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Classification of modern studies on the problem of training biology teachers

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***Abstract*---**Modular learning technology is a better approach to distance learning than other systems, as a modular learning unit that combines all the necessary components of the educational and methodological complex and allows you to apply the knowledge and skills needed to perform the required level of professional activity. The structure of the curriculum as a key part of the specialist model will improve and change depending on market conditions and social order. This is done by operatively modifying the content of the module. In addition, the use of modular learning technology is the first step in building the content of education on the principle of problem, not on the principle of subject matter, in which the learner learns a complex module from different disciplines and forms his own position on the problem.

***Keywords*---**integration practice, use blockchain, method, leadership approach, constructive, pedagogical thinking, development through, professional portfolio, integrative tool.

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Introduction

In modern conditions, the content of education has been significantly updated on the basis of radical reform of school education, which is developing in line with the development of society. Standards and documents related to the quality of education have a significant impact on the practice of professional and pedagogical activities of biology teachers. Today, the modern teacher must conduct their activities in accordance with the latest theoretical achievements of pedagogy, the requirements of today's education and upbringing, and organize using new pedagogical technologies.

The future of biology in the XXI century is a very responsible job, and to do it will require not only in-depth knowledge, but also practical professional skills. Therefore, an important task of biology teachers is to turn the student's personality into practice. Prospective biology teachers should be able to plan and organize school-based learning and experimental plots; they also conduct experiments with students, organize phonological observations; master the methods of naturalistic and excursion work; learn to collect collections and make handouts, equip the biology room with the work done on the site; they should know how to organize environmental workshops.

Scientific sources on the problems of modular teaching show that along with the well-known and generally accepted concepts, there are many other interpretations, which explain the technology of education based on the nature of their educational institutions, the characteristics of different disciplines, the nature of the region. The scientific literature also mentions forms and methods of education that are close to the content and essence of modular technology.

In particular, the Moldovan researcher M.G. Leshanu focuses on innovations dedicated to disseminating school material. According to the scientist, the tendency to remember due to the increase in the amount of information does not increase the stimulus (motivation, interest) of students' cognitive activity. Therefore, the problem of clear systematization and structuring of teaching material arises, and this problem can be solved by taking into account international pedagogical education trends, that is, by creating a school curriculum in biology.

Ukrainian scientists K.N. Zadorojnyy, V.I. According to Bobritskaya, in the process of biological education it is important to form the biological thinking of pupils and students on the basis of modular teaching. In other words, it must be able to adequately receive information about biological objects and use it wisely in critical observation and decision-making, and with minimal damage to biological objects and systems. As an important aspect of modular teaching, these authors emphasize that it is the process of selecting informational contexts that provides meaningful direction by the teacher.

Russian scientists E.V. Dankova, L.V. Niroeva, E.N. According to Prokhorchuk, the task of modern teachers, scientists-methodologists is to raise the level of students' interest in education and the quality of knowledge by activating the cognitive activity of students. The authors believe that the means to achieve this

goal are to turn the course structure towards problem-based learning, as well as to expand the scope of independent work, increase the practical parts of biology programs, provide material in a block-module system and use blocks and modules independently. E.V. Dankova notes that little attention is paid to the achievements of modern biology, including the problems of biotechnology, in the curriculum and process of teaching biology, which is important not only for the biological sciences, but also for other sciences in shaping students' scientific worldview.

O.G. In addition to the subject "Theory and methods of teaching biology" Safronova developed and conducted a special course on "Modern technologies of teaching biology", aimed at non-traditional forms and methods of teaching future teachers, relevant technologies, including local, individual, group, collective, blocks is an introduction to basic modules. The special course includes new technological approaches to such modular teaching, as well as the introduction of the method of lecture-seminar mixed form of education, the creation of blocks in the calendar-thematic planning, the division of the lesson system into blocks (3-6 lessons each), three types of lessons: blocks with the aim of introducing students to the organization, systematization, generalization, and control of independent work.

Methodist scholars L.V. Bakaeva and Yu.G. Lapynina stressed the need for pedagogical application of modular teaching in secondary and higher education systems. E.A. Baranova, I.V. Vasileva, V.V. The main idea of Dornostup research is to look at modular teaching as a person-centered technology, to develop knowledge and skills in the formation of professional competence through modular teaching, which in turn requires the organization of research activities, taking into account the psychological and age characteristics of learners. School teachers E.N. Galda, I.E. Zelenkova, L.G. Semenova, V.Yu. Pasechnik, M.N. In Polyakova's articles and methodical developments, the main direction is given to modular teaching and it can be used in the practice of higher biological education.

Summarizing the views of the above-named scholars, they all emphasized the role of the teacher in management or mentoring, the maximum development of their independence in the process of working with modules, acquisition of knowledge, achievement of specific learning activities. L.V. Elagina emphasizes the relevance of the modular-competent approach to the training of specialists, which is in line with the basic principles of the Bologna Agreement in the field of education and the convergence of the education system with Western experience and European values. According to the scientist, the application of the strengths of the modular-competent approach in the educational process will expand the opportunities for graduates to raise their diplomas to world standards, to realize their professional, intellectual and personal potential.

Leading scientists of the Republic of Belarus M.N. Polyakova, I.V. Lapitskaya, S.D. Using a competent approach to education, Shakura develops modern evolving pedagogical technologies, including those close to modular teaching, which addresses the issues of individualization of students' learning activities, the formation of control and self-assessment reflection, organizational and scientific-

methodological support for intellectual and creative development of students. . But in their research, the biological direction has been overlooked.

