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**ACADEMIC MOTIVATION OF FIRST YEAR PEDAGOGICAL UNIVERSITY STUDENTS**

*The paper presents the results of empirical study aimed to find out academic motivation features of first year pedagogical university students. The relevance of the research is based on the necessity to build a more effective future teachers training system and to eliminate the tendency of the students' learning interest decline and unwillingness to work by specialty after graduation. The research was held at Volodymyr Vynnychenko Central Ukrainian State Pedagogical University and involved 41 1st year students of the Faculty of Foreign Languages. The following methods were used: "Academic motivation questionnaire" by T. Gordeeva, "Profession choice motives" by V. Semychenko and psychodiagnostic technique aimed at identifying the personality orientation type by T. Danilova. The study showed that two-thirds of all students have optimal academic motivation. At the same time there were disclosed several negative tendencies: 1) humanistic personality orientation is not inherent even to those students who belong to the group with high level of intrinsic and low level of extrinsic motivation; 2) the substantial links between the personality orientation and academic motives are nearly absent, which evidences the students' indetermination as for their professional orientation; 3) the most powerful profession choice motive for the students of the Foreign Languages Department is the possibility to apply their language skills aside from teacher's profession, which indirectly points out that students aren't interested in becoming pedagogues. In general, these facts indicate the first-year students' motivation immaturity, which is natural due to their age psychodynamics. The study results can be used for working-out the first-year students' psychological maintenance based on their motivation profiles.*

***Keywords****: academic motivation, intrinsic motivation, extrinsic motivation, amotivation, motivation profile, personality orientation, profession choice motives.*

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**AN INTRODUCTION TO THE THEORY OF ACTIVITY**

*To the memory of my dear friend Gregory Bedny*

*In this paper we present a brief overview of general, applied and systemic-structural activity theories. Activity Theory (AT) was created in the former Soviet Union by three prominent scholars - Vygotsky, Leont'ev and Rubinshtein. General activity theory was first introduced by the Sergey Rubinshtein (1958). It was further developed in the works of Leont'ev (1977) and Vygotsky (1978). The development of AT was shaped by the practical demand of ergonomics, engineering psychology and education. The important requirement of psychological studies in the former Soviet Union was a possibility to utilize psychology for practical application and particularly in the study of human work and learning. Thus, the effect of practical application on AT is not accidental. With the development of mechanization and automation in the industry, in transport, in the military sphere and in other modern fields of human activity it became obvious, that the direct application of the general activity theory for the study of human activity was not possible. The theory received recognition in the West, and particularly in the USA. We will consider basic concepts of activity theory and will outline some difficulties which Western scientists experience in their interpretation and application of the theory in science and practice. To the response of technological progress, a more advanced theory, namely, applied activity theory (AAT), was created in the works of a number of Soviet psychologists in the 1970s. The Rubinstein-Leont'iev-Vygotsky's general activity theory became the theoretical and philosophical basis of applied activity theory. Creation of AAT was the first step in an attempt to apply activity theory to the study of human activity. The further development of applied activity*

*theory led to the creation of the systemic-structural activity theory (SSAT) as an independent direction of AAT. The theory was founded by Gregory Bedny[1] (2007). The creation of SSAT has greatly advanced the science of activity because it can be applied to the study and practice of human work. The focus of this article will be mostly on the Systemic-Structural Activity Theory (SSAT).*

***Keywords:*** *activity theory; systemic-structural activity theory; activity theory terminology; self-regulation of activity*.

**Introduction and the current state of the issue**

Activity theory is a theoretical framework for studying different forms of human activity. The study of personality and individual differences is a critically important area of activity. From the activity theory prospective, people are developed through their activity. In activity theory, special attention is given to the interrelationship of personality and activity. In activity, the subject not only changes an object or a situation, but also develops his or her personality features, which are formed through activity and social interaction. Activity acts as a mediator connecting personality with the social environment. Activity consists of actions that could be cognitive or internal and behavioral or external. Actions are directed toward the achievement of conscious goals. Activity can be defined as conscious, intentional, goal-oriented, and socially formed behavior that is specific to humans. Activity theory emphasizes the great differences between human and nonhuman psychic processes. The psychic processes of animals are developed according to the laws of biological evolution, whereas the psychic processes of humans are influenced by the laws of social historical evolution. Work plays a huge role in the historical development of humans.

