



USE OF INTERACTIVE METHODS OF BIOCHEMISTRY IN THE EDUCATIONAL PROCESS

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Abstract: *One of the important requirements for organizing modern education is to achieve high results in a short time without excessive mental and physical effort. Nowadays, many countries have gained extensive experience in using interactive methods that enhance students' learning and creative activities and ensure the effectiveness of the educational process. The methods forming the basis of this experience are introduced under the name of interactive methods.*

Keywords: *interactive, digital education, integration, network, method.*

Аннотация: *Одним из важных требований к организации современного образования является достижение высоких результатов за короткий срок без чрезмерных умственных и физических усилий. В настоящее время во многих странах накоплен значительный опыт использования интерактивных методов, которые повышают учебную и творческую активность студентов, а также обеспечивают эффективность образовательного процесса. Методы, составляющие основу этого опыта, вводятся под названием интерактивных методов.*

Ключевые слова: *интерактивный, цифровое образование, интеграция, сеть, метод.*

1. Students' mutual activity increases, and skills in cooperation and creativity are developed.
2. Skills in working with curricula, programs, textbooks, standards, guidelines, and topic content are formed.

3. The process of independent reading, studying, and assimilation of educational content becomes part of students' daily personal activities.
4. Students develop the ability to express, defend, and justify their opinions freely.
5. Most importantly, didactic motivations emerge in the learning process, meaning that students' needs and desires are met. Their interest in the educational process increases, which helps them achieve their learning goals at a higher level. Lessons are conducted using interactive methods.

Project-based research technology. Based on the content of the competency-based approach to professional training in higher education institutions, project-based research technology plays an important role in developing characteristics such as research skills, problem-solving abilities, creativity, and taking into account students' intellectual and physical capabilities under the guidance of a teacher.

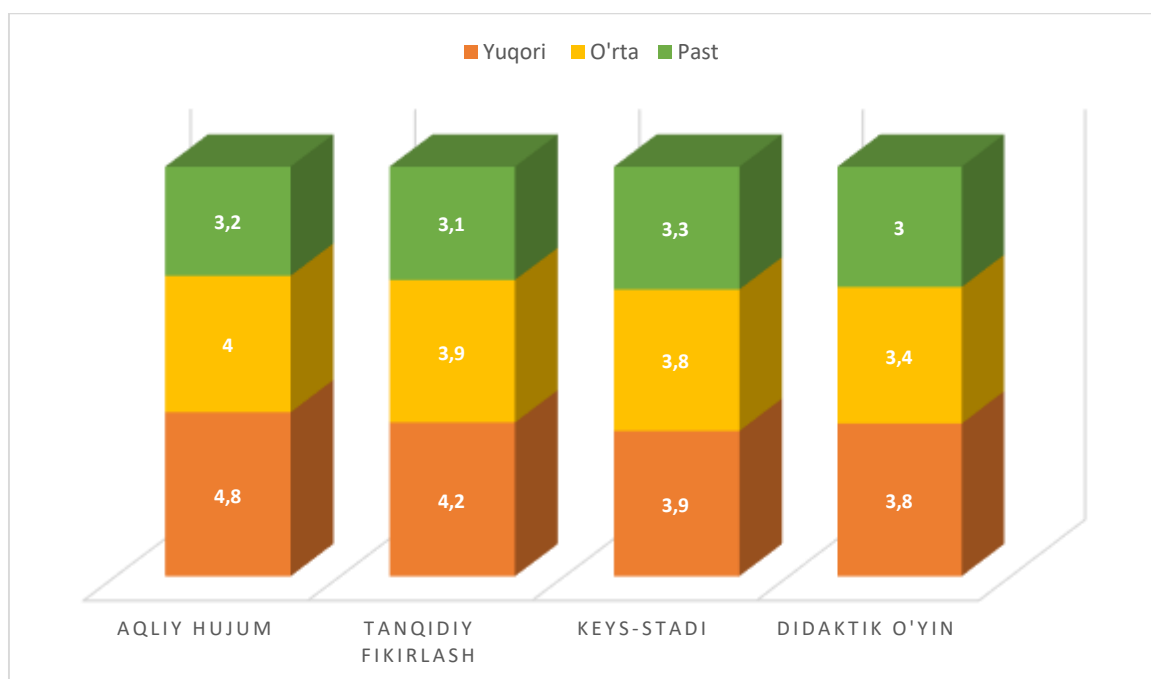
Problem-based learning is an approach that focuses on developing students' creative research abilities, conducting small studies, making certain hypotheses, justifying results, and reaching conclusions. Its main direction is to guide higher education institutions toward scientific research activities in biochemistry.

Biochemistry specialists in higher education must consider the emergence of problem situations in the learning process and ways to resolve them in advance. One of these problem-solving technologies is brainstorming.

Brainstorming is a method where students' freely expressed thoughts and opinions on a specific problem are collected to reach a solution. In higher education institutions, the brainstorming method helps students gain creative energy, develop interactive communication skills, and quickly achieve defined goals by solving the given problem.

The brainstorming process consists of the following steps:

1. Identifying and defining comprehensive problems. A question on a specific topic is posed to students, who are then asked to provide answers (ideas, thoughts, and reflections).
2. Analyzing the problem from different angles to determine its objectives.
3. Selecting information sources in biochemistry to solve the problem.
4. Filtering necessary information based on sources.
5. Generating all possible ideas freely and developing logical thinking.
6. Sorting and analytically comparing ideas to find the problem's solution.
7. Testing selected ideas through different methods of critical thinking.
8. Selecting the most rigorous and consistent verification methods.
9. Identifying all possible applications of the accepted ideas.
10. Choosing the final solution to the problem.
11. Conducting an expert evaluation.



The brainstorming method is applied based on the educator's objectives, such as:

1. If the goal is to determine students' initial knowledge, the method is used at the beginning of the lesson.

2. If the goal is to review a topic or link one topic to the next, the method is applied during the transition to the new topic.
3. If the goal is to reinforce the studied material, the method is used at the end of the lesson.

Critical thinking development technology: This teaching technology is aimed at developing the cognitive style of higher medical education institutions. Its main features include criticality, openness, adaptability, reflexivity, and implementation through reading and writing.

Case-study technology (situational analysis): This is an interactive teaching technology. The primary sources of case content are real-life situations (storylines, problem facts); cases encountered in educational institutions (situational tasks, pictorial questions in the teaching process); and scientific problems that arise in various fields.

The method of situational analysis involves logical reasoning based on factual situations, which not only includes the application of practical problems but also enhances the importance of key knowledge before finding a solution to the given problem.

Didactic game technologies: In higher education institutions, didactic game technologies in teaching biochemistry are aimed at applying acquired knowledge in new situations. This approach allows students to practically experience the learned material and brings variety and interest into the learning process. Using didactic game technology in preparing students for professional activities in biochemistry helps in achieving essential tasks such as communication, self-improvement, diagnostics, correction, treatment, and socialization.

In conclusion, this article discusses the organization of the educational process using interactive methods. The purpose of this study is to identify the most effective ways of using interactive tools in lessons and to apply various methods in the teaching of academic subjects in educational institutions.

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