity considerably depends on this. D. Kovacs experimentally showed that person self-regulation allows him/her to overcome external influences.

4. Self-regulation allows us to change our internal states. But in the process of behavior and activity, he/she changes the environment, thereby changing the external determinants of his/her own behavior. In connection with the above, one can consider self-determination as one of the most important components in general system of determinants. In the course of human evolution, the role of self-determination increases. The systems determination of human development is not limited to these connections, it also includes other types of determinants.

External factors. As is known, the beginning of experimental studies of sensory processes is associated with psychophysics, which clarified the regular connections between the value of external influences and the sensations corresponding to them. The basic psychophysics law was formulated and the

concept of subjective scales was developed. In classical psychophysical experiments, the subject interacts only with the signal that he/she must perceive and evaluate, that is, the relationship "object - subject" is analyzed here. A different approach was proposed in the Institute of Psychology of the Academy of Sciences. V.N. Nosulenko conducted comparative studies of subjective scaling in two situations: when the subject works alone (a classical psychophysics experiment) and when he/she interacts with another subject.

Experiments showed that there are noticeable differences between the assessment scales obtained during social interaction and the individual assessment of the same signals. The influence of social interaction is expressed, in particular, in an increase in the similarity of the scales of different subjects toward the end of the experimental series. It is assumed that the subjects form a certain “common module”, which enhances the accuracy of the evaluative scaling. The evaluation of these scales changes even when the subject refuses to taking into account the partner's assessments, nevertheless his/her value judgment changes against his/her will, i.e., subconsciously. Similar results were obtained in studies of other cognitive processes: perception, memory, imagination and thinking (V. A. Koltsova, G. M. Kuchinsky, A. M. Matyushkin, N. N. Obozov). Evidently, cognitive processes obey their own laws; some of them are unknown to us. Whether or not the interaction of the cognizing subject with other people will be included in the "cognitive situation" and in what forms, depends on the specific circumstances. In this sense, social interaction in relation to cognitive processes can be considered an external factor that can accelerate their course, can increase the accuracy of their results, reduce some their stages, and can act in the opposite direction. The direction of this factor depends on the specific circumstances (in particular, on the interpersonal relations of communicating people, on the levels of their cognitive development, etc.).

Internal factor. Here I mean such events or processes that are organically included in the phenomena under study and which are immanently inherent in them. In relation to cognitive processes, the set (attitude) is such an internal factor, which is productively studied in the school of D. N. Uznadze. As is known, the concept of set was formed on the basis of the study of perceptual illusions (illusion of volume, pressure force, illumination, mass, etc.). The general experimental scheme of the effects of set on perception is as follows: the subject is presented with two different objects (e.g., of different weight) several times in a row, then the objects are replaced by other similar objects of the same weight. The subject perceived two similar object as different. It means that illusion (set) takes place. D. N. Uznadze came to the conclusion: “... in the mind ... there is a factor/state ... that can ... be qualified as an extraconscious mental process that under these conditions has a decisive influence on the content of consciousness... The peculiarity of this state is that it precedes the appearance of certain facts of consciousness or precedes them ... It would be more correct to call this state the individual set " [3]. When such set is formed, it becomes a powerful internal factor influencing cognitive processes and, in general, all mental processes and acts of behavior. It should be emphasized that modern psychology has accumulated a huge mass of empirical data that show the effects of such internal factors as apperception, set, stereotype, cognitive scheme, psychological attitude to the processes of perception, memory, thinking, imagination, and the entire system of mental processes, and on behavior in general.

General and specific prerequisites. It goes without saying, that any event does not appear suddenly. It must be prepared by the development of all other events preceding it. If something does not reach a certain stage in its development, it is not mature, then no reason will cause the effect. A premise is a kind of readiness to perceive the action of the cause. This is a kind of “soil” on which certain events will grow. Perhaps most often the problem of premises is addressed in the study of abilities. In the history of psychology (and perhaps science as a whole), discussions continue on the issue: where do abilities come from? Are they some natural properties of the individua, are they his/her innate quality? Are they acquired during life, or are they formed in activity? I believe that the approach of B.M. Teplov is most constructive. He believed that the abilities as individual’s psychological features, that allow him/her to quickly master certain types of activity, i.e., are formed during life. I would like to note that when psychologists consider the formation and development of abilities, they usually associated abilities with activity. And this is true, but this reveals only one side of the matter. The other is the interaction of the individual with the people around. In particular,