In the former Soviet Union, there was a strict government control over all spheres of people's life including science. Theory of Activity happened to be in line with the communist ideology because it proclaimed the labor concept of human origin. However, precisely because of this dominant ideology, general activity theory has restricted possibilities for its application to the study of human work. Three prominent Soviet scholars - Vygotsky, Leont'ev and Rubinshtein - were responsible for the development of general Activity Theory. It explains why philosophical, cultural and psychological roots of the theory is significantly different from the way Western scientists interpret it. Initially, AT was formulated by Rubinshtein and Leont'ev. Vygotsky developed the cultural-historical theory of human development, which was also critically important for the development of AT (1977). His major idea was that signs as mental tools are a major factor in human mental development. According to Vygotsky, external social activity is the source of internal mental activity. This idea was specifically formulated by him as the principal of *internalization.* Rubinshtein noted the role of external social activity in the human development, however argued that individual psychological characteristics of human development are not completely derived from the social environment (Bedny, Karwowski and Voskoboynikov, 2010). Leont'ev in contrast to Vygotsky, emphasized the importance of material activity and its interaction with material objects in mental development rather than social interaction (1977).

Rubinshtein introduced *personality principal* in psychology, that integrates individual and social aspects in the study of human development (1958). According to this principal, human development is the result of the interaction of material and social practice with human subjectivity. The social aspect depends on the individual, just as the individual depends on the social aspect. In the same social environment different individuals act differently, and they are impacted by the social environment in a different way. In activity theory, a person who interacts with a situation is considered the subject. That is, every human act changes not only the object and the situation, but also develops the self. According to Rubinshtein, an object cannot exist without a subject. Things become objects only through their interaction with the subjects. Objects arise from the material world through the process of activity. This principle eliminates the contradiction between social and intraindividual aspects of human development.

Fundamental difficulty for adapting general AT in English speaking countries is associated with cultural, philosophical, historical and psychological roots from which this theory derived. Many translations from Russian to English fail to capture the original meaning of Activity Theory key terms. The correct interpretation of terminology is crucially important for any science. The terminology used in activity theory has a totally different meaning in comparison to the meaning of terminology that is used in the West. For example, the Russian word *deyatel'nost'* loosely translates into English as *activity*. However, deyatel'nost is a much broader concept than the English word activity. Analysis of interpretation of basic concepts of activity theory in the West demonstrates an unfortunate failure in an attempt to capture the original meaning of terminology in this field (Bedny, Meister, 1997). It is not surprising that the attempts to adapt general activity theory to the task analysis in general and to human-computer interaction specifically were ineffective. The creation of SSAT allowed to bring clarity in the understanding of the activity theory terminology. Gregory Bedny, by analyzing, interpreting, explaining, and translating the general activity theory terminology, provided a great gift to Western scientists and, thus, made the significant contribution to the understanding of the theory. He created SSAT, a high-level generality theory, and demonstrated how it can be applied to the study of human work in order to increase its efficiency and to enhance hardware and software (Bedny, G. Z., Karwowski, W., Bedny, I. S. 2015).

[1] Gregory Bedny is the graduate of the University of South Ukraine, and in later years worked there as a Professor of Psychology before immigrating to the United States in 1989.

**Aim and task**

Introduce readers to the history of creation of Activity Theory. Describe the historical magnificence of the development of AT for ergonomics, engineering psychology and education. The important requirement of psychological studies in the former Soviet Union was a possibility to utilize psychology for practical application and particularly in the study of human work and learning.

**Research methods**

Analysis of scientific publications of creators of Activity Theory - Vygotsky, Leont'ev and Rubinshtein. Their long-term work appeared as a prerequisite for the development of applied and system-structural theories of activity. This, in turn, made it possible to use the data of these theories for practical application for engineering psychologists and ergonomists and educators.

