PEDAGOGICAL AND PSYCHOLOGICAL COMPETENCE OF THE TEACHER IN BIOLOGY LESSONS.

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Abstract. This article provides information about the work of future teachers to improve the educational system in biology lessons, regularly improve their knowledge, skills and qualifications, and develop professional competence.

Keywords. competence, education, lesson, communication, education, computer, innovation, biological and pedagogical methodology, teaching methods, cognitive activity of students, subject-subject relations, general, individual and small group learning.

Аннотация. В данной статье представлена информация о работе будущих учителей по совершенствованию образовательной системы на уроках биологии, регулярному совершенствованию своих знаний, умений и квалификации, развитию профессиональной компетентности.

Ключевые слова. компетентность, образование, урок, общение, воспитание, компьютер, инновация, биолого-педагогическая методика, методы обучения, познавательная деятельность учащихся, предметно-предметные отношения, общее, индивидуальное и малогрупповое обучение.

Improving the education system sets specific requirements for future teachers to work on themselves and to continuously develop their knowledge, skills, and competencies. In fulfilling these important tasks, one of the key objectives is to develop the teacher’s professional competence, enhance their innovative activity, and foster interest in innovative processes as well as the skills for scientific inquiry—achieved through the introduction of innovative technologies into the teaching–learning process.

In the interactions that take place during biology lessons, the factor that represents the teachers’ shared interests is the common goal. All teachers naturally possess a certain degree of activity and aptitude for achieving this goal. However, if the established goal does not serve the common interests or is not coordinated in a timely and appropriate manner, then future teachers’ understanding of that goal—as well as their interpretation of the purpose, content, and essence of mutual communication and relationships—will depend on the level of their pedagogical competence.

In developing professional competence in teachers, the process of mutual interaction is reflected through a number of factors that influence the effectiveness of this process. Based on this idea, we will now discuss the factors that directly affect this process and serve as means for developing teachers’ professional competence.

One of the means of developing professional competence in teachers during biology lessons is the environment in which they work and live. This environment is considered an external factor that facilitates the mutual interaction of subjects involved in the process of developing teachers' professional competence. In such an educational–upbringing environment, the process of competence development arises through communication among participants and through the teacher's self-development. This factor is influenced by parents, the social environment, and the modern demands of society.

The sincerity and effectiveness of communication, information exchange, and interpersonal relationships among teachers depend, on the one hand, on the novelty and reliability of the information being shared, and on the other hand, on the extent to which their understanding and competence in a given area have been formed and developed.

In the emergence of communication among them—that is, in the exchange of information and the development of relationships—the underlying goal plays a decisive role in shaping these interactions either positively or negatively. In turn, this also influences the development of the teacher's professional competence.

In modern conditions, a teacher's ability to organize and manage a biological–pedagogical environment is of great importance. This ability, grounded in the teacher's professional specialization and preparedness—including rich pedagogical experience—enables the coordination of teachers' knowledge, skills, and competencies and ensures the effectiveness of the educational process, thereby demonstrating the teacher's professional competence.

It is essential for biology teachers in educational institutions to be able to organize and manage the pedagogical process on a scientific basis, as well as to create a favorable learning environment. To achieve this, they must be knowledgeable about various modern management methods and apply them effectively; be able to identify directions for developmental ideas; consistently study advanced practices and scientific–technical achievements; integrate them into their own work; and, within the teaching–learning process, promote teachers' independent activity in order to increase their subjectivity and engagement.

Organizing education on the basis of modern requirements—such as computerization and the use of computer networks—and introducing new pedagogical technologies into the education system, as well as promoting effective practices, are considered some of the most important tasks in the field of education.

Scientific knowledge is the reflection of objective reality in the human mind. Knowledge that reflects the laws of the surrounding world, the properties of objects and phenomena, and their interrelationships is considered scientific knowledge. Scientific knowledge requires experimentation, investigation, analysis, verification, and similar

processes. As humanity expands its scientific understanding, it gradually approaches a more accurate comprehension of reality. There also exist forms of knowledge that have not yet been scientifically proven, and such knowledge still requires human analysis and deeper study. In the educational process, we must provide students with knowledge that has been verified, established, and tested in practice.

The scientific nature of education is necessary in order to create appropriate conditions for students to recognize, understand, and master the laws reflected in the learning materials. Understanding theoretical principles—explaining material on a scientific basis—is an important indicator of this process and defines the characteristics of students' cognitive activity. Although scientific knowledge remains scientific, it may reflect reality at different levels of depth. Scientific explanation is essential at all stages of education and in every class. One of the functions of the principle of scientificity is to ensure that the system of theoretical information is understood in terms of how deeply it reflects the surrounding world. The principle of scientificity requires that students of all age groups and various educational institutions be provided with scientifically reliable and practically verified information.

In the process of acquiring scientific knowledge, students develop a scientific worldview and firm convictions, and their thinking becomes more advanced. To educate and prepare highly qualified national specialists, it is essential to ensure that learners master scientific knowledge that corresponds to the current level of scientific and technological development. Along with this, it is advisable to familiarize students with scientific research methods. The principle of scientificity applies both to the content and to the methods of teaching—that is, textbooks, instructional materials, curricula, and academic programs must all be developed on a scientific basis.

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