

Theoretical Basis of Teacher's Pedagogical Skills in the Formation of Chemical Concepts in Students

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Abstract: Pedagogical bases of teaching chemistry based on demonstration experiments.

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An in-depth analysis of the path of development of our country during the transition to a new stage of development of the new Republic of Uzbekistan, the sharp changes in world market competition and the growing competition show a completely new approach and principles for the development of our country. requires development and implementation. At the same time, the creation of the Concept of Development of the Higher Education System of the Republic of Uzbekistan until 2030, developed on the initiative of the President of the Republic of Uzbekistan Shavkat Mirziyoyev, defines the priorities of systemic reform of higher education. , aimed at raising the process of training highly qualified independent thinking to a qualitatively new level, modernization of higher education, radical reform of the education system based on advanced foreign technologies. To do this, it is necessary to train a modern teacher on the basis of innovative technologies. Bringing up the young generation, which is the future of independent Uzbekistan, is a process of internal conflict that requires great attention. Therefore, the teacher should follow the formation process of the student with great enthusiasm and care. He or she must have the pedagogical knowledge and skills to manage the pedagogical process. Only then is it important for the teacher to develop the essence of pedagogical phenomena and the ability to apply the teacher's pedagogical skills in any didactic process. Only innovations keep students interested in the learning process, turning their personal interests into internal needs. Of course, the creation of innovation and the degree to which the student is more or less interested in it depends on the skill of the teacher [1]. Education takes place at different stages.

The first step is to understand the material. In this case, the student gets acquainted with the content of education and understands what his learning tasks are. Processes such as intuition, perception, imagination are actively involved in this.

The second step is for them to understand, comprehend, and generalize the learning material. As a result, they acquire new knowledge. To do this, they use analysis, synthesis, comparison, inference.

The third stage is reinforced by new knowledge, exercises, independent work, and additional comments from the teacher.

In the fourth stage, they apply what they have learned to the best of their ability.

Motivation alone is not the key to motivation. The most effective way to do this is to set motivational-problem situations or to set specific cognitive tasks that reflect the social nature of the subject being studied.

To be successful, a teacher must be able to do his or her job well. Competence is the ability to do pedagogical work successfully. This is primarily due to the fact that the pedagogical profession has a clear idea of the social role and necessity. In addition, the teacher must be interested in the student as an object of his activity, to understand his needs and characteristics.

The following are the main requirements that provide the necessary and sufficient level of pedagogical training of a specialist [2]:

1. Teaching skills.
2. Educational skills
3. Personal qualities that provide a humanitarian factor in the educational process.
4. The ability to objectively monitor and evaluate students' knowledge. The concept of pedagogical creativity in the formation of innovative ideas in chemistry teachers should be formed in the professional activity:
 1. Creative approach to Caspian activities.
 2. Be proactive in coming up with new ideas.
 3. Independent study of advanced pedagogical achievements and experiences.
 4. Develop the ability to communicate with colleagues about pedagogical achievements.

Typically, the creative ability of educators is ensured through the pursuit of pedagogical problems, the implementation of research or research projects, and the achievement of creative collaborations.

An educator cannot be creative on his own. His creative ability is formed over a period of time through consistent study and self-improvement, and he gradually improves and develops. As in any profession, the foundation for the creative abilities of future teachers is laid during the student years and is constantly developed in the organization of professional activities. At the same time, it is important for the educator to focus on creative activities and to organize them effectively. In the organization of creative activity, the educator should pay special attention to solving problems, analyzing problem situations, as well as creating creative products of a pedagogical nature.

The teacher's creative approach to finding solutions to problems and situations helps to develop emotional and volitional qualities in him. The educator confronts evidence that contradicts existing knowledge and life experiences by asking problematic questions. As a result, there is a need for self-study and independent study.

Having the creative potential of a pedagogical teacher can show the following skills [1.2]:

1. Be able to determine the nature and significance of the task.
2. Be able to analyze the problem statement.
3. Develop a problem solving plan.
4. Use effective methods to solve the problem (analysis, synthesis, induction, deduction, comparison, etc.).
5. Choose ways to solve the problem.
6. Justify and re-examine the correctness of the decision.
7. Small research to solve the problem - to conduct research.
8. Formulation of evidence on the circumstances of the case, the course of the process and the generalization of the outcome of the case.

The Methodist chemistry teacher teaches the students the basic concepts and laws of chemistry, mainly in the course of chemistry, that all substances and the chemical elements that make up these substances are closely related to each other. is explained by the changes that occur in nature. Any new substance that is formed in these changes directs students to form different forms of matter by explaining that matter is a form of nature. Through these materials, the teacher manna leads students to form a materialist worldview. In chemistry classes, the teacher uses demonstration methods of samples of substances in nature to teach students the physics of changes in matter, with all substances in constant motion. chemical, biological, and other forms, depending on the nature of the action. In doing so, the teacher proves that new substances are formed in matter in the motion of matter by performing the following experiments.

