

# Analysis of the System-Network Approach for Research of Value-Semantic Orientation and Creativity

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**Abstract** — The article is devoted to the analysis of possibilities of a system-network approach for studying of value-semantic orientations and creativity. The authors claim that using of system-network approach principles allows solving the problem of interdisciplinarity and multi-paradigm in a research of value-semantic orientations and creativity. The main idea is that the system-network approach allows describing the components of complex system by its relations, which could be characterized as a synergistic interaction and an interdependence without rigid hierarchy.

**Keywords** — *system-network approach, network paradigm, value-semantic orientations, creativity, values, meaning*

## I. INTRODUCTION

The post-non-classical stage of a development of psychological science with its inherent split between research and practical psychology, a multiplicity of independently developing theories and practices, requires a special approach in terms of theoretical background and in terms of specific research methods to consider a few complex psychological phenomena, including value-semantic orientations and creativity. The established approaches in psychology (differential, complex, systemic) do not allow revealing the psychological nature, studying and describing all the diversity and complexity of the relationships between the above-mentioned phenomena. It is impossible to identify rigid hierarchy, causation in situation of the multiplicity of aspects of relations between different psychological structures in individual, social, and cultural contexts, but the system-network approach can give these opportunities of using global, multiparadigmatic, and eclectic tendencies in psychological investigations. This article presents an attempt to analyze the possibility of using the system-network approach to the study of value-semantic orientations and creativity.

## II. MATERIALS AND METHODS

We used theoretical research methods. A theoretical analysis of the problems associated with the study of value-semantic sphere and creativity was conducted in order to substantiate the possibility of applying the network approach to solving these problems.

## III. RESULTS AND DISCUSSION

There are several reasons of need of analysis of opportunities of network approach to the research of personal value-semantic sphere: interdisciplinary status of values (it's studied by philosophy, ethics, psychology, pedagogy, anthropology, culturology, etc.) due to the duality of its nature, because values are both social and individual, and a large number of definitions of the concepts "values", "value orientations", "personal meanings", "life meaningful orientations", "value-semantic sphere of personality", etc. That's why values can be viewed in the context of various categorical systems and using of different methodological apparatus. At the same time the problem of transforming values and meanings seems to be highly relevant in the postmodern era, which characterized by the globalization and diffusion of identity.

The idea of socio-historical, social nature of values, as well as the problem of its personal assimilation, is the subject of sociological research. However, values, having a social nature, at the same time are individual (personal) formations. D. V. Kashirsky noted, that in sociological studies values are viewed from the "external", denomination and not from the "internal", subjective side [1]. But research interests are not only differences or similarities between the values of representatives of various social groups, but also what kind of subjective meaning a person puts into value, realizing (or not realizing) it in his life. It is this problem that is in the focus of attention of psychological science.

For classical natural science psychology values are not the subject of research, because there's no subject to empirical verification, for behaviorists and non-behaviorists values are no more than a result of associative learning, but AV. Kravets and A. Utyuganov [2] write, that in humanistic psychology the concept "values" is filled with new content. For example, A. Maslow proposes a vertical hierarchy of values, dividing it into two groups: higher (existential, "development" values inherent in self-actualizing people) and lower (deficient or homeostatic, regressive, protective values due to anxiety and frustration). G. Allport, believing that the source of most personal values is the morality of society, also highlights several value orientations that are not dictated by moral norms, for example, curiosity, erudition, communication, etc.

M. Rokich's understanding of personal value system as a hierarchy of beliefs is widespread. M. Rokich described values as stable personal beliefs that determine the ultimate goal and meaning of existence. Values are divided into terminal (value-goal) and instrumental (value-means). In the terminal value's structure M. Rokich identifies a special cluster - the highest values, which include freedom, love, development, knowledge and creativity. M. Z. Garvanova and I. G. Garvanov noted, that M. Rokich was one of the first researchers, who had considered values as an interconnected system [3]. Values in an individual hierarchy, according to M. Rokich, characterized by the following features: the sources of values can be traced in culture, society and the individual; the total number of values that are the personal asset is relatively small; all the people have the same values, albeit in varying degrees; values are organized into systems.

