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ECOLOGY OF FUTURE TEACHERS OF CHEMISTRYPREPARATION FOR IMPLEMENTATION OF EDUCATION

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Abstract:

In this article, the issue of the importance of using new pedagogical methods, collaborative teaching technology and working in small groups aimed at preparing future chemistry teachers to implement environmental education in chemistry teaching is analyzed. According to him, the article discusses the importance of using collaborative teaching in order to improve the methodological preparation of future chemistry teachers in teaching chemistry.

Keywords: future teachers of chemistry, environmental education, methodical system, collaborative teaching technology, work in small groups, assessment, mastery.

INTRODUCTION

Improving the quality of education in our country, improving state education standards based on international experience, ensuring competitive training of personnel in higher education institutions that meet world standards, improving the quality level of the higher education system based on world practice, continuous education The development of effective methods of implementing scientific and innovative achievements through the wide implementation of pedagogical and innovative projects in the system is recognized as one of the priorities of large-scale reforms in the field of education in our country.

Today, in our country, great privileges are given to the teacher and the education of the young generation. For this reason, it is necessary for higher education to accept young people who are educated, spiritual and have a mindset typical of the Uzbek nation, to arm them with knowledge and to raise them to the level of a great person in the highest sense. In doing this, the service of science teachers is in a worthy place.

Every subject teacher must have excellent knowledge, skills and abilities in his subject. If we consider it on the basis of chemistry, in addition to chemical knowledge and practical methods, a chemistry teacher should know the psychology of children depending on their age and master the methods of implementing all stages of pre-education. He should know the didactic foundations of the subject he teaches, take into account the general methods of imparting knowledge to children, and convey knowledge based on his life experience.

The future teacher of science should not copy the experience of others, but fill it with his own experience, and as a result, the educational process will be perfected, because each person has his own style and personal qualities. In the above-mentioned modern conditions, the professional competence of chemistry teachers in the constantly changing conditions, having studied the advanced foreign experiences, the specific aspects of their professional competence in higher education, pedagogical conditions, development of content and structure, criteria for improvement of determination methodology and levels of formation, technology, didactic basis, form, method, voice, model, increase camaraderie of teaching quality, as well as professional training of chemistry teachers working in higher education institutions it is important to develop the theoretical and practical foundations of improving competence based on the competence approach.

The use of various teaching methods, technologies and innovations in teaching science can be the basis for the formation of knowledge and skills in students and young people.

In addition, many well-known scientists in our republic are trying to create science-based pedagogical technologies adapted to the socio-pedagogical conditions of our region and apply them in educational practice.

Literature analysis and methodology (literature and methodology /Methods). In our society, the formation of new social relations, the integration of education in the world education system, the development of democratization and development processes require a new approach to pedagogical technologies in the educational process. Pedagogical technology is a set of systematic methods that allow to determine the interaction of human potential and technical resources in the process of teaching and learning in order to optimize forms of education. Technology means a process that leads to a change in the quality of the subject as a result of the subject's influence on the object. Technology always involves the use of the necessary means and conditions to perform specific purposeful actions directed at the object in a certain sequence.

Education is an important part of the pedagogical process, and it is a person-oriented interaction between a student and a teacher (pedagogue) [1]. The role of science in the formation of pedagogical technologies equal to social knowledge is increasing. Currently, many of our scientists are applying various methods, technologies and innovations to the teaching process.

Pedagogical technologies cannot be used forcibly. On the contrary, it is appropriate to use the advanced technologies based on or used by experienced pedagogues, as well as their creative development.

Today, a number of developed countries have accumulated a lot of experience in the use of pedagogical technologies that increase the educational and creative activities of students and guarantee the effectiveness of the educational process.

In particular, the pedagogic scientist V.P. Bespalko defines the pedagogical technology as "the project of a specific pedagogical system implemented in practice" and focuses on the preliminary design of the educational and pedagogical process. And N.F. Talzina notes that

pedagogical technology should be "an independent science that develops methods that promote certain principles between science and practice, and is directed to solving issues such as their consistent application" and so on.

Analyzing the science of chemistry by subjects, the teacher, in the process of teaching chemistry, teaches students to know substances and work with them, to observe chemical phenomena and explain them, to work with laboratory equipment, the most important chemical teaches to perform operations, to perform easier chemical experiments, to solve chemical problems, to use textbooks, instructions and other chemical literature.