there is reason to believe that imitation is the most important factor in the formation and development of abilities. However, abilities are not formed at an empty place. The brain of a newborn and its body as a whole is not a blank board (tabula rasa) on which one can write whatever one wants. In this regard, Teplov proposed the concept of "makings". The makings are not yet a real ability, but only its prerequisite. Whether or not the makings will develop into an ability depends on the specific conditions of the individual's life. The relationship between makings and ability is ambiguous. Different abilities can develop on the basis of similar makings, and vice versa. I mean general prerequisites that are associated with the development of general human abilities and specific prerequisites that determine the originality of the abilities of each individual.

Other phenomena, related to the problem of prerequisites, are the properties of the nervous system that determine the formation of temperament, individual style of activity, and a number of other characteristics of human behavior and activity. At present they are regarded as formal-dynamic properties (V.M. Rusalov). When discussing the problem of the relationship between general and specific prerequisites, one inevitably comes to the problem of individuality, the uniqueness of each person. From the standpoint of linear determinism, this problem is, in principle, unsolvable. I maintain that only the concept of the systems determination makes it possible to get closer to its solution. The most difficult problem of psychology is to identify the general laws of human mental development and to reveal the specific regularities of their implementation in the individual's life.

Mediating links. The idea that behavioral acts include mediating links is not new (recall, for example, Tolman's concept of intermediate variables). Without going in the history of this idea in detail, I would like only to emphasize that mediating links are included in the determination of behavior, mental processes, and person's mental development. This idea was developed most fully and thoroughly in L.S. Vygotsky's school of Cultural & Historical Development. He demonstrated the role of signs and sign systems in the formation of so-called higher mental functions. As an example, one could cite the experimental studies of the development of memory in children carried out by A. N. Leontiev. The subjects were asked to memorize words and syllables. In some cases, direct memorization was required, while in others the subjects were proposed to use pictures as an auxiliary means of memorization. It would seem that the second task is more difficult than the first, since the subject is dealing here with a doubled number of objects. But experiments have shown that the results of direct and indirect memorization were fundamentally different. The data accumulated in the school of Cultural & Historical Development show that auxiliary means, being included in cognitive processes, change them qualitatively. Thus, mediating links become necessary elements of cognitive operations in the course of mental development.

Concluding the analysis of the problem of determination of mental phenomena from the standpoint of the systems approach, I would like to emphasize several points. First, when one investigates the mental laws, one must bear in mind different types of determinants; causes, external factors, internal factors, general and special prerequisites, and mediating links. Second, the set of these determinants forms a certain system. In this regard, one speaks of systems determination. Third, in the study of mental phenomena, any attempt to search only for a single determinant of this or that phenomenon is a dead-end. Any phenomenon is determined by a system of determinants. The relationship between determinants of different types is very dynamic and flexible. What acts in some conditions as a prerequisite (general or special), in other conditions can become a cause or factor (external or internal), a mediating link, and vice versa. The specific structure of the systems determination depends on specific circumstances. In my opinion, the concept of the systems determination allows us to approach towards to the solution of a number of fundamental problems of psychology, in a different way compared to traditional approaches.

Let us again return to the problem of biological and social determinants of mental phenomena and human behavioral acts. Sometimes the biological and the social are viewed as two successive parts of a single line of development. At the initial stages, the development of the individual is determined primarily by biological laws. Then social laws begin to "work". This position is most clearly expressed by V. Stern [2].

I believe that the concept of the systems determination makes it possible to overcome the

limitations of the concepts of the sequential change of biological and social or the concepts of two factors. In different circumstances and at different stages of mental development, biological and social determinants play different roles. In some specific situations, a particular social event is the cause of certain human actions; at the same time, its biological characteristics can act as a factor, prerequisite or mediating link. In other situations, the ratio of the determinants is different.

