



THE ROLE OF INTERDISCIPLINARITY IN THE DEVELOPMENT OF MODERN BIOLOGICAL KNOWLEDGE OF BIOLOGY STUDENTS

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Abstract: In the article, the theoretical and methodological foundations of the development of the knowledge of biology students about modern methods of biological research, the methodology of the development of the knowledge of biology students about modern methods of biological research, the effectiveness of the development of the knowledge of biology students about modern methods of biological research were studied. Also, The role of interdisciplinarity in the development of modern biological knowledge of biology students were analyzed.

Key words: biology, technology, competence, improvement, pedagogical, technological, model, didactic, form, method, tool, evaluation, creative thinking, reflexivity, creativity, pedagogical experiment.

INTRODUCTION. In the development of modern biological knowledge of biology students, great attention should be paid to practical creativity. Practical creativity is defined as creating and solving practical educational problem situations based on the application of previously acquired knowledge in new situations. Practical creativity leads to independent thinking of the student, putting forward assumptions and hypotheses, knowing and understanding according to the problems that have arisen. The aim of developing biology students' modern biological knowledge is to teach them to know and protect nature, to form interdisciplinary theoretical knowledge, practical skills and qualifications related to biological education.

LITERATURE ANALYSIS AND METHODS. Studies on the application of electronic educational resources and virtual educational technologies in the teaching of biology subjects in the continuing education system to the methodology of forming the professional competence of future biology teachers L. Ravlovys, I. Bilous, N.E. Rerry, S.A. Brenner, Y.N. Arbuzova, S.B. Bogomolova, N.P. Stepanova, M.M. Salimova, N.A. Karimova, Z.A. Mardanov, A.K. Rakhimov, J.O. Tolipova; of Bakhodirova researched in his works.

RESULTS AND DISCUSSION. Knowledge of the surrounding nature has an impact on the student's all-round development and education. By learning this knowledge, young people analyzed the relationship between nature and man, their interrelationship and unity, their attitude to the environment, and the actions taken in the way of nature protection, which caused the origin of biological problems. tries to identify the factors. This situation creates a foundation for the formation of biological knowledge and concepts in young people.

Analyzing the curriculum of biology, chemistry and physics in accordance with the content and purpose, determining their interdisciplinary biological education, and applying them in the educational process is of great importance in activating the cognitive activity of students.

It is possible to understand the interdependent development of various events that occur in nature and society, and the relationships between them, only on the basis of interdisciplinarity. Studying nature and society separately leads to the formation of scattered knowledge about them. Such knowledge does not allow for the creation of ideas about the unity of nature and society, the role of humanity in nature, the need for a systematic approach to the correct understanding of the essence of the global problems facing humanity and its rational solution.

Effective implementation of interdisciplinary biological education in natural science lessons, preparation of students to accept new educational materials, implementation of interdisciplinary connections, creation of problem situations, as well as planning and skillful conduct of each lesson requires deep and thorough preparation from the teacher requires viewing. This, in turn, serves to increase the effectiveness of the lesson. By learning this knowledge, young people analyze the relationship between nature and man, their interconnectedness and the nature of unity, their attitude to the environment, the actions taken in the way of nature protection, and the causes of environmental problems. tries to identify the factors.

The principle of interdisciplinarity ensures the complete mastering of the complex aspects of related educational interdisciplines, provides penetration into the inner essence of knowledge, as a result of which various systems are interrelated, integrative wholeness. In particular, the connection between academic subjects, ensuring interdependence, providing students with biological knowledge according to a certain classification are prominent as a factor of forming their interest in learning about nature.

The use of chemical and physical concepts in the course of the lesson creates an interest in learning biological knowledge among high school students, as well as the realization of interdisciplinary connections in their education, understanding the essence of the nature, the processes and changes that take place in them, this study It is important to create the process of formation of biological concepts in students through the integration of general and specific concepts in the content of the sciences, their application in practice, and the formation of skills and competencies.

