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APPROACHES TO CONDUCTING PRACTICAL CLASSES ON ORGANIC CHEMISTRY FOR FUTURE PHARMACISTS IN THE PROFESSIONAL COLLEGE OF BSMU

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Abstract. *In this article the main stages of conducting practical classes on organic chemistry and improvement of interactive learning methods for students-pharmacists of the professional college were considered. In our opinion, this method of teaching contributes to better learning of the subject.*

Key words: *practical classes, future pharmacists of professional college, organic chemistry.*

Introduction. The modern educational space is characterized by a new paradigm of education. It is based on the personification and differentiation of education, the creation of diverse educational systems, adaptation to changing conditions of the socio-economic environment, considers the learner's interests and abilities. According to this paradigm, education should promote person development in the learning process, should be based on the diagnosis of personality development, taking into account the principles of bringing up the culture of human dignity. Modern world standards in the field of education presuppose training of highly qualified specialists who are able to integrate theoretical knowledge and practical skills into a holistic system, operate new technologies and more. The intensive development of science and technology offers new forms of communication, new types of solving abstract and concrete problems, turning the teacher from an authoritarian translator of basic ideas into an inspirer of intellectual and creative potential of students.

The development of interactive learning elements in the history of education in Ukraine began in the first decade of last century. Further developments of interactive learning elements can be found in the works of V. Sukhomlynskiy, teachers-innovators of the 70-80s (Sh. Amonashvili, V. Shatalova, E. Iliina, S. Lysenkova, etc.) [1, 2]. According to the definition of O. Pometun and L. Pyrozhenko: "The essence of interactive learning is that the learning process takes place under conditions of constant, active interaction of all students. This is co-learning, mutual learning (collective, group learning in cooperation)... "[3].



Problem setting. The objective of our study is to theoretically substantiate and test the effectiveness of interactive teaching methods use in teaching the discipline "Organic Chemistry" to students of 1 and 2 years of the professional college of BSMU specialty "Pharmacy, Industrial Pharmacy". Theoretical research methods – analysis and synthesis are used in the work.

Modern education is education for a person. Its core is developmental, cultural creative dominant, training of the ability to self-education and self-development of a person who knows how to use the acquired knowledge and skills to creatively solve problems, think critically, process a variety of information, seeks to change one's life.

The teacher's role is to generate ideas that guide the second subject of the pedagogical process - the student. The motivation of students, their adjustment to the proper educational system depends on the teacher's pedagogical skill level.

Interactivity of learning involves the activation of learning opportunities for students during learning instead of retelling ready-made information. Classes that are conducted using interactive technologies develop basic cognitive skills, as well as skills and patterns of behavior. They fascinate students, awaken their interest in the subject, teach them to think and act independently [4].

Interactive learning methods can be used during practical classes on organic chemistry. The motivational stage of each lesson is the most important stage of the whole pedagogical process. The purpose of the motivation stage is to focus students' attention on the problem situation and their interest in the topic under discussion. Motivation is a kind of psychological pause, which allows you at first to realize the beginning of learning new material, as well as readiness to perform completely different tasks. The subject of learning must be set up for an effective process of cognition, have his own, personal interest in it. Without the emergence of these internal foundations: the motives of learning and motivation of educational activities, there can be no effective cognition. For this purpose techniques that create problematic situations, call interest in the content of knowledge and the process of obtaining them, emphasize the paradox of phenomena and events can be used [5]. This can be achieved through the use of simple interactive technologies ("incomplete sentence", "microphone", etc.). The "Microphone" method allows each participant to say something quickly, in turn, answering questions or expressing their opinion or position.

It is also possible to use the method of "Incomplete sentence". This technique is often combined with the "Microphone" and gives the opportunity to work more thoroughly on the form of expression of their own ideas, to compare them with others. Working with such a technique allows the audience to overcome stereotypes, to speak more freely on the proposed topics, to practice the ability to speak briefly, but in fact convincingly[3].

In our opinion, one of the main ways of understanding information is to ask questions to the text and find answers to them. The most successful classification of questions was proposed by the American psychologist and educator Benjamin Bloom.

Students make a daisy, on each of the six petals of which they write questions of different types. The work can be individual, in pairs or groups. The purpose of this method is to use the questions to understand information.

