



SOME PROBLEMS OF PHILOSOPHY METHODOLOGY IN THE CONTEXT OF COMPLEXITY

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Abstract

The article examines modern methodological problems of philosophy. The authors identify trends. The rapidly changing contemporary world brings new issues, and tasks, the understanding of which requires new philosophical and methodological attitudes. At the same time, the authors analyse the developed and meaningful worldviews based on modern scientific data. According to the authors, a philosophical analysis of a rapidly changing, unstable world operates with such concepts as uncertainty, instability, complexity, nonlinearity, and openness, as well as various options for the future.

Keywords: system, uncertainty, instability, complexity, nonlinearity, openness, methodology, worldview.

Introduction

Second half of the twentieth century. and the beginning of the 21st century. marked fundamental changes in the study of reality. In the process of cognition, new philosophical ideas, new methodological approaches, scientific concepts, etc. emerged, different from the previous ones. In epistemological terms, for adequate cognition from the standpoint of modern epistemology, new concepts are formed (complexity, self-organization, chaos, etc.), and at the same time, some concepts (randomness, uncertainty, chaos, etc.) are interpreted in the light of new ontological approaches. Research shows, oddly enough, that we live in a complex, nonlinear world, with all its laws and ensuing consequences.

As is known, the formation of science and its cognitive apparatus begins with the disciplinary sciences, when each science studies a certain fragment of objective reality. By this, scientific concepts, principles, hypotheses, and theories are formed that are characteristic of a given science and constitute its fundamental basis. Of course, it can also be noted that in the history of science, "examples of the use of the cognitive apparatus of one science by another are found in the era of Ancient Greece, the union of philosophy and medicine Pythagoras and Empedocles were equally great philosophers and great doctors" [1.P.193]. The history of science in medieval Central Asia - Beruni, Ibn Sino - also using the cognitive apparatus of one science in the research of another science, they obtained and discovered new qualities, and properties of the objects under study (geodesy).

The second half of the twentieth century became the time when objective, practical reasons for the need for cooperation of concepts and approaches of various sciences in understanding a complex



of problems appeared. Laws and patterns reflecting the processes of the linear world are replenished with new methods and approaches of the nonlinear world. The study of the world is not productive in terms of only a disciplinary approach, which is complemented by an interdisciplinary approach. Interdisciplinarity helps to overcome the shortcomings of the disciplinary approach and represents a type of knowledge that includes the methodology and terminology of more than one scientific disciplinary science to consider a specific topic, problem, or phenomenon.

Unlike the disciplinary approach, which is extremely specialized and considers the problem in one plane, interdisciplinarity has a greater opportunity to integrate concepts and approaches from various sciences and creates a cognitive complex for cognition. And with all the advantages of an interdisciplinary approach, it is not an effective defence against the “currently ongoing fragmentation of knowledge, since, through simple comparison or assembly of disciplinary approaches, they do not achieve the depth of “integration” of the fundamental unity that underlies all forms of knowledge. Their conceptual and methodological tools need to be rethought. Transdisciplinarity was originally conceived as a “meta-methodology”, therefore the transdisciplinary approach takes as its object precisely those different methods of various disciplines to “transform” and “surpass” them” [2. P.37-38].

Philosophical analysis of a rapidly changing, unstable world operates with such concepts as uncertainty, instability, complexity, nonlinearity, and openness, as well as various options for the future. The traditional scientific paradigm is not able to find an effective concept and strategy for exiting the current situation and a mechanism for the transition to a new development model. Therefore, the search for possible ways to reach new frontiers of development must be sought in radically changed paradigmatic and methodological approaches, both on a global and national scale.

Among the concepts of modern epistemology, the concept of “complexity” is of great importance in the sense that it constitutes the fundamental basis of reality. The study of complexity is associated with its nonlinear characteristics, the defining property of which is the openness of the system, which presupposes a continuous choice of alternative paths of development, since nonlinearity is necessarily multidimensional, and multivariate.

