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THE PROBLEM OF GIFTEDNESS: DEFINING AND DIAGNOSING

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The supposition about close connection of giftedness with creative and intellectual aspects of a man is theoretically substantiated due to fundamental methodological approaches when the research proceeds from the universal to the particular, and from the latter – to the singular. On the level of philosophical methodology the universal paradigm of development is applied enabling to ground, that creativity, giftedness and intellect have certain genetic ties being realized in the process of a person's development: the man develops from the state of giftedness, characterized by the functions of right hemisphere of the cerebrum realizing multiple, emotional and image reflection of reality, high affective and perceptive sensitivity being the indicators the very giftedness – that right hemispheric developing potential of man which must be sublimated into left hemispheric intellectual (analytical, abstract and logical) forms of psychical activity. On the third stage of man's development the unification of right- and left hemispheric functions reveal the psychophysiological basis for creative (paradoxical, dialectical) thinking and mastering of reality. The mentioned stages determine pertain proper strategies of the diagnostics of giftedness.

Keywords: *the concept of functional asymmetry of the cerebral hemispheres; the universal set of giftedness diagnostics; giftedness, intellect, creativity.*

Предположение о близких отношениях одаренности с творческими и интеллектуальными аспектами человека теоретически подтверждается благодаря фундаментальным методологическим подходам, когда исследование идет от всеобщего к особенному, а от него – к одиночному. На уровне философской методологии используется универсальная парадигма развития, благодаря которой обосновывается, что творчество, одаренность и интеллект имеют определенную генетическую связь, которая

реализуется в процессе развития человека: человек развивается от состояния одаренности, характеризующегося функциями правого полушария головного мозга, которые реализуют многозначное, эмоционально-образное отражение действительности, высокую аффектно-перцептивную сензитивность, что являются признаками именно одаренности – того правополушарного развивающего потенциала человека, который должен сублимироваться в левополушарные интеллектуальные (аналитические, абстрактно-логические) формы психической деятельности. На третьем этапе развития человека интеграция право- и левополушарных функций обнаруживает психофизиологическую базу для творческого (парадоксального, диалектического) мышления и освоения действительности. Отмеченные этапы определяют соответствующие стратегии диагностики одаренности.

***Ключевые слова:** концепция функциональной асимметрии полушарий головного мозга; универсальный набор диагностики одаренности; одаренность, интеллект, творческий потенциал.*

Introduction. Deep and many-sided research into the problem of giftedness enables to conclude that man's giftedness, being his major psychological capacity, is tightly connected with such personality's aspects as creativity, intellect, intellectual development. Besides, the human beings that have developed searching mechanism being essential for the creative process, are characterized by minimal aggressiveness towards their surroundings and are sensitive to the need to help others, when creativity and altruism are positively correlated. At the same time the creativity is the basis of empathic capacity (the ability to understand another person's point of view), of the formation of non-pragmatic, spiritual value and world outlook orientation of an individual.

Thus, the sense of justice, an active reaction to truth, harmony and nature are strongly developed in creative people. Other such qualities: the developed sense of harmonious social and natural environment; high dedication to a certain deed, the desire to bring all things to perfection; autonomous system of values; the setting of high demands to himself and other people; no tendency to conformism; the immersion into philosophical problems.

You can differentiate other characteristics of the emotional sphere of creative individuals, often being quite contradictory to each other: increased sensitivity (R.Kettel), impulsivity (F.Barron); high energy level; increased susceptibility; a unique combination of some accented personality traits (L. B.Yermolayeva-Tomina); deviations from behavioral

patterns, stubbornness (U.V.Kala), emotional coloration of individual processes; emotional attitudes; the influence of emotions on subjective evaluation; emotional immersion into activities (V.O.Molyako); sensory and emotional lability (rigidity); high level of emotional excitability (V.M.Kozlenko). Indicated heightened emotionality, according to P.V. Simonov's information theory of emotions (according to which man's emotions results from the deficiency of relevant information, and the latter reflects the low probability of the events) means creative people need the information (being the function of probability), which means their openness to uncertainty [1-3].

So, man's creativity reveals a close relationship with giftedness, one of the major features of which is the ability to creative acts, when the process of the development of a creative person must be focused on the qualities, peculiar to the gifted individuals. Thus the diagnostics of giftedness must be closely correlated with studying the creative and intellectual aspects of a man. **The major objective** of our research is to substantiate this supposition on a theoretical level.