*Basic concepts of the systemic-structural activity theory*

*Activity, self-regulation, goal, task and action* are the basic concepts of SSAT. In general activity theory, the concept of activity is understood as a purposeful interaction of the subject with the objective world. Hence, activity should be defined as conscious, intentional, goal-oriented and socially formed behavior which is specific to humans. Activity theory emphasizes the great difference between human and non-human psychic processes. Work plays a huge role in the historical developments of human. The psychic processes of animals are developed according to the laws of biological evolution, whereas the psychic processes of humans are influenced by the laws of social-historical evolution. We will consider this assertion further in the section *Activity Theory vs. Behaviorism.*

Activity theory distinguishes two types of activity: "object-oriented" and "subject-oriented". The former is referred to the subject using tools on material objects with the goal to complete the task and evaluate the results. The latter is referred to social interaction between people. The object of activity that can be material or mental (symbols, images, etc.) is something that can be modified by the subject according to the goal of activity. There is also subject ↔ subject interaction when subjects interact with each other by using speech, or material and mental objects. Three basic terms of activity theory are hierarchically organized as the basic activity elements: *activity → cognitive or motor actions → psychological operations.*

The concept of activity in SSAT is understood as a self-regulated system that integrates cognitive, behavioral, and emotional-motivational components, and is directed toward the achieving a conscious goal of activity (Bedny and Karwowski, 2011). The main postulate of SSAT is that it views activity as a structurally-organized goal-directed self-regulating **system**, rather than the set of responses to multiple incentives (Bedny, G. Z. and Bedny I. S., 2019). Activity in SSAT is described as a **system** consisting of sub-systems and smaller elements, that are in the specific relationship with other elements of activity. This is how simplified schema of activity as a system can be formulated. By SSAT, activity is considered as a coherent **system** of *internal* mental processes and *external* behavioral processes and motivations, that are combined and organized by the mechanisms of self-regulation for achieving conscious goals. The self-regulating system manifests itself in the way people through trials, errors, and feedback corrections create strategies of performance which are derived from the personality features.

*The concept of self-regulation*

The concept of self-regulation is critically important in AAT and especially in SSAT. The psychological self-regulation is a goal directed process. It integrates cognitive, executive, evaluative and emotional aspects of activity and includes *conscious* and *unconscious* levels of self-regulation, that are interdependent. The goal and verbally-logical components of activity play the leading role in the conscious level of self-regulation, whereas imagination, intuition and non-verbalized meaning play their role in the unconscious level of self-regulation. In the study of work activity, one should keep in mind that such mental processes as sensation, perception, memory, thinking etc. are interrelated. To consider these processes independently of each other is not productive in most cases. This is the reason why activity during the task performance should be studied not only in terms of cognitive processes, but in terms of functional mechanisms or functional blocks as well. Functional mechanisms or functional blocks are the main units of activity analysis and should be understood as the stages in the process of self-regulation.

Self-regulation manifests itself through both the unconscious and conscious level. At the unconscious level, conscious and verbalized aspects of self-regulation play a subordinate role. This level is particularly important when imaginative and non-verbalized strategies of activity play the leading role. At the conscious level of self-regulation verbal and logical aspects of activity are dominant. Both levels of self-regulation are interdependent and the relationship between them is dynamic. This interdependency gives the rise to the formation of different strategies of activity, which are adequate to the external and internal processes of activity. Learning is considered a self-regulating process during which strategies of activity are transformed. At the unconscious level of self-regulation, condition unfolds as an uninterrupted process. Automotive mental operations are not organized into cognitive actions. It can be explained by the fact that the unconscious level of self-regulation is not subordinated to conscious goals. Activity is triggered automatically and is performed through unconscious automotive reflective processes. The subject is only conscious of the results of this process. The conscious level of self-regulation presents itself not only as a process but also as a system of logically organized actions. Each action is organized according to mechanisms of self-regulation and has the beginning and the end. At the conscious level of self-regulation, activity can be considered as a hierarchically organized system of self-regulative stages of uninterrupted reflective processes. At the same time, these processes are discrete. Therefore, at the conscious level, cognition is continuous and interrupted at the same time. Understanding the principal of self-regulation of activity helps us to understand the relationship between uninterrupted and interrupted aspects of self-regulation (Bedny and Karwowski, 2007).