We need to choose two conceptions of values (R. Inglehart and Sh. Schwartz), which represent the tendency to create universal classifications of values from the standpoint of sociological and psychological approaches, because the analysis of a big amount of classifications based on different foundations seems to be too difficult.

R. Inglehart was the head of the sociological project of the World Value Research (WVS) since 1990 and explored its transformation on a global scale, using the conception of A. Maslow. As A. Maslow R. Inglehart divides the "materialistic" (physiological) and "postmaterialistic" values, the prevalence of which in a given society reflects the stage of its general economic and social development [4–6]. The economic and technological development of society, as well as the process of its modernization and democratization is monitored using two key bipolar dimensions of culture — survival/self-expression and traditional/secular-rational authority. The vertical vector shows the transition from traditional values to secular-rational. Traditional values reflect the significance of religion, respect for authority, a high role in the socialization of the family, rigid social standards and social conformity. At the opposite pole are secular-rational values. Their supporters attach less importance to religion, traditional family values and authority. They are focused on achieving success, rational behavior, prefer a secular state, tend to tolerance, socialize in the spirit of scientific and legal rationality.

Horizontal vector shows the movement from the values of survival to the values of the development of self-expression. The values of survival focus on economic and physical security. Such societies have a low level of social trust, a willingness to accept authoritarianism, xenophobia, intolerance for dissent, and faith in the omnipotence of science and technology. People who share the values of self-expression, ideas of personality, freedom, human rights give priority to environmental protection and gender equality, they are tolerant for dissidents, homosexuals, they are socially active and demanding to participate in decision-making in economic and political life.

The research of R. Inglehart revealed in all modern post-industrial societies a "cultural shift", accomplished with the arrival of new generations on the historical scene, which were

socialized under stable and prosperous regimes in a movement from survival values to self-expression values [4].

M.S. Yanitsky и A.V. Seryi noted [7], that "axiometry", which was used by R. Inglehart to determine the prevalence of relevant types of value orientations in a given society, is based on the respondents choosing the most important value from the proposed list, which includes indicator values of a materialistic or postmaterialistic orientation. But focus on a particular system is mutually exclusive. At this case large number of respondents cannot be attributed either to "materialists" or to "post-materialists", because the value systems identified by R. Inglehart as alternatives are not alternatives in fact. B. V. Schleder told, that R. Inglehart's typology can be described as a largely undifferentiated and non-historical [8]. M. S. Yanitsky и A. V. Seryi noted, the concept of R. Inglehart reflects the existence of three main types of value orientations corresponding to the vital, social needs and the needs of self-realization [7]. Also the explanation of the facts in the theory of R. Inglehart is based only on the socio-economic realities, while the personal value-semantic sphere remains outside the scope of consideration.

M.S. Guseltseva noted [9], that in a number of explanatory humanitarian approaches there is a divergence of rhetoric and everyday practice, which is confirmed by everyday situations in which people say one thing, think the other, and do the third. In a psychology each of these three modes corresponds to an idea of declared, real, and unconscious values. So behavior becomes the result of its spontaneous integration, when multiple situational contexts are also taken into account.

Sh. Schwartz and V. Bilski ventured a hypothesis, based on the concept of M. Rokich, about the presence of "universal motivational types" in people. Values by Sh. Schwartz are desirable, trans-situational goals, the significance of which varies and which function as guiding principles in the lives of individuals or groups. Each value has some motivational tendencies or goals [10; 11]. Their organization at the individual level is the result of psychological dynamics of conflict and compatibility in the implementation of different goals in everyday life. The main hypothesis of Sh. Schwartz and V. Bilski is a cognitive representation by values of three universal needs: the needs of individuals as biological organisms, the need to coordinate social interaction and the need to preserve the welfare of social groups. The results showed that the content and structure of the value system are relatively independent of cultural influences and at the individual level include 10 main value categories. Sh. Schwartz developed a theory of dynamic relationships between value types, which describes the conceptual organization of a system of values. He argues that actions carried out in accordance with each type of values have psychological, practical and social consequences that may be involved in conflict or be compatible with other types. В дальнейших исследованиях Sh. Schwartz highlighted four values of a higher order: openness to change as opposed to conservatism, self-affirmation against self-transcendence. At a still higher level of generalization the values of self-defense and the avoidance of anxiety confront values that express growth and development that are free from anxiety.