Demonstration experience:

1. The boiling of water in a glass and the formation of steam, all the water boils and evaporates, resulting in its evaporation.
2. The disappearance of the metal over time under the influence of zinc metal on the acid in the glass. 3. Pour an alkaline solution into a glass, pour a solution of phenolphthalein on it, and it turns red, and when we drop an acid solution on it, the color of the solution disappears, and a new salt is formed in the solution.
3. The formation of carbon dioxide and water vapor by placing the spit in an alcohol lamp and lighting it.
4. The formation of a white precipitate of silver chloride solution when a solution of silver chloride is exposed to a solution of common salt.
5. Add sodium carbonate salt to a porcelain cup. the formation of gas when we slowly drop a solution of hydrochloric acid on it, and the dissolution of all the salt, the formation of sodium chloride in the solution.
6. When a solution of copper sulphate in a glass is exposed to ammonia, the formation of a new complex can be determined by observing the change in color of the solution.

By demonstrating these experiments, students gain insight into the structure of the universe by observing the transition of matter from one species to another.

In the chemistry course, students will understand the composition and chemical properties of substances, and will be introduced to a wide variety of material particles, from electrons, protons, and neutrons to high-molecular-weight organic compounds; in which they are mainly acquainted with saturated and unsaturated hydrocarbons, oxygen-containing organic compounds — alcohols, aldehydes, ketones, carbonic acids, simple and complex esters, and petroleum particles.

They learn that the atoms of chemical elements are particles that vary in the complexity of their composition;

Even the most complex of organic substances have the impression that they are composed of the same chemical elements; they discover that the whole of nature around us is made up of those chemical elements. Students will be able to observe chemistry in a wide range of subjects, mainly in solution reactions, such as chemical reactions, inorganic compounds, electrolytic dissociation theory, redox reactions, salt hydrolysis, amphoteric solutions, and changes in chemical reactions to form complex compounds. possible.

The Methodist teacher then draws the following general conclusions on a scientific basis:

1. The interdependence of matter and phenomena in nature;
2. The constant change and evolution of nature;
3. Transition of quantitative changes to qualitative changes;
4. Explains to students the theories of unity and struggle.

By studying the basic laws and theories of chemistry, by studying the processes of formation of chemical elements and their properties, by studying the periodic law and system from the point of view of atomic structure, matter is constantly changing. develop and come to the general conclusion that this eternal development takes place not only in the organic world but also in the inorganic world.

Case-study technology is especially important. At the same time, in developing problem-solving and problem-solving tasks, the case-study really teaches students to study and analyze any situation with meaning. It is based on elements that reflect the general essence of the process of solving a particular problem situation. These are: forms of education, teaching methods, teaching aids, methods and tools for managing the educational process, methods and tools of scientific research on problem solving, methods of data collection, their study and tools, methods and tools of scientific analysis, methods and means of educational communication between teacher and student, learning outcomes. As a result, students should be able to:

1. Develop analytical skills and critical thinking.
2. Ensuring the unity of theory and practice. 3. Demonstrate different perspectives on the problem.
3. Make decisions and provide feedback on the consequences.
4. Develop the skills to evaluate alternatives in the presence of uncertainties.

Based on the theories of many Methodist scholars M. Rosenberg and LMMitina, noting that the model of professional and pedagogical training of future teachers is based on the following three interrelated directions: passes:

1) identity of the student; 2) student learning activities; 3) social relations established by the student.

In absorbing the innovative components of the education system today, the scientific heritage and theories of famous foreign chemists and methodologists, especially the famous chemist B. Kedrov on chemical dialectics, V.Shtrube on the development of chemistry, M.D.Jua on the general history of chemistry. , O.Benfey, V.Karpenko, B.Newbold, M.Pennington, P.Phillips, L.Corte, Z.Selak, J.Keutgen, K.Javorova analyzed the issues of improving the scientific and theoretical basis of chemistry [3.4.5]. R. Becker M. The galaxies have done a lot of research on the methods of organizing and conducting direct chemical experiments. In line with these scientific theories, we recommend the following in the formation of innovative ideas of the teacher in changing the quality of education today:

1. Social organizer: prepares students for independent living.
2. Class teacher - creates and influences a positive psychological environment in the classroom;
3. Methodist-educational process helps and supports students in solving problems;
4. The philosopher analyzes knowledge and experience, substantiates his views;
5. An experienced close friend helps students overcome obstacles and problems;
6. Researcher-innovator-innovator-constantly works on himself, creates new ideas, implements them;
7. The leader of the learning process and its motivating-goal-setting tools, foresees, chooses teaching methods, teaches students to read, takes a creative approach;
8. Able to work as a team and teach to work;
9. Counselor - teaches personal example.
10. Educators help students to develop physically, mentally and spiritually;
11. Psychologist - knows and understands himself well;
12. Change-oriented - helps students improve their life skills;
13. Data Disseminator-Provides basic new information to students and teaches them how to put it into practice.

