

Formation of Future Teachers of Research Skills (for Example Biological Disciplines)

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Abstract - the article analyzes the stages of formation of research competencies in future biology teachers and the role of the didactic approach in the formation of creative abilities.

Keywords - Research Activity, Competence, Science, Skills, Technologies, Learning Process, Learning Tools.

In recent years, ongoing reforms in the field of education are noticeable. The Presidential Decree "On the Strategy for the Further Development of the Republic of Uzbekistan" dated February 7, 2017 defines a number of tasks for the development of the social sphere, including education. All reforms are aimed at educating a comprehensively developed personality. One of the most creative qualities of a comprehensively developed personality is the ability to grow above oneself, has research qualities. Because, in modern market relations, constantly evolving, working intellectually, a creative person can withstand the hard blows of competition.

Pedagogical activity is creative. Therefore, the upbringing of students' creative attitude to pedagogical work is the most important task of all courses of the curriculum of biological faculties of pedagogical higher educational institutions and, first of all, the course of teaching biology. In higher education, the pedagogical process and scientific research are closely interconnected and complement each other. Especially when teaching is of an educational-search nature, it is based on the evidence of pedagogical science, and students, performing independent work, are put in the

position of researchers. To this end, a feasible research topic is determined, arising from the requirements of a university program on the methodology of teaching biology. The advanced teachers of the world consider the modern lesson as an intellectual research process.

Mastering research competencies will allow the future biology teacher to easily navigate in the field of professional activity, relying on his own abilities, to choose the most effective solutions to professional tasks and situations. In this regard, one of the technologies aimed at the full-fledged formation of professional competencies for future biology teachers is research work, which has a fairly high potential, since it takes into account the professional interests of students.

Having a certain skill, students can continue research on a previously selected topic or choose a new one to which they have shown greater interest. Improving the learning process, various teaching aids and organizational forms of their scientific verification in practice is necessary on the basis of a deep study of the history of the problem being studied and identifying the state of the issue at the present

stage of development of methodological science and school practice.

Botany is one of the first biological courses, which, on the basis of primary information about the life of nature, received by students in the course of natural history, begins to form basic knowledge about the life of the plant world.

Given the integrative nature of biology courses, where one topic is used to draw information from various branches of biological science, some questions can only partially relate to the section to which they are assigned.

Despite some conventions of the distribution of information into sections, we can see what information (anatomical, morphological, physiological, environmental, evolutionary, etc.) prevails in the corresponding biology course.

A comparative analysis of these programs and the textbook can reveal their degree of illumination in the school textbook, which is absolutely necessary for every student, a future biology teacher, to know. This makes it possible to creatively study the issues identified by the school curriculum, but in the school textbook, there are insufficient or not revealed at all.

Based on the data of scientific analysis of program requirements and their implementation in the school textbook, one can determine the completeness or volume of leading knowledge, the educational opportunities of educational texts and the nature of the methodology for their coverage in the learning process. This develops students' research skills necessary for the teacher's creative work.

In recent years, the training of pedagogical personnel in higher educational institutions requires the strengthening of a scientifically based approach to the selection and assessment of the content of educational material, teaching methods and means, etc.

A modern teacher usually establishes a direct relationship with class students well, but does not always have the ability to determine the effectiveness of pedagogical interactions, analyze "feedback", objectively evaluate the cognitive activity of schoolchildren and other methodological issues related to the content, forms, means and methods of instruction.

Encourage students to master scientific and practical methods of studying pedagogical phenomena is recommended in three stages.

The first stage, introducing students to the basic methods of pedagogical research (for example, teaching school courses of the biological cycle):

- the study of methodological literature;
- familiarization with the methods of posing a scientific problem, a working hypothesis, drawing up a plan for a methodological study;
- study of the rules for compiling questionnaires for a written (oral) survey of students and teachers, as well as questions for standardized and non-standardized interviews, etc.

Despite the fact that students study the methodology of teaching biology in the third year, these questions are partially revealed in special classes for introduction to the specialty.

When studying the course of biology techniques, a continuity is established with the courses of pedagogy and psychology that precede the study of the methodology.

The second stage, the practice of organizing and conducting methodological research:

- acquaintance with the methods of studying personal and mass experience in teaching biology at school (conducting slice tests, analyzing the lessons of other teachers and introspecting personal lessons, extracurricular and extracurricular activities during the course of teaching). Studying the experience of teachers in periodicals - the journals Pedagogy, Scientific Bulletin of TSPU, Public Education, Vocational Education, methodological collections, collections of pedagogical readings and other sources highlighting advanced pedagogical experience available to students for scientific analysis ;
- observation of pedagogical phenomena at school and their scientific analysis. Direct and indirect monitoring (through other persons). The latter is carried out on assignment with a specific target setting.

Students are given specific observation topics, for example:

1. How the teacher sets the students to perceive new material in the lesson.
2. What issues did the students show interest in and why.
3. What is the effectiveness of the use of didactic cards in the lesson, natural and visual means of visibility.
4. What methods of testing students' knowledge prevailed in the lesson and why.

The third stage, the inclusion of students in a simple pedagogical experiment. Since the experiment requires intervention in the pedagogical process, the student needs to

clearly define the working hypothesis, accurately describe the conditions of the experiment and presumably express the expected result.

Each student receives a topic for independent work and performs it for half a year, and if it "grows" into a term paper, it is performed throughout the year. Timing of completion is largely dependent on the type of work. For example, the third-year students were set to study the primary sources, to make a scientific analysis of a variety of methodological literature.

Along with this, the topic of independent work touched on the problem of biology textbooks. Each student was invited to study one of the issues of this problem and give him a scientific justification. Where there was a need, research was carried out during teaching practice. For example: firstly, the coverage of nature conservation ideas in a textbook of botany; secondly, a methodical analysis of questions and tasks in the textbook of zoology; thirdly, experiments and observations in the textbook of anatomy, physiology and human hygiene; fourthly, the connection of text and illustrations in the textbook of botany; fifthly, the polytechnical orientation of the textbook of zoology.

It can be argued that the research activity of future biology teachers is a certain pedagogical technology, the use of which is aimed at mastering research competencies. In this regard, it is a multifaceted activity. This lies in the fact that in the process of training, future technology teachers acquire the skills of scientific research, taking into account the creative component of professional activity. At the same time, the costs of intellectual and physical capabilities of future biology teachers occur, time resources are spent, the processes of formation and development of professional and personal qualities are realized.

For the development and improvement of research teaching technologies, an important role is played by the teacher, who in the learning process determines the vector and ways of forming research competence in future biology teachers at a personal level. The collective research activity of teachers and students studying in the direction of biology includes: developing goals and mastering various ways of obtaining new knowledge at a theoretical and practical level; the formation and development of the ability to systematize and analyze the available results, to evaluate them. In the process of communication with the teacher and the support they provide, future technology teachers really realize the level at which they possess research competencies. All this helps to increase the level of educational motivation, as well

as their activation and independence, improving reflexive activity.

In conclusion, it can be argued that in modern conditions of development of innovative transformations, a future biology teacher, in addition to fundamental knowledge, must master the skills of innovative thinking, creative activity and research abilities.

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