Understanding of how activity is organized helps explicate the relationship between the external and internal components of activity. The socially determined aspects of our cognition are not based on “external” influences only,

as it is suggested by the Vygotsky's cultural-historical theory of development. Nor do they wholly depend on object-oriented activity, as it is suggested by Leont'ev (Karwowski, Voskoboynikov, and Bedny, 2012).

Psychic activity emerges as a function of social existence of the individual, and as a result, the ability for psychological reflection is being developed. Psychological reflection is not a passive mirror-like reflection. It possesses active features that imply some systems of mental stages and operations, and is always organized as a self-regulation process. Since the process cannot be fully determined in advance, it contains situated elements that are developed during self-regulation process of reflection. The more complicated a person finds a task, the more important and complicated the process becomes. The most complicated reflective process is thinking. According to the principal of reflection, psychic or cognition functions are organized as a self-regulation process. At the unconscious level of self-regulation this process unfolds as automotive unconscious operations. Psychological determination does not depend on social or external factors only but also on internal influences derived from the mechanisms of self-regulation, which integrate external and internal components of human activity. Work activity produces a major impact on the developing of a person. In the process of conducting any activity, a person develops different strategies, which is originated in the mechanisms of self-regulation.

*The concepts of goal and task*

In his works, Bedny emphasized the need to clarify the understanding of the concepts of *goal* and *task*, which is necessary for the analysis of tasks. (Bedny, 2015). The goal is one of the most important anticipatory mechanism of activity. The goal is a mental model of the desired future result, that is formulated by the subject in the process of activity. It plays a critical role in the task performance. In SSAT, the goal is only a cognitive component of the activity that includes conscious imaginative and verbally-logical components. Therefore, the goal should be at least partly verbalized. Without awareness of the goal, there is no goal of human activity. Existence of the conscious goal is one the most important factors that distinguishes human activity from animal reactive behavior. Even highly automated actions should be distinguished from reactive behavior. For example, a very quick response to the emergency signal looks like a reactive response. However, this is not a reaction but a meaningful and purposeful action because it has the specific goal for the achieving the future desired result.

In the task analysis we distinguish an overall goal of the task, a partial or intermediate goal of actions, and subgoals of the task. The goal cannot be presented to the subject in a ready form, it should be distinguished from the requirements of the task. Usually, requirements are presented in the form of instructions. Only after requirements are interpreted by the subject, they can be transformed into the goal. During this process the subject compares the requirements with the past experience and with his/her motivational state. All of this either lead to the acceptance of the goal, or to its partial modification, or even to the rejection of the goal. Hence, the objectively formulated requirements are not the same as the subjectively accepted goal. Understanding and analyzing this difference is critically important stage of the analysis of the task. The subject can also formulate the goal independently. Thus, the goal does not exist in a ready form and cannot be considered simply as the end state to which the human behavior or activity is directed.

Emotionally-motivational factors are involved in the goal interpretation, in its acceptance and in its independent formulation. The desired future result emerges as the goal only when it is accompanied by motivation, and when the subject is involved in the activity for achieving the result that matches the goal. Therefore, the imaginative future result is transformed into the goal only when the desired future result, that is accompanied by motivation and wishes, becomes motives of the subject's activity. The concepts of the goal and motives are often interpreted incorrectly. The goal is only the cognitive mechanism and should be distinguished from the motivational factors. The object cannot be a motive, but rather a source of motives or motivation. On the other hand, needs can turn into motives when the goal of activity is to satisfy these needs. The needs are transformed into the motives only when the subject connects the motives to the goal. In the frame of the SSAT, motives are connected to the goal and metaphorically can be presented as vector "*motive →goal.*" Furthermore, from the SSAT prospective the more intense the motives are, the more the person will apply his/her efforts for reaching the goal. We can say that the more intensive the motives are, the more they push the subject to reach the goal.

