

PROBLEM-INTEGRATIVE OF THE TEACHER OF CHEMISTRY METHODOLOGICAL TRAINING IN TEACHING

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ABSTRACT

In this article, the impact of interdisciplinary relations on the development of students' knowledge experiences based on the problematic aspects of chemistry teaching in general education schools, the teaching of chemistry with other subjects and its effectiveness are discussed.

Keywords: Student, competence, comprehensive school, chemistry, educational process, interdisciplinary communication, quality of education.

INTRODUCTION

In recent years, improving the quality and effectiveness of the education system in the country, forming modern knowledge and skills in kindergarten students, pupils and students, close cooperation between educational systems and the field of science and systematic work is being carried out to ensure integration, integrity and continuity of education. At the same time, the current state of the national education system is to modernize it based on the requirements of the times, to educate young people to be highly educated, physically and spiritually healthy people, to strengthen the authority of the leaders and pedagogues of educational institutions increase, requires the implementation of consistent measures to create the necessary conditions for their effective operation [1].

The role of the education system in the Republic of Uzbekistan is developing and updating day by day. As a result, it serves as a basis for the spiritual, moral and intellectual development of young people growing up in the educational system. Based on this, improvement of teaching on the basis of interdisciplinary relations in general secondary education schools is one of the urgent problem situations. Improvement of learning through such interdisciplinary communication creates new methods of development of students' competences related to science.

Literature analysis and methodology

The ideas and principles are methodologically improved as a priority direction in the organization of educational development through problematic interdisciplinary relations. So, problematic features in the methodological organization of chemistry, in an integral connection with interdisciplinary relations, create a basis for improving each other. Today, teaching through interdisciplinary communication serves as a basis for solving urgent problems. This will develop the activity of the fundamental basis of the modern chemical education in the professional sphere, and the methodical influence. At the same time, the conceptual and terminological forms of problem-integrative teaching methods are improved in the methodological preparation of the chemistry teacher [2].

In the professional activity of a school teacher, problem-based teaching through interdisciplinary relations creates an opportunity to form the idea of value-oriented education in a person based on historical and methodological approaches. The idea of teaching through important interdisciplinary connections was expressed in the views of ancient philosophers. Today, systematic work is being done on the basis of the experiences of developed countries such as Singapore, Finland, America, South Korea, and Germany on the basis of the development of interdisciplinary education in the education of schoolchildren [1].

In particular, in the teaching of chemistry through interdisciplinary communication, on the basis of problem-based educational technologies, it is directed to the development of students' knowledge, skills, abilities and life processes in extracurricular activities, creativity and interests. The problem situations defined in the teaching of chemistry through interdisciplinary communication are of great importance in the development of the competence of the chemistry teacher. A two-sided approach is used in the teaching of chemistry through problem-interdisciplinary communication. In the first condition, a problematic situation is defined and this situation is implemented through interdisciplinary communication in the educational system.

The specified task is also the main one for the methodological preparation of the chemistry teacher. At the same time, the problem-search plan develops the active cognitive activity of the teacher and creates the possibility of its most successful solution. Methodical preparation is built as an open pedagogical system, the core of which is the creative activity of its subjects in solving educational problems. In addition, problem solving always occurs in the process of reflective communication and collaboration, and involves the integration, synthesis, and multifaceted application of an individual's knowledge, skills, and values. That is why we rely on the problem-integrative approach to the implementation of developmental education in organizational training [4].

As a result of our scientific research, we have witnessed the basis of the rich history of the development of the integrated education system. In the educational system, teaching through problem-integrative communication is mainly carried out as a result of combining teaching of several subjects. In the teaching of chemistry through problem-integrative relations, students' ability to correctly understand natural phenomena improves knowledge in physics, biology, and medical sciences.

RESULTS AND DISCUSSION

It is appropriate to bring up the concepts of education and upbringing of the philosopher and scientist Socrates in critical-integrative teaching. Socrates did not accept ready-made conclusions in the formation of thoughts in the process of education and upbringing of a person, but revealed concepts by solving contradictions in the process of self-knowledge. This was helped by the use of reasoning methods such as induction, deduction, and hypothesis. In this, we see the connection between the pedagogical achievements of Socrates and the modern views on the role of setting and solving problems in education, as well as understanding the essence of the problem-integral approach, the methods and forms of education organization [3].

When analyzing the history of the origin and development of chemistry, we studied M.V. Lomonosov's view of existence, the principles of connection between theory and practice. M.V. Lomonosov proved empirical and rational units of knowledge in his scientific works and confirmed the need to take into account in practice the strong preparation for the teaching profession, pedagogical skills, moral purity, diligence in the implementation of

interdisciplinary communication in chemistry teaching. These requirements are also relevant for today's teachers, because the methodological preparation of the chemistry teacher should be taken into account in practice.

