
**MECHANISMS OF COMPETENCE DEVELOPMENT OF PHYSICS
TEACHERS AT DIFFERENT LEVELS IN HIGHER MEDICAL EDUCATION
INSTITUTIONS**

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Annotation

The article discusses the features of the doctor's polytechnical competence and the algorithm for designing the content of the discipline "physics, mathematics" as a means of its formation. The features of teaching the discipline "Physics, Mathematics" in a medical university for future doctors are revealed. The issue of the latest methods of teaching physics, especially relevant for non-technical universities, is also considered.

Keywords: medical education, polytechnic competence, content design, fundamentalization and professionalization.

The developing society of the 21st century needs modernly educated, moral, entrepreneurial people who can independently make responsible decisions in a situation of choice, predicting their possible consequences, capable of cooperation, are distinguished by mobility, dynamism, constructiveness, and have a developed sense of responsibility for the fate of the country. Only a competent and self-confident person can possess such qualities.

For a young teacher, it is important to clearly distinguish between the concepts of "competence" and "competence". They are used in psychological and pedagogical activities, but there is still no unity in understanding the essence of terms. Competence (lat. *competentia*) is a range of issues in which a person is well-informed, has knowledge and experience, therefore, a person who is competent in a certain area has the appropriate knowledge and abilities that allow him to reasonably judge this area and act effectively in it. E.V. Bondarevskaya, A.A. Derkach, I.A. Winter, N.V. Kuzmina, A.K. Markova, N.V. Myasishchev, L.A. Petrovskaya and other scientists are the authors of various classifications of competencies. Some use the concepts of "competence" and "competence" to display the final result of learning, others - to describe various personality traits. Key competencies, says A.V. Tryapitsyn, are the general competencies of a person that are necessary for the socially productive activity of any modern specialist. Basic competencies are manifested in a certain professional area, special ones - when performing a specific pedagogical action, solving a specific problem or professional task. The concept of "competence" characterizes the subjective component of the profession, describing the qualitative characteristics of the subject of professional activity. Competence was studied quite deeply by A.K. Markova. A.K. Markova defines competence as an individual characteristic of the degree of compliance with the

requirements of the profession. It involves distinguishing between different competencies:

- special competence - possession of the actual professional activity at a sufficiently high level, the ability to design their further professional development;
- social competence - possession of joint (group, cooperative) professional activities, as well as the methods of professional communication accepted in this profession; social responsibility for the results of their professional work;
- personal competence - possession of methods of personal self-expression and self-development, means of confronting professional personality deformations;
- individual competence - possession of methods of self-realization and development of individuality within the framework of the profession, readiness for professional growth, the ability for individual self-preservation.

I.A. Zimny created three main groups of competencies:

- to oneself as a person, as a subject of life-activity;
- to the interaction of man and the social sphere:
- with society, team, family, friends, partners and others people;
- to human activity, manifested in all its types and forms.

N.V. Kuzmina showed that the competence of a teacher is an integrative property of his personality. The competence of the teacher, according to V.P. Bezdukhov, S.E. Mishina and O.V. Pravdina, (under certain conditions) develops in the process of long-term performance of activities. The directions of the formation of professionalism are the directions of the development of the teacher's competence. In the works of L.M. Mitina revealed the complex structure of the concept of "pedagogical competence". By pedagogical competence, we understand the unity of the theoretical and practical readiness of the teacher to carry out their professional activities. A.A. Verbitsky and O.G. Larionov argue that several centuries have passed since the birth of the traditional, university educational paradigm.

The polytechnical training of physics teachers is a modern requirement and a social order for the system of medical education. Scientific, technical and social progress cause new requirements and, accordingly, a new content of the doctor's training. The analysis of dissertation research, literature on the theory and practice of polytechnic education allows us to define polytechnic training as a process of forming the polytechnic competence of future specialists. Polytechnic competence is knowledge, skills, polytechnic orientation, abilities and motivation, readiness of the individual for transformative technical and technological activities. Polytechnic competencies, in our opinion, are the components (elements) of polytechnic competence. Thus, polytechnical competence occupies an increasingly significant part in the preparedness of a teacher. Polytechnical competence is necessary in the application of new equipment and technology in medicine. A high level of preparation of a doctor for practical and rationalization work with technical objects, including equipment, technologies, a set of

devices and technological processes, will ensure their constructive and fruitful use. The analysis of the factors in the formation of the polytechnical competence of a doctor begins with an analysis of his professional activity. The inclusion of polytechnic knowledge in the system of holistic professional training will allow the future specialist to effectively perform professional and social functions and continuously improve their qualifications, master related specializations, which is especially important for a modern doctor in conditions of high technical equipment.

The main goal of polytechnic training is the formation of polytechnic competence as the ability and readiness to accumulate, develop and apply the totality of relevant knowledge, skills and abilities. Polytechnic training provides a basic level of readiness for the technological development of the environment and transformative activities using the latest technical and technological developments and scientific achievements. When considering the scientific and technical factors of the formation of polytechnical competence, special attention should be paid to the analysis of modern medical technologies and equipment, qualitative changes in all aspects of professional medical practice. This factor is constantly increasing along with the intellectualization of labor, the complication of technology and increasing its diversity.

In general, polytechnic training at a medical university includes the formation of fundamental knowledge of physics and mathematics, necessary for the formation of a harmoniously developed personality with a clear idea of the integrity of the picture of the world and technological progress, and applied physical knowledge used in professional activities. The result of polytechnic training is the formed polytechnic competence. We propose to consider polytechnic competence as a set of three components (scientific-fundamental, techno-fundamental and professional-fundamental), each of which includes relevant competencies. The scientific fundamental component includes the competencies necessary for theoretical research activities: search and analysis of scientific information, scientific justification and formulation of conclusions, the ability to predict, recognize, analyze and solve natural science (physical and mathematical) technical problems and processes in various types of professional activities, i.e. use the appropriate physical and mathematical apparatus, the ability to see the natural scientific essence of the problem, theoretically develop and calculate a plan for solving it, predict the activity and development of complex systems, the ability and readiness to prevent undesirable consequences and recurrence of the problem.

The techno-fundamental component includes competencies necessary for successful professional technical and technological activities: the ability to work with medical equipment,

the ability to calculate the necessary and acceptable doses, concentrations, etc. for the patient. (apply biophysical knowledge in medical and technological activities). The professional-fundamental component includes professional competencies necessary for a narrow (specific) professional activity. For example: more deep knowledge and

understanding of the effect of ultrasound on the body, on the fetus, for specialists working on ultrasonic devices.

Thus, polytechnic competence combines narrower competencies, skills, knowledge and abilities necessary for their implementation. Considering competencies (which, in our opinion, are part of polytechnic competence) in terms of their place in the structure the competence model of a doctor, which is presented in the Federal State Educational Standard of Higher Professional Education, It can be noted that they are divided into general cultural competencies and professional competencies. We propose to single out also polytechnic competence in connection with its importance.

In conclusion, it can be said that it is possible to increase the effectiveness of training future doctors based on the development of different levels of competence of physics teachers in medical institutions of higher education. The result in competence-oriented education is the readiness for productive independent and responsible action in professional activities and everyday life. And teachers of medical universities are obliged to ensure the achievement of this result.

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