The goal is the *cognitive* component of activity whereas *motivation* is its energetic component. In activity theory, the concept of the goal is closely linked to the concept of the task. The goal of the task is the major determinant of the logical organization of actions during the task performance. The goals of individual actions during the task performance are of a particular importance in the analysis of individual actions and in the formation of the task performance program. The goals of actions are often formed involuntarily. They can be conscious for a short period of time and then quickly forgotten. The goal of the task can be formulated more consciously and be stored in memory for a longer time. There are *proximate* and *distal* goals. The proximate goals can be achieved in a relatively short period of time. The distal goals are shifted in time. The progress toward the distal goal presupposes the existence of a number of intermediate goals**.** An involuntary goal formation process is more typical for the formation of the goals of separate and especially to habitual actions. If we are talking about the goal of the task, such a goal often formed voluntarily. Voluntary goal formation process is particularly important to the study of human work. The subject may or may not accept the goal formulated by the instructions. Moreover, in a response to the presented goal, the subject can formulate her/his own goal or modify the goal, which is given by the instruction, and which contradicts to the objectively presented by the instruction goal. In activity theory the goal is always associated with motives and creates the vector *motives → goal*. This vector defines the direction of the activity and is directed at the achievement of the required goal.

In the study of human performance, the task should be considered as a basic component of work activity. Human activity is a continuing performance of various tasks.

From SSAT perspective, the task analysis includes the description of the structure of activity during the task performance. In the studying of traditional types of work, the term production operation should be considered as a synonymous to the term task. In the production environment tasks are performed in a particular order. Each work process consists of a number of tasks. From SSAT perspective, any task consists of logically organized cognitive and behavioral actions, that are directed toward achieving the goal of the task (Bedny and Meister, 1997; Bedny and Karwowski, 2007). Therefore, general hierarchical scheme of work activity can be presented as follows: *work activity, task, cognitive and behavioral actions, and operations*.

Each task is regarded as a situation-bounded activity, that is directed towards achieving the goal of the task under the given conditions. In engineering, means of work, tools and equipment are defined when the subject operates with machines or equipment. For example, to cut a metal part, the worker must install it in the specific vise and use specific tools. In manual work, workers manipulate with hand tools directly. Means of work is a general term that identifies a combination of physical equipment and tools. Computer in this sense is not a tool, but means of work for creating various artificial tools and objects, that can be modified by user (G. Bedny and I. Bedny, 2018, 2019).

*Psychological characteristics of actions*

In this section we present a brief analysis of how Bedny describes the concept of action from the SSAT perspective. He refers to the works of leading experts in the field of the theory of activity in the West Nardi (1997) and Suchman (1987). Their analysis is based on some works of Vygotsky and Leont'iev. They assert that human actions cannot be utilized as units of analysis of work activity. In their view, actions are always included in the context of activity, thus they suggest that units of analysis is activity. However, from the activity theory perspective, *action* is a basic unit of activity analysis whereas *activity* is the object of study. Bedny further suggests that Leont'iev confuses technical operation of cutting metal using a hacksaw with psychological operation as a component of human motor action. Metal cutting with a hacksaw is a production operation. Production operation can be very time consuming. It includes various perceptual and physical actions which required sufficiently significant efforts and coordination of these actions under the visual control. For example, if the metal work piece is fixed in a vice and the hacksaw lies on the workbench to the right, the worker has to do the following: move the right hand to the right and grasp hacksaw (first motor action); bring the hacksaw to the exact position above the work piece (second motor action); move the left hand forward and grasp hacksaw (third motor action); and begin to perform a sequence of motor actions by moving hacksaw forward and backward under motor and visual control (quantity of movements instrument depends on specificity of cutting of metal work piece). Motions as component of motor actions should be considered as psychological operations. For example, when the worker performs first motor action "move the right hand to the right and grasp the hacksaw" (first motor action), he performs motion "move the hand to the required position" (first motion or psychological operation) and grasp the hacksaw (second motion or psychological operation). Real psychological operations are motions which are included in content of motor actions and these motions are integrated into motor actions by the goal of action. The description of cognitive or motor actions in such a way is explained in SSAT (Bedny and Karwowski, 2007; Bedny, 2015).

