



The use of Computer and Pedagogical Technologies in Laboratory Classes in Chemistry

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ABSTRACT

The gradual and successful implementation of the national training program in our country is largely due to the activities of students, which increase their professional prestige. Therefore, time requires them to constantly improve their qualifications, acquire modern knowledge and experience in accordance with the high standards of today and creative work.

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The objectives of the first and second stages of reforms in the field of education, implemented on the basis of the National Program for Personnel Training, have been successfully completed, and changes in the third stage continue. At this stage, it is necessary to organize educational work on a completely new basis in order to achieve high quality. As a result of these changes, new technical means, computers and other information technologies are rapidly entering the educational process.

The purpose of using innovative technologies in teaching is to develop students' ability to express non-standard ideas when solving systemic, creative problems.

The introduction of computer technologies in educational institutions opens up wide opportunities for popularizing the educational process. Since chemistry is a practical science, a chemical experiment is important in its main direction. Thanks to experience, students' observation of knowledge and their application in work, independent thinking, interest in creating innovations increases. As a result, knowledge is strengthened.

Laboratory exercises are conducted to identify the main theoretical transformations of the subject. Its significance is that after the experiment the student has a vivid picture of substances and events. When organizing laboratory classes, the teacher must correctly allocate time, pay attention to the completeness of experiments. One way to use computers in teaching chemistry is to simulate individual learning situations and chemistry experiments. The purpose of using simulated programs is to ensure that materials that are difficult to imagine are creative when using other teaching methods. With the help of modeling, students can be presented with information in a graphical mode in the form of computer multimedia.

Simulation of chemical processes, which is becoming more and more popular today, is very effective in organizing classes in a chemical laboratory. Chemical experiments can be performed on computers using simulation software.

The advantage of modeling chemical experiments is the absence of equipment and reagents in the chemical laboratory, as well as their low quality, the absence of chemical reagents and the formation of toxic substances that can negatively affect the body during the experiment, the danger of fire, Explosion - experimental models, i.e. animated and presentation multimedia created without the use of radioactive reagents and unique types of reagents can be used to the fullest. The use of chemical experimental models - the complete sequence of the process - ensures that the experiment is clear and memorable for the learner. The introduction of computer technology in the classroom is important for teachers and students to ensure their integration into the learning process.

Chemistry lab work should be conducted in such a way as to interest the student. Knowledge of the signs of interest allows the teacher, on the one hand, to choose and apply advanced teaching methods. They influence the development of students' thinking abilities in accordance with the indicated methods. On the other hand, it allows the student to explore and evaluate the results of their practical interest development work.

A second characteristic of a student's interest in doing chemistry labs is that it is recommended that more models, slides, posters, and formulas be used to increase students' interest in chemistry labs than in teaching other subjects.

The third psychological feature of a student's interest in chemistry is that they can be used to solve problems using a variety of methods, chemical experiments and equations, and that the student can independently perform practical exercises.

Also new aspects of chemistry teaching methods are emerging. In the educational process, new pedagogical technologies are used ("Brainstorming", "Cluster", "Zigzag", "Discussion", "Find Your Place", "Project", "Round Table", "Cases").

Application of the "Project" method in laboratory exercises:

Application of the "Project" method is as follows:

The topic will be announced in advance in the "Project" methodology. They come prepared for the topic. With the "project" method, a small working group of 4-5 people is formed. The topic will be announced, handouts and assignments provided. This task will take some time. Each group is given a separate task. During the assignment, students write down their views on the handout. At the end of the time, one representative from each group reads the work and hang it on the board. After all groups have completed the assignment, the teacher reviews each assignment and fills in the blanks.

This method can be used to reinforce the theoretical part of the work done in the laboratory. For example: "Obtaining acetylene in the laboratory and studying its chemical properties" The application of the "Project" method is carried out in the following sequence.

1. Students are divided into 5 groups, they are given assignments and handouts. The handouts look like this:

The task	Thought
Write the formulas for the homologous series of acetylenic hydrocarbons and name them according to the nomenclature.	
The task	Thought
Methods for obtaining alkynes	
The task	Thought
Physical properties and uses of alkynes	
The task	Thought
Chemical properties and uses of alkynes	

2. The assignments are given 6 minutes.

3. At the end of the allotted time, group tasks are read in a zigzag manner and posted on the board. All group assignments are performed by the teacher. Thus, the repetition of the lesson is systematized and formalized.

The advantage of the project method is that it encourages students to work independently and communicate their ideas to the community. Helps the teacher to repeat the theoretical part of laboratory studies in order to improve their teaching skills.

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