A good teacher should teach a student a "profession" and a smart student should teach it. The faster and more solid the students learn the "craft", the more they will be able to have their own "products" without the need for others. The results of pedagogical experiments show that new interactive and non-traditional pedagogical technologies are very useful in carrying out such tasks.

Factors influencing the quality and effectiveness of interactive lessons in practice: organizational - pedagogical, scientific - pedagogical, as well as factors related to the teacher, students, teaching aids.

The main forms of interactive activities are: large circle, wheelbarrow, aquarium, small group (pair work) and others.

The main methods of interactive training are: interactive seminars, trainings, lectures, brainstorming, business games in the classroom.

The pedagogical psychological basis for determining the effectiveness of interactive learning is the teacher's professional pedagogical skills in conducting the lesson, as well as the extent to which students have mastered the topic of the lesson. Interactive lessons have a unique organizational structure, the types of activities for its organization and conduct are separated, and each of them is named in the form of separate tasks. They are named according to their functions [2.3]:

1. Moderator 8. Lecturer 15. Assistant
2. Coach 9. Expert 16. Secretary
3. Tutor 10. Innovator 17. Technologist
4. Facilitator 11. Communicator 18. Methodist
5. Mentor 12. Teacher 19. Coordinator

6. Coach 13. Manager 20. Students

7. Consultant 14. Spectrum

In short, interactive learning allows you to solve several problems at once. Most importantly, it develops students' communication skills, teaches them to work in a team, and listens to their peers.

Based on the experience of some interactive sessions, we can identify some of the factors that affect the quality and effectiveness of these sessions. They can be conditionally called organizational - pedagogical, scientific-methodical and factors related to the teacher, students, teaching aids. We need to keep in mind whether they are positive or negative in nature.

In student-centered classrooms, students work together to understand important elements of the lesson and what they have not yet learned.

If a teacher really wants students to think, he or she must find materials that inspire additional energy and motivation that are relevant to students' social lives. When teachers force students to think, students return home with only the skills and outlook they want. To do this, related materials improve the quality of the learning process.

In the modern educational process, the modern educator must carry out the following processes in the formation of innovative skills of the teacher: the inclusion of personal, professional qualities and attributes, the need to use them appropriately in the process of teaching and education. holds.

They are: 1) personal qualities of the teacher, 2) professional knowledge, 3) professional qualities, 4) personal pedagogical skills, 5) organizational skills, 6) communicative skills, 7) gnostic skills, 8) creative qualities. We will show.

In addition, in order to improve the quality of teacher education, the availability of important components of pedagogical skills for the successful implementation of innovative activities, and through the following methods and techniques:

1) didactic ability, 2) academic ability, 3) perceptual ability, 4) speech ability, 5) organizational ability, 6) authoritarian ability, 7) communicative ability, 8) pedagogical creative imagination, 9) ability to distribute attention. must be

According to many Methodist scholars, in addition to this, the teacher's striving for a noble goal, diligence, perseverance, humility, honesty, loyalty, exemplary behavior, gait, self-control. We recognize that his appearance, in short, the acquisition of qualities and qualities in accordance with national and universal moral standards are important factors that ensure his readiness for professional activity and the effectiveness of the educational process. MV Clarin's work occupies a special place in the research on training teachers for innovative activities. In his work, he connects innovation with the need for lifelong learning through the development and implementation of socio-cultural projects. This approach focuses on the individual's ability to make free choices, in which learning activities play a leading role and can be an important, leading tool in personal development and a way to engage the individual in the learning process.

The process of preparation of the educator for innovative activity is as follows: to predict the success of the intended innovation as a whole and its individual stages, to compare the innovation with other innovations, to select their effectiveness, to determine their most important and accurate, to check the success of innovation and assess the ability of the implementing organization to adopt the innovation.

The constantly evolving chemistry and pedagogical education in line with modern developments, a new approach to the professional training of students, the orientation of future teachers to pedagogical, cultural, educational, research activities; the need to ensure the achievement of educational outcomes through the acquisition of cultural, general, professional competencies in the field of science. It was shown that the integrative methodology of ensuring the quality of professional training of students based on the basics of chemistry is realized through the theoretical and methodological integration of teaching chemistry. It was found that the content of vocational training on the basis of chemistry is the formation of innovative educational paradigms, trends in the development of theory and practice of chemistry education, the formation of chemical-methodical competence related to the acquisition of scientific competencies.

The formation of innovative abilities of teachers in chemical-methodical competence requires teachers of chemistry to acquire not only general cultural and general, but also special (scientific, due to the peculiarities of chemistry) through the emergence of innovative activities in students. focuses on the formation of chemical concepts.

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