Action is defined as a discrete element of activity that has a purpose of achievement an intermediate conscious goal of activity. Performance of all actions required by the task leads to the achievement of the goal of the task. The structure of activity during the task performance is formed by a logically organized system of motor and mental actions. Action emerges as the primary unit for the morphological analysis of activity. Actions can be further divided into sufficiently conscious or even unconscious operations. The actual nature of these operations is determined by specific conditions under which activity takes place. In activity theory, cognition is considered not only as the storage of images, concepts or propositions, but also as the system of mental actions and operations carried out with and upon them. All actions have a temporal dimension. The initiation of the conscious goal of an action constitutes the starting point of the action. It concludes when the actual result of the action is evaluated in relation to the goal of action. This understanding allows to present continual flow of activity divided into individual units. Actions can be described in terms of a recursive loop structure, with multiple forward and backward interconnections.

Action may be formulated in terms of the object of action, the tools and the subject of action. Actions are the result of the social-historical development. They are socially mandated prior to the subjective realization. Subjects are taught to perform basic socially required actions. Each object has specific associated actions, governed by social norms and values. Actions are facilitated by tools that similarly possess historical and cultural context. Actions imply an existence of the object of action. They are not isolated but are typically related to a class of similar actions. Individuals can extract principles of performance of particular actions from these classes because actions from the same class share general functions and purposes.

There are two methods of action description. One method is based on the description of changes with objects that are performed by actions. For example, "turn on the engine.", "move the lever", "read display", etc. These kinds of actions are conveyed by instruction, and are classified according to particular specific features of an object. However, actions may also be classified according to their psychological characteristics, i.e., by psychological processes and mechanisms implicated in their performance. For example, "memorize", "detect" "move arm", etc. Based on these criteria we can infer two methods of the description of actions. The first one consists of actions classified as typical elements of a task, based on technological principals or the nature of modifying the object. The second method is based on psychological principals that involve the description of typical elements of activity (Bedny, G. Z. and Harris S., 2005). Usually, at the first stage, actions are described according to technological principles and then are transformed into typical elements of activity. For example, an action" move a lever into a

particular position" is a technological description of the action. At the second stage the same actions may be described as "move arm with object into exact position with force of two pounds and a distance of 30 centimeters." Thus, the second one is much more precise. Later on, exact descriptions of the actions, unrelated to technological aspects of the situation, were developed. From these descriptions one can infer that this is a motor action that requires a high-level attention (third level of complexity) and performed over a distance of 30 cm. with musculature effort which equal 2 pounds. This gives us the precise picture of motor action even without knowledge of the specifics of equipment and technology which was used.

Since action is organized as a self-regulated system, the starting point of any action is the moment when the goal for the action is formulated or accepted. The terminus of an action occurs when the result is evaluated, thereby engendering a continuous flow of activity, divided into individual units, delimited by intermediate and terminal goals subject to the evaluation of the outcomes of the action.

*Activity Theory vs. Behaviorism*

The early work in the field of behavior was conducted by famous Russian physiologist Ivan Pavlov. Pavlov studied learning behavior known as conditioned reflexes, where a living creature unconsciously responds to a stimulus. Over time such a response becomes conditioned to a different stimulus, that the experimenter associated with the original stimulus. Between the early 1920s to the mid-century method behaviorism dominated in American psychology. American psychologist Skinner (1974) concentrated on how behavior is affected by its consequences. According to the behaviorist theory, human and animal behavior was explained in terms of conditioning without an appeal to thoughts or feelings.