The scientific results and their discussions. The fundamental research of L. Terman (1959), who had proved the stability indices of intelligence on a Stanford-Binet scale, due to which established by appropriate tests level of intellect's development served for many years as a working definition of giftedness and thus creativity [4].

Thus we can draw a conclusion of a *close relationship between such man's phenomenological characteristics as creativity, giftedness and intellect* (genetic aspect of this relationship is illustrated by the Japanese proverb: "a five-year-old child is a genius; at ten the child is a talented creature; a twenty-year-old person is an ordinary man").

To identify the genetic relationship between the mentioned categories, thus ascertaining their essence, one should apply *the fundamental methodological approaches* to the study of the phenomenon of giftedness, which leads to the conclusion that such a study should be implemented both at the level of all-scientific, philosophical methodology (where universal conceptual basis of the research into the man and Universe are applied), and at the level of concrete scientific methodology (where concrete aspects and mechanisms of human development in the context of studied categories – giftedness, intellect, creativity – are used). Therefore, our research will proceed from *the universal to the particular, and from the latter – to the singular*.

On the level of philosophical methodology one should use a *universal paradigm of development* being the universal developmental scheme of any phenomena of our world. This development, which reveals a

dialectical scheme of any change, can be represented as a *universal philosophical model*, containing its elements – the person and the world (that is, internal and external, *subject and object*, "I" and not-"I") [5].

This dialectical scheme is viewed as a process of changing the developing phenomena covering three states: the state of fusion of the subject and object (*the thesis*) → the state of differentiation of the subject and object (*the antithesis*) → a new state of the fusion of the subject and object (*the synthesis*).

Here we can see a process of splitting (violation) the integrity state (the identity of the opposites) of the developing phenomena, and the ultimate restoring of this integrity at a highest evolutionary stage. This Hegelian scheme is quite dialectic. It is illustrated in a very simple way by G.V. Plekhanov's words, who noted that any phenomenon, developing to the end, changes into its opposite; but since the new, contrary to the first, phenomenon also in its turn changes into its opposite, then the third phase of development has a formal resemblance with the first one.

Here we have a generally known philosophical idea about the development, when the third evolutionary stage dialectically reiterates the first one, but on a higher level of development.

It is important that the mentioned dialectical process revealing the formal identity of the first and the third (the last) developmental phases of any phenomenon, finds the expression in psychological studies that reveal the so-called pro- and retrograde inhibition when the rows of items, retained in man's memory, form a special structure due to which the initial and final elements take precedence in the memorizing process.

The mentioned scheme of the development of dialectical contradiction, that reflects the repetitive (cyclic) change of two opposing states – integrity and discretion (being embodied in the philosophical categories of singular and plural) is universal. P.K. Anokhin emphasized that from the broad biological standpoint, as well as from the standpoint of philosophical analysis of the role of spacio-temporal structure of the world, the moving of the matter along the consequent rhythmically reiterating phases is an universal law, defining the main organization of living beings on our planet

This conclusion expresses the universality of cyclic-helical form of the development of various phenomena, being thus a methodologically isomorphic entities.

The initial stage of onto-and phylogenetic development of a mankind reveals the unity, syncretism of the subject and object, when a man of primitive societies and the surrounding world made up a single psyche unity, and the subject and object appear to be an integral indivisible

complex.

The second stage is the era of modern times when the human development as a species and the subject of history shows the ever increasing unfolding the dichotomy of a man and the world.

The third stage involves the process of the fusion of the object and subject, when they influence on each other. At this stage the spiral of the development of a humanity returns to its sacral sources, but at a higher level. This third stage of the evolution of an education as a social institute is characterized by the construction of the educational process on a subject-subject basis, revealing the development of interdisciplinary synthesis and the emergence of such integrative research spheres as acmeology, educational anthropology (being earlier pedology), suggestopedia, educational synergy, ecology and chronobiology.