We are studying the importance of cooperative learning technology, working in small groups, and using the spinner method in teaching chemistry today.

The idea of co-teaching in different countries, including the professor of J. Hopkins University in America - R. Slavin (1990), the professor of the University of Minnesota - R. Johnson, D. Johnson (1987), the professor of the University of California - SH. Sharon (1988)), developed by

Collaborative teaching, developed by American scientists, is mainly the formation of students' knowledge, skills and abilities, which are listed in the State Education Standard and science curriculum. Collaborative teaching, recommended by Israeli and European scientists, involves the development of design activities for the processing of educational materials by more students, educational discussions and debates. These ideas complement each other, didactically enrich and require each other.

The idea of cooperative teaching appeared in didactics in the 1970s. The technology of cooperative education is widely used in educational institutions of Great Britain, Canada, Germany, Australia, the Netherlands, Japan, and Israel.

The main idea of cooperative education is not only to complete educational tasks together, but also to study and learn cooperatively.

Collaborative teaching is to teach every student to daily intensive mental work, to think creatively and independently, to educate individual consciousness, independence, to create a valuable sense of personal value in each student, to have his own strength. and strengthening of confidence in one's abilities, it envisages the formation of a sense of responsibility in studying.

The technology of cooperative education allows students to work independently and diligently mentally, to fully and qualitatively complete educational tasks, to thoroughly master the educational material, to cooperate with their friends, realizing that the success of each student in obtaining analysis leads to the success of the group. and prepares the ground for organizing mutual assistance.

In cooperative learning technology, there are several methods of organizing cooperative learning of students:

1. In group teaching (R. Slavin), students are divided into two equal groups. Both groups perform the same task. In the group, the members perform the educational tasks in cooperation, and each student focuses on mastering the knowledge, skills and abilities provided by the subject.

R. Slavin, one of the authors of cooperative learning technology, said that it is not enough to instruct students to complete tasks cooperatively. It is necessary for students to cooperate in the literal sense, to rejoice at the success of each student, to sincerely help each other, and to create a comfortable social and psychological environment. In this technology, when determining the quality of students' knowledge acquisition, they are compared not with each other, but with the previous

results of each student. Only then, students will feel responsible and strive to learn more, acquire knowledge, skills and abilities, realizing that the results they have achieved during the lesson will benefit the team. The method of cooperative activity should be understood as the system of joint actions of the teacher and the student [2]. Such behavior begins with the teacher's support to the student;

Pupils' activity gradually increases and turns into a practical and mental action completely controlled by them; and the relationship between the teacher and the student will have the character of partnership position.

There are 8 forms of cooperation in the field of pedagogy and psychology. They consist of:

- entry into activity;
- independent actions are performed by the teacher and the student in cooperation;
- the teacher initiates the activity and involves the student in it;
- imitative actions (the student who takes a lesson from the teacher acts on the basis of this example);
- support actions (the teacher helps the student to choose an intermediate goal and methods of achieving it, and monitors the final result);
- self-management actions (the teacher participates in the assessment of the final result, indicating the common goal);
- self-expressive actions;
- self-organizing actions.

RESULTS

The essence of the reforms implemented in the higher education system of our country requires the improvement of the quality of education and the training of highly qualified and competitive personnel that meet modern requirements.

As one of the main components of ensuring the quality of education, the high level of professional competence of professors and teachers is of particular importance. The further perspective of educational development is in many ways related to the issue of professional competence of educators.

The concept of "competence" entered the field of education at the end of the 20th century as a result of psychological scientific research.

"Competence" (English, "competence" - "ability") is the ability to effectively use theoretical knowledge in practical activities, to have high professional qualifications, to demonstrate skill, talent and creativity [49].

The concept of "competence" has been given a number of definitions by scientists, experts and researchers.

Competence is a measure of a person's involvement in activities (B.D. Elkonin), the knowledge, skills, knowledge of a person that serves self-realization, finding his place in the world (V.A. Bolotov, V.V. Serikov).

A. B. Khutorskoy suggests distinguishing the concepts of "competence" and "competence", which are often used as synonyms, to distinguish the general and specific features. The author states that competence is a set of interrelated qualities of a person (knowledge, skills, competence, methods of activity) determined in connection with certain objects and processes and necessary for

high-quality productive activity in relation to them. preparing the student for predetermined educational requirements. Competence is a subject of attitude and activity that is part of the personal qualities (characteristics) of having the competencies of a person.

