BioGecko Vol 12 Issue 03 2023

ISSN NO: 2230-5807

SOLVING A SCIENTIFIC-TECHNICAL PROBLEM AS A DIDACTIC SYSTEM

Ismoilov Mahamodihon Isroilovich
Namangan Engineering Construction Institute Professor of Social Sciences, Doctor of Philosophy Republic of Uzbekistan, Namanagan city, 12 Islam Karimov street.

Abstract: In this article, the purpose, tasks, principles and strategic directions of the didactic system to solve the scientific and technical problem, and the article is devoted to the interdependence of education and science, which is one of the urgent problems of our time. In conclusion, it is shown that scientific and technical creativity has a didactic value for the student, researcher, because it develops self-confidence, ability, endurance and willpower. The article is the product of original scientific observation and concrete findings.

Key words: scientific, technical, didactic, solution, scientific problem, evidence, higher education, systematic approach, image of educational institution, management, pedagogical activity, pedagogical process.

Reforms carried out in our country in order to raise the content of the pedagogical education system to a new level in terms of quality, improve the methodology of teaching subjects, introduce modern information and communication technologies and innovative projects, including the President of the Republic of Uzbekistan No. PF-4947 dated February 7, 2017 "On further development of the Republic of Uzbekistan On the strategy of Khdrakats", No. PF-5538 dated September 5, 2018 "On additional measures to improve the management system of public education", No. PF-5712 dated April 29, 2019 "Republic of Uzbekistan Hal; Decrees on approving the concept of development of the education system until 2030, the decision of February 27, 2020 "On measures for the further development of the field of pedagogical education" further expands the possibility of developing the methodological system of training future pedagogues, integrating general education sciences, and applying advanced methods and technologies. . Further improvement of the field of pedagogical education, provision of professional pedagogic personnel for training of highly qualified specialists who have the skills to use modern knowledge and pedagogical technologies and make a worthy contribution to the socio-economic development of our country, introduction of advanced educational technologies into the field are defined as the important tasks of today.

In the implementation of the above tasks, the main factor is to ensure the integrity and continuity of pedagogical education. Developing a mechanism that takes into account the modern socio-economic conditions and the possibilities of increasing social efficiency in ensuring the integrity and continuity of pedagogical education is considered one of the requirements of the time. The mechanism will further develop pedagogical education, increase the quality of personnel training, expand the integration of science and production, meet the needs of preschool, school and out-of-school educational institutions for educators, elementary school students, especially students in specific subjects and foreign languages, educational institutions in districts and rural areas. it is necessary to provide highly qualified pedagogic personnel and to further improve the organization of the system of training of highly educated pedagogic personnel in accordance with the level of international standards.

In all the speeches of President Sh.M.Mirzieyov, a systematic approach to the problem, critical analysis, raising the quality of work in all areas to a new level, increasing the efficiency of the existing system, raising the state management system to the level of modern requirements in terms of quality based on today's and tomorrow's requirements, with personnel attention is focused on issues such as improving the entire system of work. From this point of view, it is appropriate for every person who is responsible for training personnel to meet the requirements of the time, to systematically approach the problem, to systematically organize his pedagogical and scientific activities. The newly adopted Law "On Education" (23.09.2020) [1] actualized the strong consistent relationship between science, education and production and its proportionality to social progress. The aim of the article is to try to show that the deep interaction between science and education is

necessarily dependent on education and increasing the didactic role of science. After all, any science, whether it is in the natural, economic, or social sphere, has educational value as well as social utility. Scientific and technical creativity is no exception.

Technical-constructive knowledge, in contrast to practical studies, aims to perform a concrete technical task. The important aspects of creating a project of an apparatus or structure, preparation of technological schemes of production, are directed to a deeper understanding of objective reality and certain results are achieved. Philosophical analysis of proof. If it is not possible to describe the principles of creativity in pictures, graphs, formulas, modal and quantifier words, the process of its perception sometimes takes many years. [2]

Depending on the development of scientific knowledge, it became apparent that the natural language is not semantically consistent with the content of the things expressed in it. The fluency of natural language expressions, the ambiguity of the logical structure of sentences, the variability of the meanings of language signs under the influence of the context, psychological associations - all this hindered the achievement of the accuracy and clarity of the meaning necessary for scientific knowledge. As a result, there was a need to replace natural language with artificially formalized language. Its discovery greatly enriched the knowledge tools of science, allowing it to solve new and new complex tasks. It should be noted that both scientific evidence, hypotheses, theories, and scientific problems rely on artificial languages created in science.

Scientific evidence is included in the theoretical system and has two important properties: reliability and univariability. The reliability of scientific evidence is shown in such a way that it can be obtained and expressed by researchers with the help of new experiments conducted at different times. The versatility of scientific evidence is that it retains its reliability regardless of the variety of interpretations.