When asked about complexity, many authors give the following interpretations: “ Complexity in Latin - complexus means that which is woven, woven together, that a single fabric is created. Concept complexity is one of the widely studied concepts in modern philosophy. The study of complexity is a multifaceted problem, and several models for the study of complexity have been developed in modern philosophy. Several concepts of complexity are associated with the names of G. Haken, I. Prigogine, E. Moren, Maturana, Varella, and E.N. Knyazeva. For example, I. Prigogine interprets the phenomenon of complexity as a phenomenon of unstable systems. K. Mainzer reveals the phenomenon of complexity as complex systems thinking. Scientist believes that the modern world is becoming more and more complex and to carry out effective activities a person needs to develop complex thinking. In the book descriptions of M. Roger Lewiny's Complexity: Chaos at the Edge of Life and M. Mitchell Waldrop's Complexity: The Manifestation of Order and Chaos in Science, complexity is seen as the limit of chaos. Based on this, we can conclude that complexity is a multi-component, integral characteristic of existence. Complexity is characterized by such chaotic properties as instability, nonlinearity, integrity, self-organization, emergence, fractal” [3.B.42].



Humanity has entered a new era of development - the information society, where information, knowledge, and interactive communications have become the key factors of production. Their materialization and application in human life determine the development of the country, both socially and politically. In the process of establishing the information society, it is expected to increase the standard of living of the population, develop the socio-economic aspects of life, and improve public administration. But besides this, as O. Istomina notes: “ In the social reality of postmodernity, these resources are determined by their status in the information space, the level of immersion and participation in events that are significant for the individual, his social group, community, and state. One of the most accessible forms of such participation for young people is instant, synchronous information about current events (local, municipal, regional, national and even transnational levels). For the younger generation, participation involves not only information but also the opportunity to express a reaction lexically, graphically, and symbolically. Such a form of social interaction mediated through social networks and messengers forms a “new social”, which has an asocial context and produces quasi-groups, investing the value of real contacts. Modern mimesis is a kind of mimicry of the constructs of human alienation, and forced existence in a world of simulacra and simulations” [4.P.322]. Therefore, K. Mainzer’s concept of the phenomenon of complexity as complex systems thinking is of no small importance. Information filtering and effective use of not all information in the virtual world requires a person, especially young people, to develop complex thinking.

Complexity is an area of interdisciplinary research; the phenomena it studies are also studied by representatives of many sciences: physics, chemistry, biology, psychology, history, sociology, politics, methodology and economics, which allows us to take a fresh look at the processes of formation. As is known, at the end of the twentieth century centuries, scientists have understood the limitations of Laplacean determinism (Laplace's demon). The natural sciences of this period were based on linear theories. Subsequent development of science showed the limitations of these methods in the study of complex phenomena. For example, in quantum physics, unlike classical physics, it is not possible to simultaneously measure the position and momentum of a microparticle as accurately as desired. The modern development of science provides many examples confirming this statement.

In the process of studying the world, it was revealed that the deterministic method and the reduction method are possible methods of understanding the world. It was revealed that “linearity, stability, equilibrium turn out to be moments of a non-equilibrium, unstable world. Sometimes people are more satisfied with the order, but for most human purposes the most useful is a varying degree of disorder” [5.P.115].

For example, the deterministic approach, as is known, asserts that man can fully know and control nature. Yes, indeed, a person is active; he explores the world, and nature, creating a lot of interesting and necessary things for a person. But the world is changeable and consists of many interconnections, and it is not “our uncomplaining servant (I. Prigogine).” In conditions of unknown nonlinear multifactorial connections, a person is looking for ways of further development. And as you know, any obstacle, any threat creates conditions for the formation of new opportunities.

Revealed limitations of hard determinism, probability, reductionism, ethical standards of development, etc. Examining the presented picture of the world, “we must admit that we cannot completely control our world of unstable phenomena, just as we cannot completely control social



processes, although the extrapolation of classical physics to society for a long time made us believe in this" [6.P.50].

Numerous crises and oppositions characterize the end of the twentieth century. and the beginning of the 21st century. The course of the world's development was interrupted by bifurcations. In the bifurcation phase, where systems become unstable concerning fluctuations, uncertainty arises, where all possible paths of development of the system are concentrated. As is known, this circumstance creates the conditions for new opportunities for development and choice of development path. In the bifurcation phase, several equivalent development paths are formed. Development along the accepted path allows the system to move to a new state. This in no way guarantees that this new state will be optimal. The advantages and disadvantages of each possible solution are balanced by the advantages and disadvantages of the others. ... Making a decision based on moral, humanistic or any other similar considerations [7.P.217].