Establishing interdisciplinary connections in the lesson helps students to fully understand natural phenomena, all life processes, systems, laws, and the relationships between them, and therefore it becomes possible to apply knowledge more meaningfully and in practice. It helps the students to use the knowledge and skills acquired in the course of studying some subjects, makes it possible to use them in certain situations, in considering personal issues, both in academic and extracurricular activities, in the future life. Interdisciplinary communication should be considered as a reflection of the educational process of interdisciplinary communication, which is one of the characteristic features of modern scientific knowledge [5].

Interdisciplinarity can be understood as a didactic system that objectively reflects existing relationships in school courses and ensures the implementation of a targeted educational process for schoolchildren through the coordinated interaction of its educational components.

Interdisciplinary communication performs several tasks in education:

- the methodological task is that students' holistic view of nature is formed based only on them;

- the educational task is that with their help, the teacher forms the qualities of students' knowledge such as consistency, depth, awareness, flexibility;

- interdisciplinary connections are a means of developing concepts, which help to master the connections between them and general concepts;

The developmental task of interdisciplinary communication is determined by their role in developing students' systematic and creative thinking, cognitive activity, efficiency, independence, and interest in learning new things. Interdisciplinary communication broadens students' worldview.

The educational function of interdisciplinary relations is manifested in their support to all areas of education of students in acquiring knowledge. The teacher implements a comprehensive approach to education, relying on communication with other subjects.

Thus, the use of interdisciplinary relations is one of the most complex methodological tasks of a teacher. This requires knowledge of the content of programs and textbooks in other subjects. Implementation of interdisciplinary communication in teaching practice implies cooperation of the teacher with teachers of other subjects. Chemistry belongs to the natural sciences and is difficult for students to master. To interest students, encourage them to study this subject, connect learning with solving practical problems: chemistry - biology; chemistry - geography; chemistry - physics; chemistry - mathematics; chemistry - ecology; chemistry - history is a problem that every teacher faces.

Summary

At a time when the entire humanity is concerned about global environmental problems such as the destruction of the ozone layer, global warming, acid precipitation and its effects on the environment, the relationship between chemistry and ecology gives rise to analysis. Environmental problems can be reflected in the course of the chemistry course, as well as in extracurricular activities. Environmental issues can be raised when studying any topic. Environmentalization of the chemistry school course is related to the need to prepare

schoolchildren for active participation in solving current problems of protecting the environment from pollution. Currently, ecological issues are reflected in the content of new curricula and chemistry courses [4].

One of the effective methods of forming environmental knowledge and skills of schoolchildren is to solve environmental problems. Their optimal use in the educational process allows to make the theoretical material reasonable, viable and less academic. In search of an answer to a critical-integrative question, the student will inadvertently become involved in the problems of nature protection, and will have real opportunities to apply the knowledge he has received in life.

In recent years, there has been a steady trend of deterioration of the ecological condition of the biosphere, atmosphere, hydrosphere, and lithosphere ecosystems, which is mainly caused by the anthropogenic influence of man on the environment. Among the many factors affecting the quality of the environment, one of the first places belongs to industrial chemical products.

That is why more and more attention is being paid in scientific and educational literature to the issue of the effects of harmful chemicals on humans, animals and plants. The development of students' ecological culture cannot be carried out without the upbringing of kindness, responsible attitude towards nature and people living nearby, full life and generations who have to leave the land suitable for them. The relationship between man and nature is very complex. Life on Earth may die sooner than we think until our minds and attitudes towards nature are restructured.

In the higher education system, they can professionally discuss new low-waste production technologies, liquid waste water and gas waste treatment methods, as well as solid household waste disposal problems in chemistry classes. Biosphere cycles of substances should be taken into account in chemistry lessons. Environmentalization of the chemistry school course is related to the need to prepare schoolchildren for active participation in solving current problems of protecting the environment from pollution.

Currently, ecological issues are reflected in the content of new curricula and chemistry courses. One of the effective methods of forming environmental knowledge and skills of schoolchildren is to solve environmental problems [4].

Solving chemical problems with ecological content, taking into account the regional component, helps students to form ecological knowledge and skills, to understand the essence of global environmental problems more fully and deeply. Their optimal use in the educational process allows to make the theoretical material reasonable, viable and less academic. In search of an answer to his question, the student will inadvertently become involved in the problems of nature protection, and will have real opportunities to apply the knowledge he has received in life. Only such an approach allows to form ecologically sound thinking, to develop in schoolchildren a certain "reflex of environmental cleanliness" of their every action. Considering environmental issues, students can be offered chemical and environmental issues and tasks.

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