



Use of Innovative Technologies for Integrative Purposes in Chemistry Education

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Abstract

In this article the recommendations on the use of innovation technologies in educational system. As the main factors of modernization of education innovative approaches are enlightened.

Keywords: innovation, integration, education, teaching chemistry, quality and results of education, methods of traditional and non- traditional teaching, pedagogical innovation, the leading role of pedagogical person in system, the burning problems of permanent education system.

The effectiveness of integrative education in chemical education in accordance with the Decree of the President of the Republic of Uzbekistan dated August 12, 2020 No. 1 is one of the urgent tasks.

All efforts related to education are joint mental and physical labor, joint or independent work of students on the example of educators, educators, disseminators of knowledge, other officials, in short, teachers and coaches, students, educators, in general, students and students, are multifaceted and complex processes consisting of activity and creative thinking. The issues of improving the effectiveness of chemistry lessons and extracurricular activities are inextricably linked with the formulation of the educational process on a scientific basis and the practical application of modern pedagogical technologies. The main goal of organizing innovative activities in educational institutions, introducing innovations and introducing new approaches to educational processes is to ensure the systematic cooperation of teachers and the student community and establish it on the basis of a clear plan and in a purposeful way.

This work requires a thorough solution of pedagogical, psychological and organizational issues. It should be noted that the participants in pedagogical innovation must thoroughly master the methodological, psychological, pedagogical, technological knowledge about the emergence, manifestation of innovations and the patterns of their management process. Otherwise, pedagogical innovations will not give effective results.

In our opinion, the effectiveness of innovative processes introduced into the education system and the responsibility for fulfilling the requirements for improving the quality indicators of personnel training to a high level depend on the conditions for the development and implementation of pedagogical innovations, on the expedient, rational and organic use of traditional and modern methods of education.

In some cases, there are cases of abandonment of traditional methods that are effective. This is perceived as contrasting innovation with a proven and rewarding learning methodology.



Therefore, it would be better if the positive experience of the traditional education system was combined with innovation.

Today, interest and attention to the use of innovative technologies in the education system is growing day by day. One of the reasons for this is the fact that, until now, educational goals have been aimed at acquiring ready-made knowledge for students, and modern technologies teach them to be creative, seek acquired knowledge, and even draw. own conclusions.

Innovative technologies represent innovations and changes in the activities of teachers and students in the pedagogical process and require the use of interactive methods in its implementation.

Interactive methods are based on the activity of each student participating in the educational process, free and independent thinking. When using these methods, learning becomes an interesting activity for the student. When using interactive methods, students acquire the skills and abilities to work independently with the help and cooperation of teachers. Students acquire new knowledge on the basis of scientific research, research, experiments.

The principle of obtaining knowledge through science is respected. Participants in the educational process work in small groups. Assignments are given to all members of a small group, not to an individual student. Each member of the microgroup tries to contribute to the task. This situation creates a sense of community among students and increases their initiative. The main form of organization of the educational process is the lesson.

Currently, various non-traditional forms of lessons are being introduced. Such classes serve to develop the student's creative abilities, strengthen his intellectual potential, expand his scientific worldview, develop skills and abilities to quickly and fully perceive each new one. The use of innovative technologies during the lesson arouses students' interest in scientific research, develops creativity and creativity.

As a result, the acquired knowledge, skills and abilities are applied in practical activities, the quality of education is improved. To do this, the teacher must be able and correctly plan the lesson depending on the content of the topics, force all students to work actively and consciously in the learning process. Because the teacher is the main executor of educational reform. It is important to teach each teacher to assimilate, process and apply a large amount of information in a short period of time.

The use of modern information technologies, including computers, along with traditional teaching methods, helps the teacher to solve it. Using a computer in the classroom makes the learning process interesting and allows you to provide an individual approach to each student. First of all, through the wide possibilities of information and communication technologies, it will be possible to convey to students a lot of knowledge, facts and information. Secondly, the full implementation of innovative plans, ideas and thoughts of the teacher is carried out easily and effectively. Such processes are especially important in chemical education [1].

Using the possibilities of such innovative technologies, it is carried out by combining chemistry and biology in research to improve the content and structure of the course "Chemistry" taught as part of the education "Methodology of Biology" of higher educational institutions that train teachers [4].

Both sciences are close and related, they complement each other and actively participate in the formation of a general and natural-science picture of the world. Taking into account the division of the material world into two types, one can imagine the role of the sciences that serve to ensure the connection between inanimate and living nature, as follows. Ideas about the macrostructures of inanimate nature, i.e., about crystals and molecules, which are studied in geology and physical



sciences, are inextricably linked with ideas about cells, colloids and molecules, which are the macrostructures of living nature.

Thanks to the integration, many sciences, including biochemistry based on chemistry and biology, physical chemistry based on chemistry and physics, biophysics based on biology and physics, etc. The importance of integrative learning lies in the fact that the macrostructures of animate and inanimate nature present in nature make it possible to reveal the essence of chemical, biological and physical phenomena occurring in nature [5,6].