The second fundamental problem, closely related to the first, is the problem of human mental development (I mean, first of all, the problem of individuality). Most psychological studies try to find some single determinant that "acts" throughout the life of an individual, to present things as if person's development is determined from beginning to end by this "universal" determinant, to find, so to speak, "causa finalis." But from all what has been said above it follows that such an approach is hardly justifiably; at least now, at the modern stage of development of psychological science, it yields very little results. As was noted above, the relationships between different types of determinants are not rigid and unambiguous. They vary depending on the specific circumstances. In this regard, I mean **a change of determination** or a **changeable determination**. And this, in my opinion, is a very important statement arising from the essence of the systems approach. It allows us to put forward new approaches to the study of the laws of mental development. All the concepts available (or most of them) coincide. The individual's mental development includes certain stages (different authors use different terms: "phase", "period", "stage", "epoch", etc.). The essence of mental development can also be interpreted in different ways. It is possible to compare the classical theory of J. Piaget, the neo-Piaget theories of J. Pascual-Lyon, W. Fischer-M. Farrar, A. Demetriou-A. Euclid, R. Keyes and others, the concepts of B. G. Ananyev, A. N. Leontiev, D. B. Elkonin and find significant differences in their interpretations. But all these theories and concepts point to a more or less strict sequence of stages, each of which differs from the others, both qualitatively and quantitatively. I think that the transition from one stage to another is associated with a changeable determination. In essence, this idea can be traced in the concepts of B. G. Ananyev and D. B. Elkonin.

How and why does one stage transform into another? To this, perhaps, the main issue, in my opinion, it is impossible to give an answer if you follow the concept of linear determinism, i.e., if one tris to find some single universal determinant, or one universal reason. Hypothetically, the development picture can be presented as follows. When this or that stage comes to its end, a new situation arises. The developmental results achieved at this stage (for example, cognitive structures, knowledge and skills, value orientations, motives, etc.) are included in the system determination. They act as either internal factors, or prerequisites, or mediating links, that is, determinants for the next stage. At the same time, the forms of activity of a developing person, especially his/her social interaction, are broader: they include interactions with other people (for example, interaction "child - adult"); at the same time, the psychological relations among people also change consciously or unconsciously. The set of new circumstances creates a new situation: the systems determination changes, the determinants are recombined, and the possibility of a transition to a new stage appears. I think that the idea of changeable determination can clarify how and why a developing individual moves from one stage to another. The so-called critical periods in mental development are inherently associated with a change due to the systems determination. The first steps towards studying the change of determinants in ontogenesis was made in the studies of A.A. Mit'kin and E.A. Sergienko.

The same general theoretical scheme of the systems determination, which was discussed above, can also be applied in sociology and social psychology. The socio-psychological phenomena that arise in the course of development of social processes can play a different role as determinants of these processes. Very often, they act as a prerequisite of a particular social process. For example, public opinion and public sentiment are an integral part of the prerequisites for revolutionary changes in society.

Socio-psychological phenomena also act as an internal factor of social processes, accelerating or slowing them down. Thus, the prevailing attitudes, prejudices and social illusions have a strong influence on societal innovation processes. These phenomena also play the role of mediating links in social processes. The stereotypes of human behavior that emerge in the process of the formation and development of social relations give these relations a certain

stability. Finally, psychological phenomena act as the cause of social phenomena. A new idea, collective image, social mood can cause a particular social movement (for example, in the field of culture).

It seems to me that in the modern world, the role of social psychology as a phenomenon, as a necessary "component" of society's life is highly significant. A scientific analysis of the state and dynamics of social psychology in these conditions becomes extremely important. Social psychology has a complex structure; along with rational, logical, intellectual components, it also includes irrational components (prejudice, superstition, social illusions), image and emotional components. This is revealed especially clearly when one turns to the study of real-life events and try to understand the determining role of social psychology.

Thus, the problem of determinism in psychology has two inextricably linked sides. The first concerns the study of the determination of the mental phenomena, the second is dealing with the role of these phenomena in various real-life processes. The systems approach opens up new opportunities for their study. The application of the principles of the systems approach is important not only for solving theoretical problems facing psychology. They are of more importance for solving practical problems. I would like to note that one of the weakest links in our practical work is lack of practical tools, namely, the methods of diagnosis, forecasting of human behavior. And this is only possible if the methods are developed on the basis of knowledge of the laws of the mind. The psychological forecast of human behavior presupposes the development of definite methods of person assessment. I believe that the principles of the systems approach can be applied here too.

In my opinion, it is the systems methodology, which opposes all kinds of one-sidedness, simplified, linear schemes, opens up the broadest opportunities for creativity both in psychological theory and in practice.

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