The topical issues of the theory and methodology of teaching biology (effective pedagogical experience of teachers of the region) were considered in the faculties of professional development, methodological associations of biology teachers of the Republic of Belarus:

- The content and methodological aspects of the study of biology in modern programs;
- improvement of professional competence of a biology teacher (a teacher of his subject at a high level);
- Providing biology teachers with pedagogical experience in the introduction of profile (specialization) education of students in schools, lyceums and gymnasiums;
- Peculiarities of the organization of optional classes in biology for high school students;
- Effective methods and techniques of differential teaching of biology.

We will also consider the form of distance learning, as it is inextricably linked with modular learning. Distance learning is distance learning in an information-learning environment based on modern means of storing and transmitting information. At the center of this concept, the teacher participates not as an interpreter of knowledge, but as a manager of cognitive processes, whose functions include making changes and corrections to the course being taught, advising students on all areas of learning. The student chooses his individual educational trajectory from the components of the module course.

Modular learning technology is a better approach to distance learning than other systems, as a modular learning unit that combines all the necessary components of the educational and methodological complex and allows you to apply the knowledge and skills needed to perform the required level of professional activity. The structure of the curriculum as a key part of the specialist model will improve and change depending on market conditions and social order. This is done by operatively modifying the content of the module. In addition, the use of modular learning technology is the first step in building the content of education on the principle of problem, not on the principle of subject matter, in which the learner learns a complex module from different disciplines and forms his own position on the problem.

Distance education today in Russian universities (MESI, Modern Humanities University, etc.), in foreign countries - Poland, Czech Republic, UK, USA, Germany, Canada, France National Distance Learning Center CNED (fr. Center national d'enseignement a distance) has been used successfully. With the development of open and distance education, many European countries have faced the problem of retraining university professors and teachers, and the educational process is seen as a process of continuous improvement. It is also the integration processes in the field of culture and education, the development of information technology and the emergence of new fronts that place a number of new requirements on the professional qualifications of teachers. One of the most

important professional qualities of a teacher is the ability to correctly accept any changes in the education system, he quickly adapts to new conditions.

Analysis of foreign experience, including the U.S. experience, shows that the U.S. pedagogical education system is currently undergoing an active process of reform, as well as new innovative forms of teacher training in the United States. Due to the trends of the Bologna system, the American experience is gaining relevance. The transition to a multi-level system of teacher training in higher education can be considered as the first steps in the transition of our country to the European system in this area, there are many similarities in the American and European education systems.

For the past few years, the University of Texas has been introducing an integrated model of teacher training in El Paso (Blake S, Pacheco A., Tchoshanov M., 2003). It is recommended to transfer this innovative model to the teacher training system in our country. Its main elements are:

- integration of theory and practice in teacher training;
- use of block program in teacher training;
- Leadership approach in the content, methods and forms of integration of teacher training;
- development of the teacher's experience through his constructive pedagogical thinking;
- professional portfolio as an integrative tool for assessing the level of teacher training.

At the same time, in the process of reforming the education system of Uzbekistan, there are some shortcomings, including attempts to introduce elements of foreign experience into the practice of the education system of our country, which do not respect the national and socio-political integrity of education. In the training of future teachers, it is advisable to critically evaluate foreign best practices. In particular, A.M. Sidorkin (Director of the Institute of Education of the National Research University "Higher School of Economics"), O.Yu. Kovalenko, N.V. Malkova, T.N. Bokova, V.L. Vinogradov's research highlights some of the negative aspects of the American education system. For example, US higher education institutions do not pay enough attention to the study of foreign languages and cultures.

U.S. education is limited to imparting to the student the knowledge he or she will need for his or her future career. Even then, it is characterized by a lack of general basic knowledge in this or that science, low general culture, lack of a broad outlook. In many cases, the main goal of education is to learn the correct answer, which does not follow the principle of "process is more important than result", focusing mainly on the search for process solutions, exchange of ideas, explanation of one or another point of view.

This principle is useful in evaluating the process: it is important for the American student to choose the correct answer to the test (problem solving is not necessary for them). Such practices have kept American students away from thinking, reasoning, proving. In addition, many tests in American schools are simple and

not complicated. These tests do not require knowledge of heuristic methods in problem solving, but are aimed at solving typical problems. The essence of the principle "the result is more important than the process" is that students know how to approach other problems, not how to solve 100 typical problems.

In addition, teachers 'devotion to interactive and game technologies has led American students to perceive the learning process as' fun '(fun, playful) entertainment. Undoubtedly, attractiveness, diversity, curiosity, uniqueness, creative thinking are important motivating factors, but reading cannot be achieved without effort, without effort. The reasons for this, perhaps, are the lifestyle of American youth, the strong influence of television, computers, the Internet, and so on. Disadvantages also include the devaluation of assessment, which means that a large percentage of positive assessments cannot be made, the lack of a unified system for attesting pedagogical staff, and therefore the requirements for attestation vary in 50 U.S. states.

Such information should be taken into account in the formation of a modular teaching system in biological sciences in pedagogical universities of the republic.
Competent teaching is a perspective, in which learning activities acquire a research and practice-oriented character and become the subject of self-mastery. According to the leading figures of modern pedagogy, competence is the result of education, it is the result of the student's self-development and the generalization of his personal-activity experience.

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