The concepts that are the basis for establishing interdisciplinary communication in the development of modern biological knowledge of biology students are divided into the following groups:

1. The generality and coherence of events that occur on the basis of the interdependence of inanimate and animate nature.
2. In order to understand the vital processes and changes that occur in living organisms, and to solve the problematic educational tasks, in addition to biological laws, to implement interdisciplinary communication through the use of chemical and physical laws.
3. The need to study phenomena and events in material existence, the causes of environmental disasters and measures to eliminate them.
4. Ways to learn the laws of nature and use them effectively and rationally.
5. Causal connections in the interdependence and development of natural phenomena.
6. Man is a social being.
7. Conservation of nature is the basis of preserving life on our planet.



Interdisciplinarity develops students' ability to think and increases their independence. Also, along with the development of their interest in science, it forms their work skills and qualifications and greatly helps to educate ecological culture.

Being in direct, active communication with nature accelerates the process of mental activity organized by students. This situation affects the way of thinking of students, creates interest in learning about nature and improves their mental abilities. As an object of learning, nature has the opportunity to provide students with sufficient information about natural phenomena, their characteristics, their interrelationships, and the importance of the natural environment in people's lives.

In particular, inculcating chemical and physical concepts in the formation of biological knowledge in students forms a cautious attitude towards the environment, nature, and makes them feel the interrelationship of animate and inanimate nature. Also, it creates an interest in nature in them.

When a student observes an object or phenomenon in natural conditions, they perceive it not as a separate object, but as an important part of the entire biosystem, and strive to understand the interdependence and connection between them. As a result, students will be able to distinguish the unique aspects of the individual object that is brought to their attention, find answers to the questions they are interested in based on their comparison with the objects that have interaction characteristics, and grouping of common aspects.

Integrative education offers a movement from simple to complex, from knowledge to knowledge, from chaos to harmony, from thirst to mastery and creativity. The child gets acquainted with the "bricks" of the creation of the world, refers to the beginning of the world, the appearance of man on earth. He seeks to reveal the secrets of words, numbers, green signs, and ancient legends. He embarks on a journey through space and time. Thus, the child feels the beauty and diversity of the world that should be opened every day. Complex worldviews, scientific and artistic ideas are reflected in figurative topics that are easy for the child to understand, and they make it possible to compile the contents of the year. An organized system is a characteristic of integrative education.

Implementation of interdisciplinary connection between biological and moral education in the process of education - understanding of the essence of cause-and-effect relationships in the study of facts, phenomena and processes of students, previously mastered in academic subjects by applying knowledge in new situations, prepares the ground for achieving conscious mastering of educational material. Also, observing the processes taking place in nature, understanding their nature, solving problems related to ecology, embodying ecological views on the basis of developing students' independent and creative thinking skills, thus forming biological thinking is considered an urgent problem of today.

The process of developing biology students' modern biological knowledge requires a systematic approach to this problem. Therefore, all forms of teaching natural sciences: lessons, extracurricular activities, excursions and extracurricular activities, connecting biology with chemistry and physics to provide students with biological and moral education, created the need to determine the possibilities of forming a biological worldview in them. In doing so, it prepares the ground for students to directly apply the theoretical knowledge acquired in the teaching of biology with moral education to control the technique, that is, to practice.



In particular, in the improvement of biological education, attention should be paid to the issues of environment, nature, human protection, correct and rational use of natural resources, cleanliness. These issues should be included in the curriculum, educational programs, optional training, and work plans.

Teaching students based on the integration of biological knowledge and moral education is a comprehensive problem, so it cannot be implemented in the process of teaching one subject. For this, in the process of teaching each subject, it is necessary to provide concepts specific to this subject, as well as interdisciplinary communication, to arm students with the system of biological knowledge, and to combine it with biological and moral education.

CONCLUSION. Based on the above points, considering the teaching of biology in connection with chemistry and physics, the curriculum, the analysis of the programs of both subjects in accordance with the content, the coherence between them, that is, the horizontal and vertical link to identify problems, to create problematic problems and tasks related to ecology, taking into account the age and psychological characteristics of students, to develop a methodology for the formation of biological knowledge in students by using problematic problems and tasks related to biology in the educational process, and to teach biology there was a need to create methodical recommendations for teachers.

In conclusion, one should not rejoice in any negative achievement over nature, because nature is taking a severe revenge for this negative achievement. From this point of view, it is the demand of the present day to provide students with knowledge about the ecology of the country in teaching activities in connection with biology and natural sciences. Biological education and education for sustainable development, according to the majority, are equivalent concepts. But in practice, there is a big difference between them.

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