Skinner is regarded as the father of the so-called Operant Conditioning. According to this principle, behavior that is followed by pleasant consequences is likely to be repeated, and behavior followed by unpleasant consequences is less likely to be repeated. Skinner introduced the term *reinforcement*. He spoke of reinforcement and punishment as major factors in driving behavior. It assumes that all behaviors are either reflexes produced by a response to certain stimuli in the environment, or a consequence of that individual's history, including especially reinforcement and punishment, together with the individual's current motivational state and controlling stimuli. Behavior which is reinforced tends to be repeated (i.e., strengthened); behavior which is not reinforced tends to die out or be extinguished (i.e., weakened). Positive reinforcement strengthens a behavior by providing a consequence an individual finds rewarding. For example, if the boss praises an employee performance at the company meeting and accompanied it by a monetary reward, such behavior will more likely be repeated by the employee in the future, thus strengthening the behavior for even better performance.

Sounds logical. However, if to follow Skinner's approach, it demonstrates that human display no mental activity between stimulus and response. External reality is portrayed as a variety of stimuli to which a person reacts. That is, by Skinner, human emerge as reactive organisms. Behaviorism ignores mediated functions of activity which provide a basis for personal development. It denies any importance to activities such as reasoning, judgment, creativity, and concept formation. And as such, it represents a fundamentally wrong approach in explaining human behavior. Human behavior cannot be reduced to the external (stimulus–response) manifestation of activity. In activity theory, a person who interacts with a situation is considered the subject. That is, we are talking about action and cognition, not about the stimuli to which the subject reacts. In 1948, the Symposium *Cerebral Mechanisms of Behavior* held at the California Institute of Technology is regarded by many as the end of the reign of behaviorism in psychology and as the beginning of cognitive science as a formal field of study (Gardner, 1985). Thus, the strict stimulus-response explanation of human behavior considered unacceptable. With the rise of cognitive science human behavior was not looked at as the conditional responses anymore, but rather as the ability of human mind to explore between stimulus and response.

Human development, according to the Rubinshtein's personality principle, mentioned above, is the result of interaction of material and social practice with human individuality. Personality is developed through a person's participation in activity, which depends on the relationship between a subject, a situation and social interaction. This principle eliminates the contradiction between social and intraindividual aspects of human development.

**Research results and discussion**

In this article we made an attempt to present a brief analysis of the development of activity theory in the former Soviet Union and its interpretation by Western scientists. This theory has been used to examine a number of different practical problems in such domains as education and performance. However, this theory does not provide the exact method and principles and methodology for the study of human work, and therefore, could not be sufficiently adapted for the study of human work. Thus, General Activity Theory is only the philosophical framework for studying human performance. We outlined two basic aspects of adapting this theory in the West: translation of the terminology and interpretation of the theory. The translation of activity theory terminology presents significant problem for understanding of activity theory in the West. We pointed out that there are no precise words in English language for the correct translation of Russian language terminology into English terminology. The words utilized for translation have different meanings for those in the West. Translation problem between different cultures is a complex process that require theoretical analysis of existing terminology in Russian language and its comparison with terminology which utilized in psychology in the West. Gregory Bedny took up on that difficult task and successfully analyzed, interpreted and explained the meaning of activity theory terminology. Based on such scientific analysis he demonstrated how to apply SSAT in various fields of psychology and to analyze human-machine and human-computer interaction for the purpose of reducing the work complexity.

We briefly described the main postulates of the systemic-structural activity theory. A more detailed description of SSAT can be found in a numerous of Gregory Bedny's publications.

**Conclusion**

The important requirement of psychological studies is a possibility to utilize psychology for practical application and particularly in the study of human work and learning. The creation of General Activity Theory led to a more advanced theory, namely, Applied Activity Theory (AAT). It was the first step in an attempt to apply activity theory to the study of human activity. Further development of AAT led to the creation of the systemic-structural activity theory (SSAT). This greatly advanced the science of activity because it manifests itself in its practical application for the study and practice of human work.

