SCIENTIFIC SYSTEM

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Annotation: two requirements are imposed on any science: firstly, to determine the subject of Science, and secondly, to apply methods that will help to master this subject. The subject should be considered in relation to the tasks of Science, and the method of studying the subject should be considered depending on the scientific system. The concept of" system " is explained as follows: the composition of the system is made up of certain elements. Elements within a system boundary will be more jipsically connected to elements outside the boundary. The scientific system is based on the following principles:

1. Logical connection. Concepts, categories, laws, ideas

logically binding principle. 2. Data saturation. The principle of concrete generalization of scientific observations on the basis of a single feature.

3. Theoretical justification (achievement of Essence). Theory as a constructive tool helps to generalize experience and provides an opportunity to acquire experience. 4. Hierarchy (Order). The smaller and simpler components of the system obey the larger and more complex parts that keep them together in a hierarchical order.5.Minimum sufficiency. The minimum number of initial axioms and observations should develop ideas to such an extent that, as a result, they together cover the greatest number of facts and cases.

6.Principled openness. To be prepared to accept new facts and generalize in theory. 7. Fractality (repetition of the whole in parts).Fractals are uniform structures or forms that are infinitely repeated in the diminishing or increasing components of a system.

8. Balance of opposites. This principle aims to maintain the balance of opposite parts in the system (e.g., symmetric equilibrium, asymmetric equilibrium, etc.k.). 9. Integrity (Manism). The principle of totality combines the knowledge accumulated in the scope of the subject of a particular science into a single basis.

Keywords: scientific system, analytical thinking, synthetic thinking,

logical dependence, saturation of information, theoretical justification, hierarchy, minimum adequacy, principled openness, fractality, balance of contradictions, totality.

It is advisable to study science as a "system". Because, science is neither a collection of truths nor a storehouse of facts, nor a reserve of ideas, nor a collection of laws. System of knowledge subject to social practice.

The concept of "system" can be explained as follows:

The system is made up of structural elements. Elements of a system within a given boundary will be more jipsically connected to elements outside the boundary. Out-of-bounds communications link the system to a system that is larger than it, and even larger systems in that order (the"hierarchy" principle). That is, any system will consist of a set of subsystems located inside it. For example, if we consider a"residential complex "as a single system, this system is made up of" multi-storey residential building "systems, the system of each residential building is made up of" apartment (apartment) "systems, each apartment system is made up of" rooms " systems that perform a different function.

If we recognize the system as the science of "Mathematics", "Physics", "Chemistry", "History" or "drawing geometry", it becomes a scientific system that explains the laws of this discipline.

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Two requirements are imposed on any science: first, to determine the subject of Science, and secondly, to find and show methods that will help to master this subject. The subject should be considered in relation to the tasks of Science, and the method of studying the subject should be considered depending on the scientific system. For example, the set of all issues in the science of" drawing geometry " is divided into three subsystems as a separate scientific system:

- posision issues;
- metric issues;
- constructive issues.

The set of constructive issues is also made up of subsystems of posision and metric issues as a separate system.

The science of "systematic analysis" is very important in the study of the scientific system. "Systematic analysis" falls into the ranks of synthetic Sciences. The main features of this science are as follows:

- analytical thinking (Division of the whole into parts);
- Synthetic thinking (combining simple parts and organizing the whole);
- study the connections between parts.

A person who can think systematically and apply it in practice usually sets a perspective and counts with the results of his activities, takes into account his goals and capabilities and the interests of the environment, develops his consciousness, develops the right views in the team and a strategy for behavior.

The scientific system is based on the following principles:

1. Logical connection. Concepts, categories, laws, ideas

logically binding principle. Any problem can be solved only if it is posed in connection with side problems and, as a component of one whole system, is considered on the basis of a single methodology.

2. Data saturation. The only feature of scientific observations.

on the basis of the concrete generalizing principle. The bird flies with its wings leaning against the air and overcoming its opposition. The "air" of science is facts, and its "wings" are thought. Relying on facts and at the same time overcoming them, that is, maintaining them subject to oneself – this is how one can achieve concrete generalized observation, free from abstract thoughts.

3. Theoretical justification (achievement of Essence). The theory is constructive

as a tool, it helps to generalize experience and provides an opportunity to acquire experience. It is advisable to look at theoretical knowledge from the point of view of "acquisition of Essence". That is, the goal of the theory is to master the essence. The subject studied by the theory is asked the following questions: What and how? Why is it? etc.k. The theory seeks to trace the hidden essence, which is inextricably linked with the subject and makes it a being. That is, the theory goes beyond the scope of the subject – the scope of the hidden causes of his being.

4. Hierarchy (Order). Concept-to category, category – to law, law is subject to paradigms, hypotheses and axioms, that is, the smaller and simpler components of a system are subject to the larger and more complex parts that keep them together in a hierarchical order.

5. Minimum sufficiency. The minimum number of initial axioms and

observations should develop ideas to such an extent that, as a result, they together cover the greatest number of facts and cases.

A.Einstein said of this feature of Science, "the early hypotheses take up abstract states that are increasingly far from life experience. But nevertheless we approach the noble scientific goal: by logical deduction, we cover the maximum number of experimental facts, arising from a minimum number of hypotheses and axioms."(Zelig K. Albert Einstein. M., 1964, p.60). This principle gives

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the scientific system logical elegance and beauty. The beauty of the scientific system is one of the signs that confirm its effectiveness and correctness.

6. Principled openness. To accept new facts and theorize stand ready to generalize in terms. A "closed system" that claims absolute perfection cannot be essentially perfect. Only a scientific system that allows you to solve new problems that are emerging as progress develops is vital and effective.

7. Fractality (repetition of the whole in parts). Fractals – the same structure or forms that are infinitely repeated in the diminishing or increasing components of the system. Fractals can be found quite often in the structural and formative structure of the universe, nature and society. Branches and leaves of trees, human venous blood vessels, flexible and wavy rivers, comps in Uzbek national patterns – all formed on the basis of "fractals".

Currently, "fractals" is widely used in computer graphics – in image processing, in radio engineering – in the design of antennas, in architecture – in the design of cities and buildings, in light industry – in stamping modern designs on fabrics and carpets, in medesina – in diagnoses for cardiovascular diseases, and in the processing of medical X-ray images.

"Fractals" are divided into the following types:

1. geometric fractals (Koch snowflake, Serpinsky triangle, Serpinsky carpet, Pythagorean tree, etc.k.),

2. algebraic fractals (Mandelbrot, Julia, Newton sets, etc.k.),

3. stochastic (random) fractals (unsymmetrical trees, irregularly oriented sea or river banks, etc.k.)

The invention of fractals is the opening of a new aesthetic in the sciences, mathematics, art, as well as the discovery of man in the perception of the universe.

1. Balance of opposites. This principle aims to maintain the balance of opposite parts in the system (e.g., symmetric equilibrium, asymmetric equilibrium, etc.k.).

2. Integrity (Manism). The principle of totality combines the knowledge accumulated in the scope of the subject of a particular science into a single basis. By arranging all known chemical elements in order of increasing atomic weights, D.Mendeleev created a"periodic system", thus bringing the science of chemistry to a new level. It was made possible to determine the properties of non-known chemical elements depending on the place of their location in the periodic system. Taking into account this, it can be concluded that the principle of totality has a wonderful property: it gives the opportunity to trace new knowledge from within itself.

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