In the specific form the universal development paradigm (which reveals the triad process of development: *thesis* – *antithesis* – *synthesis*) is embodied in the hemispheric asymmetry of human brain at the level of general scientific methodology because the hemispheres (being the most heuristic problem solving analytical tool of our study) may be considered a psychophysiological focus of the human being, since their functions are directly or indirectly correlate with many aspects of this human being. As appropriate experiments show, the hemispheres may be considered a psycho-physiological focus of human organism, since with their functions such sides of human entity are related, as the mechanisms of aim creation and searching for the ways of achieving the aims, energetic and informational regulation of people's behavior, empathy and reflection, extroversion and introversion, automatic and spontaneous psychic activity, first and second signaling systems, power and weakness of nervous processes, their lability and inertness, excitation and inhibition, I and non-I, ergotrophic and trophotrophic functions, volitional and non-volitional psychic spheres, sympathetic and parasympathetic branches of vegetative nervous system, etc. [7-9]

Any automatic (subconscious) action of a man is included in right hemispheric psychic activity, and non-automatic (conscious) – in left hemispheric aspects of psychic activity. It should be noted that right hemispheric strategy of perception, thinking and mastering the world represents the emotional, concrete, expressive, holistic world view which forms ambiguous poly-semantic linguistic and motivational context of reflecting reality, corresponding with the energy-field aspect of the Universe which can be characterized as continual type of matter. On the contrary, left hemispheric perception strategy represents abstract-logical, sign-symbolic, discursive, conceptual, discrete, plural world outlook which

forms accurate linguistic and motivational context of reflecting the surrounding world. Such a cognitive strategy corresponds with the substance-informational aspect of the Universe which can be characterized as discrete type of matter. We may add that the right hemisphere "creates" religious-mythological, artistic reality, awaking to life such forms of social consciousness, as religion and art. The left hemisphere "creates" scientific-technocratic reality, revealing science and politics [5].

It should be emphasized that in onto- and phylogenesis of a living being one observes the process of gradual increasing the hemispheric asymmetry (in a baby the state of functional symmetry of cerebral cortex takes place when the hemispheres work according to the functional pattern of the right hemisphere), the greatest expression of which is reached at a mature age. Afterwards, the hemispheric asymmetry is gradually leveled. The condition for functional synthesis of hemispheres is revealed when elderly person, enriched in life experience, factually transforms himself into a child with its plastic psyche, spontaneity, frankness and openness of perception of the world.

If we take into consideration the fact, that right hemispheric functions focus on the present time with turning to the past, and the left one – on the present time with turning to the future, then it is possible to say that a person's development moves quite naturally from past to future, and from the latter – to their integration, when spacio-temporal dichotomy of the Being is eliminated and a person liberates himself from "*the curse of Chronos*".

In general, we can make an important conclusion, corresponding to the newly opened facts: the socio-psychological life of a society reveals periodic processes of vacillation of social mood typical for the left (20-25 years) and right (20-25 years) hemispheres. The period of these oscillations corresponds to the lifespan of one generation. These cycles were traced and learned on a quantitative level with the help of researching into social and psychological climate of a society, as well as by analyzing of such social practices as the styles of architecture, music, fashion, etc.

On the whole, we have three major forms of comprehension of the Being according to Y.A. Urmantsev – rational (left-hemispheric), sensual (right-hemispheric) and meditative, which incorporates the first and the second forms [10]. As neuropsychological investigations of brain's EEG show, in the state of functional synthesis, the synchronization process of brain's hemispheres – the meditation (illumination) state displays itself. We can arrive at a conclusion that a person's development proceeds from sensational to rational, and from the latter to meditative form of understanding and mastering the world [7].

So, the goals of education and the ways of reaching them become quite understandable. First of all it is evident that the state of hemispheric harmony presupposes a sufficient developmental level of the two hemispheres. For the time being a traditional school rests mostly on the development of analytic left-hemispheric thinking, though the fact of certain underestimation of the importance of emotional and imaginative (right-hemispheric) mechanisms of psychic activity in the process of educating is acknowledged, and the experiments convince us that right-hemispheric function activation ensures a respectively significant stimulus for the development of left-hemispheric form of psychic activity [11-16].

The conducted analysis enables to elucidate the major aspects of a new holistic (synergetic) paradigm of education, and shows in what way to unfold the stages of educational process on structural, dynamic and pragmatic levels. Up to 8–12 years of the child's growing the right hemispheric aspects of schooling is to be developed. After the age of 8–12, when the process of active hemispheric asymmetrization is revealed, we are to turn to the left hemispheric aspect of schooling process. But here great attention should be paid to the process of mutual functional correspondence and harmonizing of both aspects of the human being, since here we must achieve the state of hemispheric integration without losing the right hemispheric forms of person's activity. This scenario mirrors the mentioned Japanese saying, according to which at 10 any of us is a genius, at 15 – a talented person and at 20 we are ordinary people.