An analysis of state educational standards and the content of education in chemistry and biology shows that there is a common system of concepts for them: 1) substance and its constituent elements; 2) phenomena and processes and the elementary units of substances involved in them; 3) material units that ensure the interaction of inanimate and living nature. We believe that interdisciplinary communication in teaching chemistry and biology is appropriate in the following areas:

- ✓ the structure of substances common to these sciences and the mechanism of events and processes in which they participate;
- ✓ the general character of the laws of this fund of sciences;
- ✓ a combination of theories related to chemistry and biology;

We consider it necessary to describe interdisciplinarity in one topic in three areas:

- a) the formation of fundamental concepts common to chemistry and biology;
- b) formation of basic chemical concepts;
- c) the formation of the most important biological concepts

In the teaching of chemistry and biology, which are two branches of natural science, three types of interdisciplinary communication should be distinguished:

commonality of scientific facts, theories, laws and concepts;–

proportionality of applied scientific methods;–

- that mental activity is of a general nature when mastering these subjects. We believe that one of the main tasks of ensuring integrity and continuity is to teach students and listeners of the continuous education system to successfully apply innovative technologies in their practical activities in the future, not limited to learning based on innovative technologies. The most unique achievements of civilization are achieved through the integration of sciences [2]. There is a comprehension by a person of the surrounding world and his identity, knowledge of new patterns of relationships between a person and society. In such a dialectical process, such an economic phenomenon, initiated by the human mind, as production, takes the leading place. If all efforts are aimed at serving the health, well-being and improvement of a person, the essence of such a large-scale life phenomenon as production becomes clear. In order to live and multiply, to build and create, to engage in science and politics, it is necessary to establish production, agriculture and animal husbandry. Many things and phenomena, such as the close connection between the organism and the environment, the relationship of celestial bodies, the dependence of life on Earth on space factors, the connection of changes in the life of human society with geological and astrophysical phenomena, the connection of historical events on Earth with the activity of the Sun, are known thanks to successful participation of the development of science in the knowledge of the Universe. Such global scientific-creative, social-educational and anthropono-noospheric processes continue. With the help of philosophy and natural science, they solve the most important and general issues and problems in the “world-man” relationship with its philosophical,



methodological, axiological, epistemological, ontological, praxeological, humanistic, educational, communicative, critical, integrative, prognostic and sociological functions. interpret correctly and fully, objectively and in the mirror of reality.

Given the fact that a person cannot live without the universe and material wealth, it is clear that science and production serve as his double wings. It is illogical to argue about what is primary in this unity. The universe is primary, man is secondary, and production and science are the physical and intellectual products of man.

It is necessary to refrain from admiring human creativity and generalize its "white" and "black" sides. Is it an objective fact that there is a contribution of production and science, a share of the mental and physical labor of mankind in the creation and use of thousands of large and small wars, various bloodsheds, weapons of mass destruction!? Therefore, the phrase on the topic of the article should be understood in a broader sense. It's time to realize that the time has come to reforge swords into plowshares, to produce tractors and seeders instead of tanks, to use the funds spent on atomic and nuclear weapons in the most necessary sectors of the national economy, it's time. Only humanity can live in the 21st century if it can use the achievements of science and technology, technology and anthropogenetics to cause hunger and hunger, scarcity and high cost, disease and death, energy and other shortages. As soon as the material provision falls into place, the spiritual world also begins to shine. Consistency arises only when science serves production, production serves mankind, and man serves the material and spiritual development of the world. It is more difficult to reflect such processes in education. This is due to the integrity and continuity of the education system.

The coverage of such social, economic, political and organizational issues cannot be fully realized at the expense of the traditional information mission of education. With the help of modern educational technologies, it is possible to achieve the goal in the implementation of educational tasks [3].

LITERATURE:

1. Omonov H.T., Mirvahidova M.N. Some methodological issues of chemical methodology and methodology. Methodical guide. -Tashkent: TDPU. -2002. -p. 142
2. Omonov H.T. The role of integration and differentiation of sciences in creating a scientific landscape of the world. // "Social and humanitarian sciences in education" magazine, No. 3, 2007. - pp.135-138.
3. Khojaev V.U., Mamayusupov S., Jumanov A.M. Podgotovka budushchego uchitelya khimii na osnove innovatsionyx technological. Issues of improving the teaching of mathematics and informatics in the continuous education system "Proceedings of the scientific and practical conference of the Republic. - KPSE, Ko'kan, 2012. - pp.312-314.
4. Jumanov A. Some issues of teaching improving the course "Inorganic chemistry" for biology education. // Magazine "Newsletter of Khorezm Ma'mun Academy", No. 2, 2011. - pp.65-70
5. A.M. Jumanov, G.M.Raxmatullaeva, G.S.Meliboeva, (2021). Use Of Experience Gained In The Process Of Teaching Chemistry. *The American Journal of Applied Sciences*, 3(04), 27-31.
6. A.M. Jumanov. About integrative improvement of the course "Chemistry" in the chemical preparation of future students of biology. *JournalNX- A Multidisciplinary Peer Reviewed Journal* Volume 8, Issue 6, June-2022. p.p. 60-63.