

## THE SIGNIFICANCE OF SITUATION ISSUES IN TEACHING MEDICINAL CHEMISTRY STUDENTS OF MEDICAL UNIVERSITIES

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**Annotation:** *The article examines the issues of applying problematic situations in the teaching of medical chemistry. Specific aspects of teaching medical chemistry, examples of developed problematic situations and the importance of using them in the course of the lesson are presented.*

**Keywords:** *problem situation, medical chemistry, task, medicine, education.*

It is known that today's knowledge is rapidly becoming outdated, which in turn requires future specialists to constantly develop their knowledge, skills and abilities. This means that it is necessary for the young generation to be constantly in search, not only to develop their knowledge, but also to be educated spiritually and physically. [1].

In the modern world, innovative skills mean critical thinking, the ability to quickly engage in communication, the ability to cooperate, creativity, lifelong learning, and actions related to productive work. "Soft skills" can be defined as knowing and using information and communication technologies. The issue of forming such skills in students is one of the urgent problems faced by professors and teachers working in higher education institutions. wrote the following words in his article: "Chemistry is based on the explanation of facts and methods from beginning to end, making these facts alive and real for students" [2]. A wide range of scientific research is currently being conducted in chemistry teaching, including the mechanisms that prevent students from understanding or understanding chemistry; development of instruments that measure understanding, attitude and other indicators; development of new educational programs, etc. [3].

Qualification is especially important and will undoubtedly ensure the future of a future specialist. Qualification can be divided into the following types: life and professional, innovative and digital literacy (soft skills). Life and professional skills include high productivity, quick adaptability, entrepreneurship, ability to set goals and strive for them, social and intercultural cooperation, efficiency, responsibility and leadership. According to a number of scientists [4, 6], the main goal of teaching concrete and natural sciences is to search for scientific literature with the development of thinking, to identify technical information, to work in a group, to teach to advance scientific hypotheses, concepts and phenomena. In our opinion, it is important to use

the method of "Problem situations" or "Problem based learning" in the teaching of chemistry in combination with traditional methods in laboratory exercises and independent education. From the perspective of a competency-based approach to higher education, one of the goals of using pedagogical technologies in the educational process of students is to improve the personality of students, their ability to develop themselves, self-determination, self-determination is the development of the ability to educate and understand, that is, the formation of basic competencies

According to scientists, research-based learning in laboratory sessions is important in developing students' thoughts and concepts [8, 9]. In the method of problematic situations, students carry out experimental work aimed at solving events and problematic situations that occur in life [10]. In this case, students will have the opportunity to apply the knowledge gained during the lesson, work in non-traditional conditions, and make decisions, in contrast to performing ordinary independent work (report, presentation, etc.). This encourages them to seek and learn more information. The questions that arise are tools that stimulate scientific research. The reason is that the end of experimental work given for independent education is abstract, that is, the result is unknown [11, 13]. In recent years, in connection with the modernization of education in the higher education system of our country - processing and adaptation of educational programs to the requirements of the times, creation of new generation educational literature, introduction of credit-module system and joint programs. search for teaching methods is underway. The problem of introducing the method of problem situations into the practice of higher education is very relevant today and depends on two directions:

The first is the general direction of educational development, its orientation to the formation of professional competence, skills and mental activity, the development of personal abilities, including the development of learning, thinking paradigms and the ability to process. attention is given. Data arrays;

the second - it comes from the development of requirements for the quality of the specialist, who, in addition to meeting the requirements of the first direction, must have the ability to act optimally in different situations, be systematic and effective in times of crisis. For this reason, students act as "Researchers" in the "Problem Situations" method, because there is no single methodological guideline for conducting experiments, as in real scientific work, and the student has to analyze various chemical literature to perform experiments. Students are required to identify a practical problem, formulate a hypothesis from scientific literature, develop an experiment, obtain results and demonstrate their ability to analyze them. The teacher leads the research and gives appropriate direction by providing advice, explanations, and answers to questions. At the same time, he discusses the results with the students. Assists in the preparation of oral and written reports.