As a result of the generalization of scientific evidence, they serve as a basis for theory. Simple forms of summarizing technical evidence are systematization and classification based on their analysis, synthesis, classification, use of primary explanatory schemes, etc. It is known that many scientific discoveries have resulted from the selfless work of scientists to systematize and classify evidence.

Empirical hypotheses and empirical laws, which explain the relationship between the quantitative indicators of the studied objects using scientific evidence and the property of consistent reproducibility, are the most complex forms of generalization of evidence.

Scientific evidence, empirical hypotheses and empirical laws only provide knowledge about how events and processes occur, but they do not answer the question of why events and processes occur in such a way, they do not explain their causes. The task of science is to determine the causes of phenomena, to explain the nature of the processes underlying scientific evidence, and the highest form of scientific knowledge is the theory.

Scientific evidence is a product of reliable observation, experiment: it is valid in the form of direct observation of objects, instrument indicators, photographs, reports of conducted tests, schemes, notes, archival documents confirmed by eyewitness testimony, etc. However, evidence does not constitute science in its own right, just as building materials are not yet buildings. Evidence only takes place in science after it has been sorted, classified, summarized and explained. The task of scientific knowledge is to determine the reason for the occurrence of this evidence, its important properties, and the legal connection between the evidence. The discovery of new evidence is very important for the development of scientific knowledge.

Evidence sometimes includes incidentals. Science is primarily interested in general, legal things. The basis of scientific analysis is not a single piece of evidence, but a set of pieces of evidence that reflect a general trend. The evidence is innumerable. Among the many evidences, some of the ones necessary to understand the essence of the problem should be selected wisely.

However, it should not be forgotten that the criterion of practice is not able to fully confirm or deny any imagination of a person in practice. This criterion is also so vague that it does not allow a person to turn his knowledge into a complete and complete truth that does not need to be supplemented and developed.

Evidence acquires scientific significance only if there is a theory that interprets it, a method of classifying it, and if it is understood in relation to other evidence. Only in an interconnected and integrated way can evidence serve as a basis for theoretical generalization. Anecdotal and anecdotal evidence from life is incapable of substantiating any thing or event. Any theory can be constructed from poorly selected evidence, but it will have no scientific value.

A scientific problem. All scientific knowledge begins with a problem. In general, the process of development of human knowledge can be described as the transition from posing certain problems to solving them, and then posing new problems. But what is the real problem? Why do scientific problems arise? What is the difference between a problem and an issue? What is the scope of scientific problems?

A problem is a problem or a set of problems that arise objectively in the process of the development of knowledge, the solution of which is of significant practical or theoretical importance. Also, a problem, a theoretical or practical issue that needs to be solved; In science, it is a conflicting situation that takes the form of opposing approaches to the explanation of any events, objects, processes and requires an appropriate theory to solve it.

Defining the problem correctly is an important condition for its successful solution. An ill-posed problem or fake problem distracts from solving real problems.

Setting the problem is the first stage of the process of scientific knowledge. When setting a problem, first of all, it is necessary to understand some situation as a problem, in addition, to clearly understand the content of the problem, to define it by distinguishing between known and unknown things.

Scientific problems are either subject matter or procedure related. Subject problems reflect the objects being studied, and procedural problems reflect methods of acquiring knowledge and evaluating it. On the other hand, there are empirical and conceptual types of subject-related problems, and methodological and evaluation-related types of procedural problems. In order to solve empirical problems, in addition to purely theoretical analysis of the material, it is necessary to perform certain actions with objects, although conceptual problems do not require a direct appeal to existence. Unlike subject problems, procedural problems are always conceptual in nature; the difference between procedural problems appears to be that methodological problems cannot be solved in terms of relative observation, while evaluation problems introduce benchmarks and goals into science.

Эмпирикмуаммоаввалomaълумотларниизлашниназардатутади; эмпирикмуbut answers can be found using scientific methods such as observation, experiment, and measurement. In addition, a problem that requires making tools, preparing reagents, etc., to find a solution is also empirical.

Conceptual problems are associated with a large number of previously obtained data, and involve their organization and interpretation, drawing conclusions and forming hypotheses, eliminating contradictions in accordance with the requirements of logical consistency.

Methodological problems are mainly related to research planning: by solving them, certain agreements are made, the order of problem solving, observation and experiments is determined, the intended conceptual procedures are determined, etc.

Technical problem evaluation problems involve evaluating empirical data, hypotheses, theories, and the like, and even evaluating how well the problem itself has been formulated and defined. For a problem to be considered correctly posed:

availability of specific scientific knowledge (data, theory, methodology) that can be included in the content of the studied problem;

the problem must be properly formulated;

that the problem is reasonable, that is, its foundations are not false;

that the problem is limited to a certain level;

the existence condition of the solution and its uniqueness are indicated;

conditions regarding acceptable solution signs and methods of checking the acceptable solution should be accepted.