It is important to know that the onto- and phylogenetic dynamics of the cortex shows the movement from the unconscious (right hemispheric) to the conscious (left hemispheric) aspect, and from it – to their synthesis thus revealing the super-consciousness (K.K. Stanislavsky and V.P.Symonov et al.). It is on a combination of the two functional entities (emotional-imaginative and abstract-logic), which exclude each other, the state of creativity is "generated", since one of the newest concepts of creativity mechanism is related with the concept of *biosociation*, being used as a contemporary explanatory principle of the creative status of a man. Contrary to associative relations of the concepts in man's brain, which take place under the influence of hackneyed experience schemes based on the repetition of the concepts emerging in time and space and built of similarity, contiguity or contrast principles, the biosociation stems from the combination of ideas that have no obvious interconnection and their relationship sometimes looks as supernatural, paradoxical, unbelievable. This quality is a *diplasticity*, being the man's ability to combine in one logical context the things and phenomena that exclude each other.

The made analysis leads to the conclusion that creativity, giftedness

and intellect have certain genetic link, which is realized in the development of a man: a person develops from the state of *giftedness*, which is characterized by the functions of right hemisphere of the brain characterized by poly-semantic, emotional and imaginative reflection of reality, by affective and sensory perception being the indications of giftedness – the right-hemispheric developmental potential of a person, which in the developmental process must be sublimated into the left-hemispheric *intellectual* – analytical, abstract and logical state, since the intellect can be understood as a set of elementary processes of information processing (G. Eysenck, R. Sternberg et al.). Finally at the third stage of human development the integration of the right- and left-hemispheric functions reveals the psychophysiological basis for *creative* (paradoxical, dialectical) thinking and fathoming the reality [17].

Consequently, *the perfect and natural human development starts from giftedness, then follows to intellect and from the latter – to creativity.*

Thus the universal developmental paradigm is an important methodological basis helping to understand many phenomena of our world, solving scientific problems, including *the problem of activities types*. The theory of the activity of national psycho-educational science differentiates several activities types. First of all, we can mention the activities types in ontogenetic trajectories: the playing → learning → labor (A.N. Leontiev). In general, the scholars distinguish such activities, as playing, learning, cognition, thinking, labor, communication, speech, vital and practical activities et cetera (B.G. Anan'ev, S.L. Rubinstein, A.N. Leontiev et al.).

Therefore, the actual scientific task is to classify the activities types and differentiate the most fundamental of them, since thinking, communication, learning, cognition are present in playing and labor through-way. It is the universal development paradigm that allows us to understand that the activities, being the dialectical category, reveals three stages of its unfolding thus meeting a fundamental genetic circuit (*giftedness* → *intellect* → *creativity*): the playing (the activities are not aimed at achieving the pragmatic goals and existing for itself as a subject-subject phenomenon) → *labor* (purposeful activities aimed at achieving certain pragmatic goals, which reveals an object-object instrumental character) → *creativity* (the activities that replicate the playing, but at a higher level of development, having the characteristics of both the playing, being *spontaneous*, self-determined activity, and the labor, being the activity that aims at practical results).

According to Erich Fromm, the *spontaneity* is a condition for realizing the integrity of the individual, where different spheres of life are combined

together. In this case, the main component of such a spontaneity, according to Erich Fromm, is love which excludes the dissolving the human "I" in another person and the possession of it. Love should be a man's voluntary union with the outside world on the basis of preserving their identity. It is in this polarity lies the dynamic nature of love: it increases the desire to overcome separateness and leads to the unity, but does not destroy individuality [18].

The conclusion. Thus, taking into account the conducted analysis, *the universal set of the giftedness diagnosis* (which at the same time reveals the giftedness' criteria and covers the genetic trajectory of the child's personality development, when giftedness is predominantly expressed at primary and secondary school age; the intellect – at middle and secondary school age; and creativity – at high school age) must contain the following tools:

Giftedness (right brain): 1) the research of man's inter-sensual associativity (synesthesia) based on the study of sense channels of the human body (i.e, the affective and perceptual sensitivity); 2) the study of empathy 3) the study of the development of altruism; 4) the research of the capacity for artistic exploration of reality and imaginative thinking.

Intellect (left brain): 1) the study of intellectual resources of human thinking, the ability to abstract and logical thinking, etc.

Creativity (hemispheric synthesis): 1) the research of the capacity for creative, poly-semantic, multidimensional, paradoxical, biosociation thinking, 2) the study of the ability to hypothesis making, 3) the research of brain asymmetry index, 4) the study of the ability to non-pragmatic value and world outlook orientations.

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