The essence of problem-based education is to create problem situations for students in the course of the general activity of students and the teacher. Such exercises

are carried out according to a general scheme: the teacher creates a problem situation, students become aware of things unknown to them, analyze it and look for ways to solve the problem. The teacher helps the students by organizing their work and providing them with the information they need to solve the problem. This is the first level of difficulty. The problem of the second level is different from the first level because the teacher together with the students analyzes the situation and brings them to the problem, and they themselves formulate the task and solve it. The third level is that the problem situation is presented to the students and they analyze it, identify the problem, formulate the problem and choose the optimal solution. The result of problem-based education is new knowledge, skills and methods of mental activity. The current state of training specialists with deep knowledge requires students to choose different alternatives, to choose possible options, to predict the consequences of choosing one or another solution option with the ability to research, where interactive teaching methods play an important role. The method of problem situations is an interactive method of teaching, which is gaining a positive attitude of students. In doing so, it provides the opportunity to learn theoretical principles and acquire the skills of practical use of the material. It affects the professional preparation of students, helps them to grow up, forms interest in studying and positive motivation. At the same time, this method acts as a unique paradigm that allows the teacher's way of thinking, his different thinking and acting, to renew his creative potential. In this case, certain parts of the data may be missing. The demand for this information and the acquisition of this information is a major part of the audience's duties.

Problem situations - an example taken from life, this is not only an accurate description of events, but also a unique set of information that allows to understand the situation. Problem situations must meet the following requirements:

- 1) compliance with the clearly defined purpose of creation;
- 2) have an appropriate level of difficulty;
- 3) describing several aspects of life;
- 4) does not wear out quickly;
- 5) relevance today;
- 6) describes typical situations;
- 7) development of analytical thinking;
- 8) lead to discussion;
- 9) to have several solutions.

Medicinal chemistry is a fundamental science taught in the first year of all medical universities, and it is not limited to the importance of chemistry in medicine. Science studies not only the effect of chemical substances on the human body, but also the changes of substances in the body, the processes that occur in the body as a result of changes. As an example, we can cite problems related to the problematic situation developed by the authors.

1. The inorganic basis of dental tissue is hydroxyapatite: What is the basis for the use of fluoride toothpaste as a preventive measure?

2. A new drug was created in the laboratory. The optimal shelf life of this drug should be three years at  $T = 20$ . In order to quickly introduce the drug into medical practice, it was decided to use the accelerated storage method to determine its shelf life. If the rate temperature coefficient is  $g = 2$ , how much does it reduce the time to determine the shelf life of the drug? a) What is the accelerated storage method? b) What is the mathematical expression of Van't Goff's rule? c) How long should the drug be kept at a temperature of 30? d) How long should the drug be kept at 40? e) How long should the drug be kept at a temperature of 50? 5. Hemofer ( ) is used for hypochromic anemia in children. During treatment, it is necessary to control the amount of ions in the blood plasma. The following titrant solutions are available in the clinical laboratory: 0.1 mol/l HCl solution, 10% solution, 0.1 mol/l Trilon B solution, 0.01 mol/l solution and indicators: phenolphthalein, litmus, methyl sorghum. How to determine the amount of ions in blood plasma? a) What titration method should be used to determine the concentration of ions? b) which titrant should be chosen? d) in what environment should the reaction be carried out? e) what indicator should be used? 6. To determine the acidity of gastric juice, the laboratory has a pH meter with a set of electrodes: platinum, calcium, saturated silver chloride, glass, sodium. Select reference electrodes and pH detection electrode. a) Is it possible to choose a sodium electrode as a reference electrode? b) Is it possible to choose a silver chloride electrode as a guide electrode? d) Can a calcium electrode be chosen as a pH electrode? e) Can a glass electrode be chosen as a pH electrode? f) Can a platinum electrode be chosen as a pH electrode?

As can be seen from the examples, the problem-based approach allows the student to widen the subject of the lesson, allows the student to make independent conclusions about the subject of the lesson, at the same time covers all issues related to this topic and understands the topic from the point of view of a personal approach . In our opinion, the advantages of this method are as follows: - use of the principles of problem-based learning - acquiring real problem-solving skills, the ability of a group to work on a single problem area, while the learning process imitates the mechanisms of decision-making in life does. It is more relevant to real-life situations than memorizing certain terms. This involves not only knowing and understanding terms, but also the ability to use them, create logical schemes for solving problems, justify one's thoughts; - to have the skills to work in a team; - development of the simplest generalization skills; - have presentation skills; - having the ability to hold a press conference, form a question and justify the answer. Summary. Thus, it can be said that problem situations are a method that allows a student to independently acquire constantly updated information, which is preserved after the end of education and allows to achieve scientific and technical progress. From this we can say that we need to teach new teaching methods and approaches that teach students to learn, that is, to

independently find and assimilate the necessary information. Problem-based teaching methods create conditions for formation and strengthening of professional knowledge and skills of students. They have a great influence on preparing them for future professional activities. This, in turn, provides students with the basic knowledge necessary for specialization and forms their professional skills, because theory is needed for practice, and theory is needed for practice.

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