TEACHING CHEMISTRY BASED ON INNOVATIVE TECHNOLOGIES

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Abstract. In this article, the role and importance of modern teaching methods, interactive methods, innovative technologies in the educational process of educational institutions is incomparable. Pedagogical technology and the knowledge and experience of its use in education are highlighted on the activity of interactive methods to ensure that students have knowledge and mature skills.

Key words: innovative technology, pedagogical technology, continuous education, information technologies, modern education.

A lot of pedagogical research is being conducted to improve the teaching of chemistry. The use of information technologies in the teaching process is defined as an important task in the normative documents adopted in order to increase the efficiency of the educational process organized in the continuous education system, and therefore some researches in this field can be recognized.[1]

In the process of teaching content in this field, every pedagogue should ask "How and by what methods can students be activated during the lesson?" The work on the elimination of the problems with the right has been reflected. E. Eshchanov, Sh. Mamajonov, F. Alimova, O. Steshina, L. Zaylobov and others conducted scientific researches on improving the chemistry teaching methodology in our republic. In particular, Sh.Mamajonov conducted scientific research on improving the structure and content of the methodology of teaching chemistry in higher educational institutions of pedagogy.

Of course, in the course of the development of education, various methods of teaching have been devised by pedagogues and are being used in practice. Some of them are designed to teach students as a team, while others are designed to organize individual studies. In this regard, the study of the advanced pedagogical technologies used abroad and in Uzbekistan and their application to the educational system with a creative approach are being intensively carried out.

One of the important requirements for the organization of modern education is to achieve high results in a short time without spending too much mental and physical effort. It is the responsibility of the teacher to deliver certain theoretical knowledge to students in a short period of time, to create skills and competencies in them for certain activities, as well as to control the activities of students, to assess the level of knowledge, skills and competencies acquired by them. requires high pedagogical skills and a new approach to the educational process.

What is pedagogical technology and how does it differ from traditional teaching methods?

In the traditional method, the student is in a passive state in the lessons, the teacher gives the topic to the student in a prepared manner, answers the questions on this topic, evaluates the student, and asks the students in the class to 4- Only 5 students will be evaluated. When the lesson is conducted in advanced methods, the student works on himself and participates in the discussion of the topic in each lesson, tries to prove the correctness of his opinion and works independently on the problem and topic together with the teacher.[2]

In traditional education, students were taught to acquire only ready-made knowledge. Such a method extinguished independent thinking, creative search and initiative in students.

Today, the interest and attention to increase the effectiveness of education by using interactive methods (innovative pedagogical and information technologies) in the educational process is increasing day by day. Classes using modern technologies are aimed at students to find the acquired knowledge by themselves, study and analyze

it independently, and even draw their own conclusions. In this process, the teacher creates the conditions for the development, formation, learning and education of the individual and the team. In such an educational process, the student becomes the main figure.

It led scientists and practitioners to the idea that it is possible to try to turn the educational process into a technological process that gives a certain guaranteed result regarding the development of teaching.

The birth of such an idea created a new direction of pedagogical technology in the science of pedagogy.[3]

In order to solve the problems faced by the educational system in the current innovation processes, we need independent and free-thinking people who are able to absorb new information and evaluate their acquired knowledge by themselves.

Therefore, the role and importance of modern teaching methods, interactive methods, and innovative technologies in the educational process of educational institutions is incomparable. Pedagogical technology and the knowledge and experience of their use in education ensure that students have knowledge and advanced skills.

If we get acquainted with some interactive methods of modern pedagogical technologies, the word "interactive" is derived from the Latin word "inter" and means "between". The interactive method in the field of education means mastering education, strengthening and activating relations between the student and the teacher. Maskur methods help to increase the effectiveness of the lesson through collaborative work and encourage students to think independently.[4]

Development of students' creative thinking, growth of their intellectual abilities is the most important psychological and pedagogical problem in teaching organic chemistry. For this, it is necessary to use active methods of teaching, non-traditional forms and methods of education and upbringing on a large scale, to study subjects and events in the context of their interrelationship, movement and development.

In this, especially, the game activity of students is of great importance in acquiring new knowledge, forming and developing learning and skills in them, and increasing the efficiency of the process of learning chemistry in general. During didactic games, the positive feeling of excitement created by students protects them from fatigue, increases their communicative and intellectual abilities.

Although the general issues of using didactic games in the process of teaching chemistry are widely covered in the scientific-methodical literature [7,15], the main attention is focused on inorganic chemistry information. However, it is natural that mastering inorganic chemistry is very difficult for students, and unconventional approaches are required to study some of its issues. There are a number of scientific-theoretical, methodical and didactic reasons for this, which any skillful and potential chemistry teacher cannot ignore.

That is why, in addition to classic methods, methods and tools, non-traditional methods and forms of teaching on the ground of new pedagogical and information technologies are required to be widely used in the teaching of inorganic chemistry. In particular, didactic games use the capabilities of students for independent thinking, ingenuity, inquisitiveness, responsiveness, ability to draw logical conclusions, work on oneself, compare known and unknown aspects, and observe based on existing knowledge. helps a lot [6].

The non-traditional methods used in teaching - interactive methods create a competitive environment among students and encourage students to be active and inquisitive. Any interactive method, when used correctly and purposefully, teaches students to work independently and think deeply. In particular, the FSMU method can be applied to this topic. The summary of this method is as follows:

F-opinion, S-reason, M-example, U-generalization, in which the student is given an opinion by the teacher in the form of a question about the topic, the reasons for answering the question are shown, an example is given, and the given information is summarized. For example, what is the difference between a strong electrolyte and a weak electrolyte? A question is asked, the reader will find an answer: a weak electrolyte

does not dissociate into ions or partially dissociates, for example, gases, difficult-to-dissolve bases, and a strong electrolyte dissociates completely into ions, strong acids, alkalis, and salts that dissolve well in water are considered strong electrolytes. In general, depending on the ionization of substances, they are divided into strong and weak electrolytes. In this method, the student works on himself, thinks and controls his knowledge. Teacher-student cooperation is strengthened.

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