The consequences of bifurcation in the development of the state with a high degree of probability extend to all spheres of society, thereby ensuring changes in the system. In the social sphere, it is possible to formulate several equivalent solutions to get out of the current situation. And how is it possible, in conditions of branching decisions, to come to any unambiguous decision [7.P.217]? In conditions of bifurcation, the role of the state and individuals increases, who take on the function of subordination, i.e. they determine the types of relationships in creating conditions for sustainable development. As a result, instability, disorganization, and chaos are brought into a state of certain order.

Indeed, the role of the individual and the state in the choice of decisions and its further long-term development is realized subject to certain structural transformations, which undoubtedly affect the level of existence of the culture of the people. Many examples can be given from the history of human development, both in terms of the development of science, culture, everyday life, and society as a whole. This can be seen by studying the history of Uzbekistan. Modern Uzbekistan, in the most difficult conditions prevailing in the modern world, is introducing the latest transformations for the well-being of the people. The modern world faces more and more complex problems. At the planetary level, climate change, water problems, etc. Each country must solve the problems of difficulties arising on the path of development. The most complex changes are taking place both on the planet itself and in the social life of the planet. The world is becoming more and more complex.

The problem of complexity has become one of the most important problems of modern science. Today, the concept of complexity is found everywhere in everyday life, and the humanities, natural sciences, and technical sciences; this concept is of particular interest in social, economic, political, and cultural processes. Even such seemingly typical phenomena of our world as weather, climate, economics and everyday life are too complex for a simple deterministic description. Consequently, our knowledge is usually not sufficient to build a deterministic model. Instead, the stochastic method is very often more appropriate" - (Mainzer).

Of course, research and study of this phenomenon are associated with many problems and approaches, but the philosophical and methodological approach is of great interest, which makes it possible to develop new ideological and methodological guidelines that allow us to understand the essence of this concept. From a philosophical and methodological perspective, complexity is identified not with a higher organization, but with irreversibility associated with the arrow of time.



Complex systems, complexity-inexhaustible variety, the study of which is associated with the development of various methodological concepts that study them in the context of their paradigm. As a result of the study of this problem in philosophy, several concepts were formed, such as the theory of self-organization (G. Haken), the theory of dissipative structures (I. Prigogine), the complexity paradigm (E. Morin), the concept of autopoiesis (U. Maturana, F. Varela), etc.

The world is becoming more complex. Interdependence, interaction, and contradictions: social, environmental, economic, and political - represent a complex picture, the study of which cannot give a complete picture of what is happening, a reductionist approach, analytical thinking. New worldviews, methodological guidelines, principles and methods of cognition must be developed that make it possible to present complexity in some perspective, which are indicated above.

The importance of the conceptual expression of the phenomenon of complexity is enhanced by several circumstances:

- the object is considered a system in the aspect of holism and therefore cannot be studied fully from the standpoint of classical reductionism;
- complexity is considered one of the aspects of the relationship between stability and variability, part and whole, chaos and order;
- complex objects are studied using interdisciplinary and transdisciplinary approaches;
- study of complexity in the context of fractal analysis;
- complexity is a philosophical problem that has its ontology and epistemology.

The problem of ethical and moral standards in the study of complexity becomes particularly important. A study of ethical standards in the study of complexity shows that "modern science, in the person of molecular biology, has directly invaded the holy of holies of man - in regulating his life - this is an indisputable fact. Consequently, science has acquired a qualitatively new, hitherto unknown moral dimension" [8.P.8-9].

As science develops, the number of such problems will increase. Non-classical rationality considers complexity as one of the aspects of the relationship between stability and variability, part and whole, element and system, chaos and order.

The main characteristics of complex systems are holism, self-organization, emergent property, ability to adapt. Accordingly, complex thinking includes its integrity (holisticity), nonlinearity, evolution, and spontaneity. Based on general findings, transdisciplinarity can be characterized as "a research strategy that crosses disciplinary boundaries and develops a holistic vision" [1.P.194]. Therefore, transdisciplinarity involves, the process of teaching young people with high moral and ethical standards, to develop a holistic vision of the world, but the ability to see a universal property in complexity. The synthesis of acquired knowledge through various educational processes imparts integrity to a person's ideological position, replenishing human capital.

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