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## ВСТУП У ТЕОРІЮ ДІЯЛЬНОСТІ

*Присвячується пам'яті мого дорогого друга Григорія Бєдного*

У цій роботі ми представляємо короткий огляд загальної, прикладної та системно-структурної теорій діяльності. Теорія діяльності (ТД) була створена в колишньому Радянському Союзі трьома видатними вченими – Виготським, Леонтьєвим та Рубінштейном. Теорія загальної діяльності була вперше представлена Сергієм Рубінштейном (1958). Подальший розвиток вона отримала у працях Леонтьєва (1977) та Виготського (1978). Розвиток ТД був сформований практичним попитом на ергономіку, інженерну психологію та освіту. Важливою вимогою психологічних досліджень у колишньому Радянському Союзі була можливість використовувати психологію для практичного застосування, зокрема для вивчення людської праці та навчання. Таким чином, влив практичного застосування на ТД не випадковий. З розвитком механізації та автоматизації у промисловості, транспорті, військовій сфері та в інших сучасних сферах людської діяльності стало очевидно, що безпосереднє застосування загальної теорії діяльності для вивчення людської діяльності стало неможливим. Теорія отримала визнання на Заході, зокрема в США. Ми розглянемо основні поняття теорії діяльності та окреслимо деякі труднощі, які зазнають західні вчені при їх інтерпретації та застосуванні теорії в науці та практиці. У відповідь на технічний прогрес у 70-х роках у працях ряду радянських психологів була створена більш досконала теорія, а саме – теорія прикладної діяльності (ТПД). Загальна теорія діяльності Рубінштейна-Леонтьєва-Виготського стала теоретичною та філософською основою теорії прикладної діяльності. Створення ТПД було першим кроком у спробі застосувати

теорію діяльності до вивчення людської діяльності. Подальший розвиток теорії прикладної діяльності призвів до створення системно-структурної теорії діяльності (ССТД) як самостійного напрямку ТПД. Теорію заснував Григорій Бєдний (2007). Створення ССТД значно вдосконалило науку про діяльність, оскільки її можна застосовувати для вивчення та практики людської праці. Основна увага в нашій роботі буде зосереджена на теорії системно-структурної діяльності (ССТД).

**Ключові слова:** теорія діяльності, теорія системно-структурної діяльності, термінологія теорії діяльності, саморегуляція діяльності.

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## FUNCTIONAL TRAINING IN THE ASPECT OF SPORTS TRAINING

*The article deals with issues of functional training and functional preparation in sport. Today, the focus on achieving the maximum competitive result determines the need for a rational system of sports training in the sport of the highest achievements based on modern achievements of science and practice. The generally accepted, traditional classification of its main types, which has developed so far in the sports training system, implies the division into physical, technical, tactical, mental and integral. This allows to plan the training tools and methods quite efficiently based on pedagogical principles and foundations. However, the methodological unification of sports training, based only on pedagogical principles, often leads to its reduction, the use of only standard, long-developed training plans, often projected at the same time not on one, but on a whole group of athletes. The further development and improvement of the theory and methodology of sports is due to the inevitable understanding of the athletes training system as a process of formation of the proper level of functional preparation through the influence of specific training effects – physical exercises on the human body. A high level of functional fitness is the result of body adaptation to physical exertion, therefore, the regularities of adaptation of physiological systems to muscle activity must be considered as a biological basis that provides the proper training effect. The existing variety of scientific studies and their results in the field of functional preparation and training, sometimes postulated as the methodological basis of sports training. The contradictions revealed during the analysis of scientific and methodological literature and some ambiguity in the results and conclusions of various authors determines the need for further studying of this problem, both in theoretical and practical aspects.*

***Keywords:*** *functional preparation, functional readiness, sports training, adaptation, functional systems.*

**Introduction and the current state of the issue**

Today, sport of the highest achievements is a very specific area of human activity. The goal of achieving the maximum competitive result, which involves achieving the highest level of readiness, determines the need for a rational system of sports training based on modern achievements of science and practice.

To date, the traditional classification of its main types is recognized in the system of sports training, involving division into physical, technical, tactical, mental and integral trainings. This classification allows to plan training tools and methods quite efficiently, based on pedagogical principles and foundations. However, methodological unification, based only on the pedagogical principles of the formation of structural and meaningful components of sports training, often leads to its reduction, the use of only standard, long-developed and applied curriculums, often projected at the same time on not one, but on a whole group of athletes.

At the same time, not anyone has no doubt about the postulate that the person himself is the object of influence in sports training. And, since the human body is a rela-