In the course of further research Sh. Schwartz developed a refined theory of basic individual values, which highlighted 19 values located on a circular motivational continuum: adjacent values are most compatible, while opposites are in the greatest conflict with each other. It is emphasized that it is possible to distinguish different levels of abstraction within the motivational hierarchy (19, 10, 4, or even 2 parts) [10]. It's important to mention, that Sh. Schwartz's test allows to calibrate values at the level of normative ideals, reflecting a person's ideas on how to act, thereby determining his life principles of behavior with values at the level of individual priorities, related with real human behavior. The last researches of Sh. Schwartz were devoted to the verification of hypothesis about depending of behavior on compromises of values, that initiated this behavior, and values that oppose this behavior [11]. 1857 respondents in Italy, Poland, Russia and the United States reported on their values and assessed their behavior and the behavior of their partner. The results confirmed the hypothesis. In all four countries, the importance of values, frequency of behavior and gender could not temper the strength of the relationship between values and behavior. But in some cases, the difference in a structure of correlations between values and behavior was found. On the one hand, this result raises the question of cultural differences, and on the other, it leads us to the conclusion that the "value verification" of the individual is not enough in isolation from the semantic component.

Analyzing the state of the problem of the meaning in different sciences the researcher encounters a variety of characteristics of the meaning and range of its applicability, ambiguity, inconsistency of interpretations of this phenomenon. The relationship between value and meaning spheres is considered more ambiguously. There is no doubt that values and meanings are correlated. But the nature of this correlation is not obvious. A.V. Kravets and A.A. Utyuganov write, that an idea of a deep interconnection and interdependence of the value and semantic systems of the individual is reflected in the writings of many domestic and foreign psychologists [20]. The authors refer to the ideas of K. A. Abulkhanova-Slavskaya and A. V. Brushlinsky, describing the role of semantic representations in the organization of the system of value orientations, which manifests itself in the following functions: acceptance (or denial) and realization of certain values; strengthening (or reducing) their significance; retention (or loss) of these values in time.

Several researchers think that values are the base for the system of meanings. According to V. Frankl, a person acquires the meaning of life by experiencing certain values, among which the values of creativity, the values of experience and the values of relationship. According to F.E. Vasilyuk, meaning is a border formation in which the ideal and the real converge, life values and the possibilities of its realization, meaning as an integral set of life relations is a kind of product of a person's value system. [12]. D.A. Leontiev noted, that personal values are both sources and carriers of meaning to humans [13]. M.S. Yanitsky, A.V. Seryi, Yu.V. Pelekh consider that the development and functioning of the systems of personal meanings and value orientations are interconnected and mutually deterministic. The value orientations that determine

the life goals of a person express, what is most important to him and has personal meaning for him. As a result of the semantic relationship, a person's value orientation towards certain phenomena of objective reality is developed, experienced on a subjective level. Value orientation performs the function of an orientation reaction in the behavior of a personality, reflects the semantic side of the personality's orientation, its internal, substantive basis of external interaction with various phenomena of objective reality. It could be considered as an integral value-semantic sphere of the personality, which is functioned as a multifunctional psychological body [14].