Summarizing them, competence can be defined as a set of integrated qualities based on knowledge, experience and skills manifested in general ability and professional training to perform successfully. In our opinion, the concepts of competence and competence are interrelated and embody the concepts of knowledge, skills and abilities, and include qualities such as a person's goal-orientedness, the ability to analyze problems deeply, show meticulousness, and have creative thinking.

The scientific research conducted by A.K.Markova and B.Nazarova is directly aimed at studying the professional competence of the pedagogue and his other unique qualities. According to the results of research conducted by B. Nazarova, the following types of professional pedagogical competence are listed:

special or professional competence (organization of professional activity at a high level);

- - auto-competence (ability to develop oneself socially and professionally);

- - extreme professional competence (ability to work in unexpected situations);

- - social competence (organization of professional activity in cooperation.

The development, which continues to develop rapidly, is setting more and more strict standards and requirements for the national education system and its quality. The development of electronic education is one of the most important aspects in this regard.

Modern pedagogic personnel are required to be able to use the information resources of the Internet. Electronic education allows you to familiarize yourself with materials in the form of audio, video, slide show, WORD and PDF documents and in various formats at the same time [3]. Opportunities to conduct webinars, communicate with teachers, and conduct activities in mutual cooperation of users are implemented through chat and forums.

Today, a modern pedagogue-employee should have his own competence in using the electronic learning environment. We can see the professional competence of a modern teacher through the components proposed by foreign scientists.

DISCUSSION

The modern demands placed on the graduate are based on the situation in the labor market, as well as the rapid development of the society, the information of the environment, etc. In the educational system of the changing world, professional qualities such as initiative, innovation, mobility, speed, flexibility, development and constructiveness should be formed in the graduate.

In recent years, various technologies have been widely used in education, they allow individualization of the educational process, activate cognitive activity, help students to easily master the educational material, interest them in creative work on the educational material, creative creates conditions for development and allows a person to express himself.

One such type of modern technology is mobile learning technology.

The purpose of the modular teaching technology is to create a selection environment for learning the content of educational programs in different sequences, at different speeds and sizes, based on individual interests and capabilities of individual educational modules.

Currently, based on the competent approach, the State Standards of Higher Vocational Education for the educational process of the Higher Pedagogical School of the Republic of Uzbekistan have been developed and introduced, and universal and professional competencies are defined as the expected educational results. The basis of the state educational standard is a modular-competent approach, which is adapted to the requirements of the employer and serves as a basis for educational technologies, educational programs, and curricula.

In order to form the universal and professional competence of a bachelor of pedagogical education as a pedagogue, it is necessary to ensure that he understands the pedagogical knowledge and skills, the problems of the educational process.

A module is a completed unit of an educational program, it is formed from one or more professional competencies, and it is also a control of the knowledge and skills of students at graduation.

Although training within the modular approach is based on competencies, it is fundamentally different from the traditional one.

Molulli teaching incorporates theoretical and practical parts of education and rounds them up. In this case, in the process of mastering general and professional competencies, the place and place of theoretical knowledge acquires a different meaning, thus the motivation of students to master is strengthened.

Future teachers who studied on the basis of the module will develop the following competencies:

- the readiness of the new generation to introduce general state education standards;

- readiness to introduce basic educational programs and electronic courses in chemistry in various educational institutions;

- readiness to introduce modern methods and technologies, including information technologies, in educational institutions to improve the quality of the educational process of a specific educational institution.

Therefore, the professional training of future chemistry teachers based on modular technologies is understood as a set of factors that help to form the independence of future chemistry teachers, which is an essential professional characteristic of future chemistry teachers and it predicts the success of professional activity. provides

In higher professional education, the modular-competency system is an educational concept of organizing the educational process, in which a number of student competencies come forward as the goal of education, and a module representing the content and structure of education is a means of achieving them [4] .

Today, the student's personal achievements depend on the level of competence in the educational process.

So, competency-based modular training is focused on the final result. This is the kind of training that ensures comprehensive mastering of knowledge and skills by students, building their activities based on their experience in accordance with the requirements of the labor market.

CONCLUSION

In conclusion, the use of collaborative teaching technology and small group work, new pedagogical methods aimed at preparing future chemistry teachers for the implementation of

environmental education in the teaching of chemistry will improve students' chemical knowledge. and was found to further increase their interest in this subject.

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