Thus, in the end, not all scientific problems find their solution: some problems remain unsolved long after they are posed (for example, Frame's theorem remained unsolved for several hundred years), some problems do not find their solution (for example, quadrature of a circle, trisection of an angle and problems about the duality of the cube), and some problems completely disappear from the attention of successive generations of scientists.

A scientific problem is distinguished from other problems by the following characteristics:

It always guides the scientist to get real knowledge.

Aims at acquiring new knowledge. A scientist consciously strives for innovation.

It should be noted that "what is the first matter of the world?", "what is an object?", "what is movement?", "what is mind?" Universal problems like this can define only the boundaries of certain disciplines, but it is not considered the initial stage of scientific research.

It goes without saying that not every problem is scientific. Scientific problems differ from other types of problems in that they are based on scientific principles and are studied using scientific methods mainly in order to expand scientific knowledge.

There is no general method for creating deep, effective problem solving. Nevertheless, the history of science shows that, in many cases, profound scientific and practical problems have arisen during the realization of the following four goals:

it is necessary to take a critical approach to the proposed solutions to the previously set problems, even if these solutions seem obvious at first glance; in any case, it is possible to find some shortcomings, or at least to generalize the found solution, to make it specific for a certain situation;

it is necessary to apply certain solutions to new situations, evaluate their validity or invalidity: if the solution to the problem remains valid, as a result, not only solutions, but also problems are generalized, if the solution is invalid, a new set of problems arises;

it is necessary to try to generalize certain problems by moving them to new areas or introducing another indicator;

it is necessary to connect the existence of the problem with knowledge in other fields of knowledge, to try to study the problems comprehensively.

In general, the selection of problems is creative, where intuition and experience work more than methodology.

The following conclusion can be drawn from the article:

First of all, scientific and technical creativity is a form of creative thinking, and in technical higher education, it directs students to an innovative approach to independent thinking, innovation, that is, acquiring knowledge and skills.

Secondly, the researcher educates young people in self-confidence, will and a sense of responsibility towards society.

Thirdly, the creator becomes the owner of high human didactic values, such as profiting from his creative activity, creativity, and aesthetic pleasure.

REFERENCES:

1. Law of the Republic of Uzbekistan "On Education". September 23, 2020, ORQ - No. 637.
2. Kurbanova L. Human being and creation. T.: "Publisher", 2012. -B.265.
3. Uvarina N.V. The core of the pedagogical concept: regularities, principles of actualization of the creative potential of the personality of students in the educational process Bulletin of SUSU, No. 4, 2012
4. Kovalenko E.E. Methods of vocational training. Textbook for engineers-teachers, teachers of special disciplines of the system of vocational and higher education - X .: PE "Shtrikh", 2003. - 480 p.
5. Hacker V. Engineering psychology and labor psychology - M., Mashinostroenie, 1985. http://gazeta.sfu-kras.ru/node/2327
6. Kpyglikov G.I. Methods of vocational training: a textbook for students. institutions of higher prof. education. - M .: Publishing Center "Academy", 2013. - 320 p.
7. "National Encyclopedia of Uzbekistan", 4-volume, 169 pages, "UzME" State Scientific Publishing House, Tashkent, 2002.
8. Azizkhodjaeva N.N. Pedagogical technology and pedagogical skills. - T.: Science, 2006. - p. 46.
9. Golish L.V., Faizullaeva D.M. Design and planning of pedagogical technologies. - T.: Economy, 2011. – 208 p.
10. КларинВ.М. Педагогическая технология в учебном процессе. - М.: Знание, 1989.
11. Muslimov N.A., Rakhimov Z.T., Khojaev A.A., Kadirov H.Sh. Educational technologies. Textbook. - Tashkent: "Voris" publishing house, 2019. - 568 p.
12. Achilov M. New pedagogical technologies. - Against: Nasaf, 2000. - 79 p.

13. Rakhimov Z.T., Muslimov Sh.N., Imomov M.P., Keldiyorova M.G'. Pedagogical technologies. Study guide. - Tashkent "Fan and Technologies" publishing house, 2021. - 192 p.
14. Rakhimov Z.T. The mechanism of development of students' learning activities based on an innovative approach. Monograph. - Tashkent: "Voris" publishing house, 2019. - 112 p.
15. RakhimovZ.T., ElchaevZ.A. Pedagogical and psychological experiments in the practice of using pedagogical technologies. // Publishing house "Problems of science" journal "Bulletin of science and education", 2020. No. 10 (88). part 1. S.69-75.16. Rakhimov Z.T. Pedagogical competence as an important factor in the development of the educational process. // Scientific-practical popular magazine "Modern Education", No. 7 of 2019. - p. 3-8.
16. Tolipov O'.Q., Usmonboeva M.H. Practical foundations of pedagogical technologies. - T.: Science, 2006. - p. 58-63.
17. Khodzhaboev A.R., Khusanov I. Methodology of professional education. - T.: Science and technology, 2007. - 192 p.