Let us consider the classification of questions by B. Bloom using the topic



"Lipids" for example:

1. Simple questions. Test the knowledge of the text. The answer to them should be a short and accurate reproduction of information in the text. For example, *which components are lipids formed from?*
2. Clarifying questions. Bring to the level of comprehension of the text. These are provocative questions that need to be answered "yes" - "no", and which verify the authenticity of textual information: *Is it true that the composition of lipids affects their chemical properties and biological activity?* The issues of such a plan make a significant contribution to the formation of discussion skills.
3. Explanatory (interpretative) questions. Used to analyze textual information. They start with the word "Why" and are aimed at identifying causal relationships. It is important that the answer to this question is not in the text the contained in the text in the finished form, otherwise it will move to the rank of simple. For example, *Why does the consistency of fats change from the change of higher fatty acids and how?*
4. Creative questions. At this stage, the synthesis of the obtained information is carried out. The wording of these questions contains an element of prediction or assumption. *How do you think the structure of triacylglycerol affects the amount of acid and iodine in fat?*
5. Evaluation questions. Aimed at determining the criteria for assessing phenomena, facts, etc. For example, *How to evaluate the structure of a phospholipid by the results of acid and alkaline hydrolysis?*
6. Practical questions. Aimed at application, finding the relationship between theory and practice. *How are phosphatidyl-ethanolamines, phosphatidylcholines, phosphatidylserines formed, based on the structure of phosphatidic acid and what is their practical significance?*

To conduct the main part of the class, it is more appropriate to use group methods of interactive learning, namely work in small groups. This type of training allows to acquire skills of communication and cooperation. Interactive coworking does not deny the dominance of one participant in the learning process over others, one thought over another. We chose the Carousel method to conduct a specific class. This technology is used to discuss any acute problem from diametrically opposed positions; to collect information on the research issue; for intensive check of volume and depth of available knowledge (for example, terms); to develop the ability to argue their own position. Students divided into groups are offered situational tasks, for the solution of which each group offers its own answer in a circle, and then summarizes the materials received and reports on the issue. Examples of situational tasks for the class:

1. The patient developed acholia due to subhepatic jaundice, which caused a disturbance of digestion and absorption of fats in the intestine. Which fat hydrolysis products are poorly absorbed in this case?
2. Olive oil is used to make injectable solutions. It contains oleic (80%) and linoleic (7%) acids. Based on the chemical structure, explain the reason for the liquid consistency of olive oil. As a result of which reaction will the consistency of this oil change?



3. Write a reaction scheme for the formation of phosphatidylethanolamine containing residues of palmitic and linolenic acids. Label the polar and non-polar parts of the molecule. Is this compound able to participate in peroxide oxidation?
4. Glycerin, sodium stearate and oleate, choline and sodium phosphate were obtained in the solution. From which substance, and how can they be obtained?
5. Flaxseed oil contains 44-61% linoleic acid. Calculate the theoretical iodine number for trilinoleoglycerin.

The final stage of the practical class, in our opinion, can be summed up by conducting a "brainstorming". This is a problem-solving method where all participants reflect on one global problem. For example, *How is longevity related to impaired lipid metabolism?* This technology is used when several solutions are needed. Based on previously acquired knowledge and research work, all participants in the discussion are free to express their views. Brainstorming encourages students to be creative, develops the ability to analyze the situation quickly. In a short time (up to 3 minutes) you can collect a large number of ideas (written on the board). The proposed ideas systematize, analyze, discuss and identify the absurd, erroneous and those that will help solve the problem.

Conclusions. Interactive technologies play an important role in modern education. Their advantage is that those who learn acquire all levels of knowledge (knowledge, understanding of application, assessment), the number of students who consciously learn the material increases. Students take an active position in the acquisition of knowledge, their interest in acquiring knowledge is growing. The personal role of the teacher significantly increases - he acts as a leader, organizer. But it should be noted that the development and conduction of classes on interactive technologies require, above all, competence in these technologies of the teacher, their ability to review and restructure their work. The use of interactive learning technologies promotes the development of critical thinking skills and cognitive interests, encourages students to express their thoughts freely and calmly accept comments, because they are active participants in the learning process. In an atmosphere of trust and mutual assistance, it is easy to make discoveries, to realize the importance of acquired knowledge. It is under these conditions that it is possible to educate a person who is prepared for the future, in which it is necessary to solve problems and make specific decisions.

We see prospects for further research in the development of guidelines for the use of the most effective forms of interactive technologies for lectures and practical classes in other disciplines taught at the BSMU professional College.

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