We suppose, that such complex interdependence of semantic and value formations can be described and understood in the context of the network paradigm. This is confirmed by the conclusions that make M.S. Yanitsky, A.V. Seryi based on the analysis of the main methodological approaches to the study of the value-semantic sphere of the personality [7]. They identified six groups of methods that diagnose the individual characteristics of value orientations and the semantic sphere of the personality: 1) methods of diagnosing the leading, dominant value orientation, personal orientation or motivational tendency; 2) methods aimed at the study of an integral system or hierarchy of personal value orientations; 3) projective methods of studying the value-semantic sphere of the personality; 4) methods of studying the processes and level of personal development; 5) methods of studying life goals, the level of meaningfulness of life and life-meaning orientations; 6) the method of studying the system of personality constructs. After analysis of these methods authors concluded, that there's no test, which could give a holistic description of the level of development of the value-semantic sphere of a personality. The simultaneous use of battery tests partly solves this problem. Complementarity of tests, which is possible by developing a specially selected complex of the listed techniques, is a difficult task in practice, because many of it have different and difficultly compatible theoretical and methodological grounds.

At this moment it is important to return to the network approach. T.V. Zelenkova writes, that network approach could integrate psychological knowledge without violent actions and thereby recognizing the right not only for the independent development of each theory, but also for the emergence and formation of new concepts [12]. Studying personal value-semantic sphere by bootstrap theory of J. Chew, i.e. as a dynamic web of interrelated events, where the property of any part derives from the properties of other parts and the general consistency of their interconnections determines the structure of the entire network, allows to escape from discourse about the cause-and-effect causation of value orientations by semantic or vice versa [12]. Then the value-semantic system is described as an open system with significant non-linearity (variety of feedbacks) in all directions and without a control center.

Another opportunity provided by the system-network approach, especially for practical work with the personal value-semantic sphere is the ability of the network to self-organize, self-preserve and self-restore with its simultaneous openness and high degree of instability. There are great opportunities for practical psychologists to use different theoretical approaches to understanding and working with such phenomena as meaningfulness, meaning generation, transformation of values

in crisis periods of human life in relation to different life contexts, developmental stages, personal characteristics, etc.

The concept of feedback of G. Beytson, which is tied to the phenomenon of self-learning behavior, could be the heuristic for the theory and practice of working with the phenomenology of values and meanings in a changing, transitive, postmodern world with its inherent tendency to form a fragmented multiple identity [15]. Negative correlations provide organizational sustainability of knowledge, the desire to empower various theories and practices [12]. Positive - “swing” the system, bring it into a state of unstable equilibrium, thereby creating the opportunity for the emergence of new knowledge, positive criticism, creative development, the transition to new levels of organization.

How can we use the system-network approach to research of creativity? It should be noted that attempts to consider creativity from a system-network perspective are not some kind of randomness but are due to the comprehension of the limitations of the below-presented approaches.

Psychoanalysis describes creativity as a psychological phenomenon having a deep unconscious nature [16]. Z. Freud, O. Rank and A. Adler attempted to reflect on creativity as a form of specific (sublimation) human activity, securing the main role in this process to the energy of the unconscious (libido), which, is channeled and processed into creative energy of the act without receiving direct output. The narrowness of this approach (in addition to the lack of empirical and experimental data) was focusing attention on the unconscious nature of creativity with completely ignoring its cognitive and personal component.

From the standpoint of the natural science approach, largely represented by the ideas of cognitive psychology, creativity describes as a predisposition to creative activity and as a non-specific form of activity closely associated with intellectual processes. In fact, the question of creativity is posed as the question of the presence of a certain cognitive (intellectual) platform determining the manifestation of creativity [17].

Psychophysiological measurements, which have become the most popular method in the natural science approach, have allowed to study the complex interrelationship of creativity with intellectual abilities, cognitive and epistemological styles, factors of gender and age, including taking into account hemispheric asymmetry. At the same time, these relationships are often considered as being mediated by third factors (motivation, emotions) and the specificity of the sample under study [18]. Several researchers [19, 20] consider the mechanism of general cognitive control as a mediating factor, which is necessary for the final decision-making.

Attempts to discover the neurophysiological correlates of creativity led to the isolation of the frontal and parietal cortex of the brain. The functional asymmetry of the hemispheres is considered through the disclosure of the dominance mechanism of one of it, which is determined by the nature of the creative task [21].

