

## Theoretical Aspects to Develop 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 pedagogical necessity of developing biology students' modern biological knowledge is analyzed.

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

**INTRODUCTION.** Training of creative and systematic thinking personnel capable of making independent decisions through the introduction of problem-based educational technologies, information-educational environments and virtual educational platforms in the development of modern biological knowledge of students from the disciplines of biology in higher education institutions worldwide. Also, scientific research aimed at developing their professional competence is being carried out. The results of the research are of great importance in increasing the effectiveness of scientific and theoretical developments in the development of modern biological knowledge of students from the disciplines of biology in higher educational institutions.

In the new development strategy of Uzbekistan, on the basis of the fundamental reform of the higher education system, the development of biological education, prioritization of ethics in biological activities, the formation of biological knowledge and the formation of a worldview aimed at preventing global biological destruction are gaining priority.

**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. Ravlovsh, 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.** Along with the lesson, extracurricular and extracurricular activities also play an important role in the formation of biological knowledge. It is important to use the laws of physics in observing and experimenting with biological problems. The field of biology envisages the achievement of educational goals through the combination of educational content, teaching methods and tools, which prepare the ground for the development of modern biological knowledge. But not all issues can be studied in class, for example, extracurricular activities were used to conduct experiments that required long-term observation.

Homework is inextricably linked with the lesson, it is considered a logical continuation of the content learned in the lesson and a factor of students' independent learning. According to the teacher's instructions and instructions, students conduct simple experiments, conduct observations in nature, study

additional literature, prepare lectures or abstracts on specific topics, and collect collections. they do. Students are prepared to master the methods of cognitive activity by completing educational tasks.

Extracurricular activities are a form of compulsory education performed by students based on the teacher's instructions. Based on the requirements of the program, students should perform extracurricular activities individually or in small groups.

Extracurricular activities include observing certain topics, conducting experiments, preparing educational equipment, exhibition material. Depending on the nature and content of extracurricular activities, they can be done in the biology classroom, in the corner of living nature, in nature. For example, in the teaching of botany, experiments such as the necessary conditions for seed germination, seed respiration, and the effect of the amount of nutrients on the growth and development of the tumor are conducted by students before learning the subject, and the result will be discussed in class.

A biological excursion is an important form of the educational process, which allows students to familiarize themselves with the objects, phenomena, laws, and basic theoretical ideas of living nature, apply theoretical knowledge to practice, and acquire methods of knowing the world.

During the biological excursion, the knowledge acquired by the students is used for the purposes of connecting the knowledge acquired from physics, consolidating, completing, systematizing and summarizing the knowledge in the process of learning a new topic. In addition, excursions allow students to activate and develop their independent learning activities.

During the excursion, students acquire new knowledge and skills by using the previously acquired knowledge, skills and abilities during the performance of educational tasks individually or in small groups. Excursions organized on the basis of a high ethical attitude, expand students' knowledge about the local environment and organisms (biogeocenoses), diversity of plants and animals, prepare exhibition materials from local objects, equip them, instill love for nature. , aesthetic taste and culture, allows to form a conscious attitude towards nature.

In the development of modern biological knowledge of biology students, the above-mentioned forms of teaching natural sciences in connection with other disciplines: there is constant consistency, coherence and connection between the lesson, extracurricular activities, extracurricular activities and they ensure the integrity of the educational process.

In creating interdisciplinary cooperation between natural sciences aimed at developing biology students' modern biological knowledge, the following requirements are imposed on the lesson: clearly defining the educational goals of each lesson and clearly defining its place in the system of lessons; - optimal selection of educational material with ecological content in accordance with the level of preparation of students, educational goals, and the requirements of the educational program; to determine ways to develop ecological thinking based on the general and specific biological concepts developed in the lesson, the skills and competencies to be acquired; activation of student cognitive activity by determining and harmonizing effective teaching methods, tools, methods of knowledge control and stimulation in order to implement each stage of the lesson; in addition to general education of students, by organizing independent work in individual and small groups, it is possible to include in the lesson, to satisfy their need for learning, to increase their interest, to develop independence, thinking; the clear implementation of the educational goals, taking into account the possibilities of the lessons acquired by the students, expanding the scientific worldview of the subject, providing spiritual-ethical, mental, hygienic, physical, sexual, economic education, aesthetic sense, hard work, ecological culture warm; to satisfy the students' need for self-acquisition of knowledge, to satisfy their need for learning biology, to develop their interest, to encourage creative activity and initiative in their activities; development of the planned development of the lesson at the scientific-methodical level based on the thematic plan; creation of handouts and didactic materials of environmental content, educational assignments, differential assignments for

monitoring and evaluating students' knowledge; to create a technological map of the lesson in order to make efficient use of time.

The innovative pedagogical technologies used in the lesson for the development of biology students' modern biological knowledge are selected according to the form of organizing students' cognitive activities, which are organized on the basis of questions and assignments of biological content:

1. Use of conference, creative game, game exercises of didactic game technology in cases where educational tasks of biological content are reproductive and productive in nature.
2. Use of problem-based educational technology brainstorming, conflict of ideas in cases where educational assignments in biological content are productive and creative in nature.
3. The use of a module program of modular educational technology that works individually in cases where educational tasks in biological content are reproductive, productive and partially exploratory in nature.
4. In cases where educational assignments in biological content are reproductive, productive, partially exploratory and practical in nature, the use of collaborative teaching technology is determined.

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.

**CONCLUSION.** Along with the use of advances in science and technology, the present time has created an environmental risk of universal importance in terms of the scope of the unfavorable environmental situation. The causes of bioecological danger Coordination of relations between nature, society, people and technology and prevention of ecological danger has become the main problem of today. This unfavorable ecological situation, an important factor for a person, has a negative effect on his health. In this regard, universal and regional ecological danger, its causes, coordination of relations between man and nature, society and nature, prevention of environmental destruction are the urgent problems of today.

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