The results of modern research have revealed a variety of correlations between creativity and cognitive styles. For example, there is a correlation of a rational cognitive style with

changes in the frequency-spatial organization of the alpha-range biopotentials with convergent thinking and irrational changes with divergent thinking [22].

The natural science approach, which opened the way to the study of the complex interrelationship of creativity with the activity of brain structures and cognitive processes, soon began to reveal a few limitations, one of which was the impossibility of overcoming the concept of psychophysiological determinism. It became obvious that the modern understanding of creativity cannot proceed from the idea of its rigid physiological conditioning.

There were attempts to highlight types of creativity based on the systematic isolation of psychological factors as well as the leading elements of the activity in which it is embodied, in the activity and abstract-analytical approaches, [17]. Thus, verbal, non-verbal, social, and personal creativity were singled out. Verbal creativity is understood as the ability and readiness to create a new verbal product, while non-verbal creativity meant readiness to create a product figuratively and graphically. Social creativity began to be understood as the ability and willingness to bring newness to the system of personal relations, and personal creativity is understood as the ability and willingness to reflect and consciously transform person's life path. A series of empirical studies of the structure of creativity based on this classification was carried out [20–24]. However, a common understanding of the classification parameters of creativity has not been achieved. A. Dietrich, noting that currently there is no adequate approach to solving the problem of the classification parameters of creativity, proposed to rely on the selection of three modes that determine the types of creative activity: intentional mode, spontaneous mode and flow mode [25].

The existing differentiation of types of creativity was compensated by the idea of the unity of logic and dynamics of the flow of all creative processes. According to the ideas of Ya. A. Ponomarev, which became the founder of the abstract-analytical approach, almost all the processes of creativity have the same psychological nature and the same mechanism of flow. This process begins with the preparation and incubation period (the stage of maturation of the idea), then passes the culmination stage of illumination and then unfolds into a technical development and verification of a creative solution [17].

Several researchers support and develop the main ideas of the abstract-analytical approach in characteristic of creative process and its product, called “by-product” by Y.A. Ponomarev.

The study by G. Calic and S. Helie is devoted to the consideration of cognitive paradoxes as an integral part of creativity. Speaking about the potential of a creative person, they see it in the ability to creatively resolve arising contradictions and reaching competing demands at the same time. But incentives or rewards for resolving contradictions can lead to a decrease in the creative result in some circumstances [26].

Y.-Sh.Chang, H.-Ch. Lin, Y.-H. Chien, W.-H. Yen found that creative spontaneous behavior in solving creative problems

contributes to the activation of creative thinking and the generation of various ideas, planned behavior contributes to the quality of ideas and reflects (invariant, but mostly positive) on the result of creativity [27]. But neither activity, nor abstract-analytical approaches give an exhaustive idea of how various psychological features and factors (intelligence, motivation, value-semantic orientations, etc.) correspond to a creative act. Some products of creativity rooted in culture, however, some non-cultural achievements have a deep personal meaning. For example, a child's game, in which a child inventing and modelling some forms of behaviour and activity already existing in culture, discovers and develops subjectively new forms of it. Moreover, deep personal meanings can be realized in the daily professional-labor activity of a person, his relationship with others, in the works of amateur creativity. Even the historically accepted systematics of the levels of creativity and creative activity (naive creativity, professional creativity, art) does not make it possible to explain the sense-generation in this process.

The system-network approach, which has grown out of the polyparadigm of understanding a few psychological phenomena, suggests understanding creativity as a phenomenon possessing a few complex external and internal connections.

Historically the theory of creative factors and traits (D.B. Bogoyavlenskaya, A. Maslow) is common to the system-network approach because of arguing that creativity is a certain conglomerate of intellectual activity, special (process-oriented) motivation, personality traits, value-semantic factors [16; 17]. Then process-oriented motivation has got its key role in a considering of creativity problem, because creativity becomes understood by activity and humanistic approach as a spontaneous manifestation of the human essence, as a manifestation of activity on the creation of a qualitatively new, not having a clear focus on any particular result [16, 17].

Let's try to imagine the psychological structure of creativity as a network with subordination and close interrelation of its components. It becomes evident, that the degree of knowledge about the psychological structure of creativity is extremely small and fragmented. Along with attempts to identify cognitive correlates of creativity, there were attempts to identify its correlations with key parameters of the personal sphere (motivation, personal qualities and qualities, level of psychological well-being and happiness, value-sense orientations, etc.) [28, 29].

The study of the relationship of the parameters of creativity with personality traits allows us to conclude the variability of these traits ranging from "openness to experience" to extraversion-introversion, rationality-irrationality, etc. [21, 22, 30] the effectiveness of creative activity is determined by several variables indirectly influencing the change in its interrelations with impulsivity or rationality-irrationality [31].

The question of the intercorrelation of the parameters of creativity with the parameters of the value-semantic sphere was raised as part of the activity approach and raised as a question of the direct relationship between personal meaning and the components of creative activity. Creative activity and activity in this case means the fundamental possibility of "going out"

beyond its limits, which are understood as norms and values established in society, values, patterns of behavior, activities, etc. [13, 16].

The problem of meaning and semantic is also associated with traditionally distinguished characteristics of creativity, which constitute its psychological basis (novelty and social significance), as well as characteristics responsible for the meaningfulness of creative activity (the ability to detect and formulate problems, to generate a large number of ideas, to produce distant associations and unusual responses, intellectual initiative, breadth of categorization, originality of thinking, etc. [17, 23]. M. Goncalves suggests considering this concept as a component of creativity and creativity in general. Using the method of peer review the researcher concluded, that it is necessary to consider value as the third basic component of creativity, along with novelty and utility [32].

Another way of thinking about creativity as a network phenomenon can be the flow theory that is being actively developed in psychology. The network nature of creativity can also be described and disclosed through flow theory [28]. Considering creativity as the cultural equivalent of the process of genetic change M. Csikszentmihalyi emphasizes its meaning-making principle [28]. Some interrelated (weakly coordinated) mental structures (cognitive, motivational, personal), that were called "dissipative", borrowed from I. Prigogine, are involved in the process of sense formation. These structures with their inherent bifurcation points - points of unstable equilibrium, in which the system is subject to the influence of random influences of very small magnitude, allow a person to use the accumulated mental energy in the direction of development. Thus, the theory of dissipative structures is relevant not only for the study of the processes of creativity, but also for the study of existential perspective in its aspects such as choice, freedom, opportunity, authorship of their lives, etc.

In a special way, the network nature of creativity is manifested in its collective version. It should be noted that collective creativity has a much more pronounced communicative nature than individual creativity, which contributes to the synergy of creative abilities and creative activity of each of its participants. The methods, which contribute to the intensification of the collective creative process (brainstorming, synectics, the method of focal objects, etc.), are based on the principle of lack of criticism in a situation of free generation of ideas and contribute to creating such a situation in which each submitted idea is maintaining its autonomy and closely corresponds with ideas of other participants.

In fact, the process of collective creativity itself is a network process unfolding in the space of various views, positions and meanings. According to T.V. Zelenkova, system-network interaction is characterized by the presence of so-called "weak links" in a particular system, allowing new connections to form and manifest themselves [12]. Thus, creativity can be represented as a process of closing new connections in an unregulated field and a potential ability to close it.

#### IV. CONCLUSION

The system-network approach focuses primarily on the description of components of complex systems through its interrelations, postulating the absence of fundamental elements in these systems, it draws attention not to the subordination of some elements by others, but on their synergistic interaction and interdependence. These characteristics allow to solve the problem of interdisciplinarity and multiparadigmity in studies of value-semantic orientations and creativity. In this case, sociological, psychological, cultural, philosophical and other theories of origin, development and transformation of these phenomena will mutually enrich each other without losing their autonomy in the overall organization of the network. At the same time, each theory has the opportunity to go beyond the usual disciplinary framework, each time using the language that will be most appropriate for describing various aspects of the phenomenon under investigation.

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