

FORMATION OF PROFESSIONAL COMPETENCIES IN THE PROCESS OF TEACHING PHYSICS IN MILITARY UNIVERSITIES

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Annotation: The article distinguishes between the terms “competence” and “competence”, which are similar in content, and defines their content and components. The definition of professional competence and its specificity among graduates of military universities, as well as some aspects of the formation of professional competencies in the process of teaching physics in military universities, have been studied .

Key words: competence, competence, professional competence, system-logical schemes for studying subjects, independent work, laboratory training, project activities.

Introduction

The rapid growth in the volume of scientific and technical information and the constant updating of technologies require specialists to have a very high level of fundamental training. For this reason, in subsequent years the need for competent specialists in various fields of activity, especially in the field of professional activities, has increased sharply.

The above factors require a change in the paradigm of military education, since at this stage of development, the future Armed Forces of our Republic need specialists - graduates of military universities who are at the initial stages of their service activities; in order to carry out professional service activities at a high level, they are required to undergo training.

If a military specialist after graduation, then it includes the level of formation of knowledge, skills and abilities in the field of skills that determine the irreplaceable characteristics of a person living in society, especially in a military organization, in a stable and changing environment, effective labor and professional activities, if he has received professional competencies, society’s requirements for the quality of training of graduates of military universities will be fully satisfied.

The main focus of training for a graduate of a military university is to develop the ability to perform various professional tasks and adapt to rapidly changing conditions, to be ready to increase the level of knowledge and skills.

The thinking of a military specialist is formed primarily on the basis of fundamental sciences - higher mathematics and physics. One of the most rapidly developing scientific and practical areas of research conducted in the modern education system is the specific competency-based approach. The inclusion of a

competency-based model in the military education system requires a clear definition of the terms “competence” and “competence” for key military specialists. However, as we found out as a result of analyzing the scientific literature, there is still no comprehensive understanding of the definitions of these terms among educational researchers. Categories of competence and competency were developed by I. A. Zimnyaya, M. A. Kholodnaya, A. V. Khutorsky and other authors.

Y. Zimnya said that the concepts of “competence”, “competence” and “competence” are widely used in everyday life and literature, and their interpretation is given in dictionaries. So, “competent” (Latin competent, competent - correct, capable) - knowledgeable in a certain field; has the right to do something or make a decision, to judge something on the basis of his knowledge or authority” [1].

According to him, “competence” includes:

- readiness to manifest this feature in human activity and behavior, knowledge of means, methods, action programs, problem solving, implementation of rules and norms of behavior, the content of this competence, its personal significance;
- emotional-volitional regulation, the importance of the ability to adequately demonstrate and regulate the manifestation of competence in social and professional interactions”[1].

According to M. A. Kholodnaya, “competence is a quality that serves as a criterion for the development of individual intelligence, a special type of organization of subject knowledge that allows effective decision-making in the relevant field of activity... competence presupposes a high level of understanding, problems in the field of a specific subject, experience performing complex actions, the effectiveness of judgments and assessments” [2]. It is important to emphasize that competence is formed in activity. N.F. As Efremova noted, “competence is the sum of knowledge, skills and abilities that allow a subject to adapt to changing conditions, in essence, it is his ability to act and survive in certain conditions... all of them are human experience and are related to activity. Competence does not manifest itself outside the situation and activity”[3].

V. A. Bolotov and V. V. Serikov's understanding of competence shows the characteristics of activity. In their opinion, “competence determines the presence of skills, knowledge and education that contribute to a person’s self-awareness, determine his place in life, therefore education manifests itself in a highly motivated way.” opportunity determines a person’s recognition by others and self-awareness”[4].

A. V. Khutorsky understands competence as “the acquisition and possession by a person of the corresponding competence, his personal attitude to the subject of

activity” [5]. According to this author, competence is an already formed personal characteristic of a student (a set of qualities) and minimal experience in a certain field.

For comparison, A.V. Khutorsky defines competence as “interrelated characteristics (skills, knowledge), understands it as “a set of skills, methods of activity” [5]. In his opinion, competence is a given social need (norm) for the education of a student, necessary for effective production activities in a certain field.

In scientific literary sources, the issue of competence and the structural nature of the competence of a graduate of a military university has not yet been fully developed. Taking into account the terms “competence”, “competence” in relation to a graduate of a military university as a future officer, A. V. Kutuzov identifies the following specific features of this concept, which are determined by the tasks, goals and results of training. a soldier during his training:

the presence of a social public order that defines the duties and goals of a serviceman, established in the charters of the Armed Forces and other administrative documents;

multifunctionality of professional military activity, which determines the variety of tasks of military service;

the integrity of the professional activity of a military specialist, as well as the nature of the integrated activity, combining the moral and psychological state of the personnel, the readiness of each individual serviceman to perform tasks in accordance with the set goal [6].

According to I. V. Nosko, the competency model of a university graduate is a set of competencies that the graduate possesses, what professional functions he is ready for and the level of training [7]. This requires future officers to have the skills, knowledge and ability to successfully work on solving professional problems.

The task of physics teachers is not only to give cadets accurate physical knowledge, but also to teach them to acquire it independently, using scientific literature and modern media. In turn, cadets must apply physical knowledge when studying general and special subjects, understand their practical significance and application, and be able to independently clarify, expand and deepen them in the right direction if necessary [8].

In order to ensure the continuity of disciplines and interdisciplinary connections as a result of mastering the physics course, cadets:

understanding and knowledge of definitions of physical concepts and categories used in special sciences;

knowledge of the formation of laws used in solving specific technical problems;

see the manifestation of some physical phenomena and laws, understand their essence, explain them qualitatively and quantitatively;

understand what physical laws and formulas are used when solving technical problems;

he must understand what events and laws are involved in the operation of military-technical facilities.

The content of the physics course ensures the development of the scientific outlook and competencies of a military specialist, and the main methods that professors and teachers must master to effectively solve this problem are:

providing professional direction in teaching;

use of modern technologies and student-centered teaching methods;

use of various forms in independent work;

widespread use of interdisciplinary communication;

assessment and correction of the formation of important professional qualities;

using a system of special didactic tools: textbooks, physical problems, educational research and laboratory work, collective and individual creative tasks.

The professionally oriented environment of special education uses didactic goals as a means of managing the development of specialists by comparing achieved didactic goals with departmental and state requirements for the training of specialists. Such an environment in a military university should be created as a result of the concerted efforts of the entire teaching staff and should be the most important component of the specialist training model [9].

A. Ivashchenko in his article together with S. Yu. Sedyshev focuses on ensuring the continuity of teaching physics and special sciences in military universities. According to the authors, following the basic principle in teaching a physics course, together with its practical orientation, helps students form not only a unified physical picture of the universe and scientific thinking, but also an idea of the logical connections of the sciences being studied provide an opportunity and provide motivation in the educational process [10].

For professional development, sustainable learning motivation is no less important than cognitive knowledge and skills [11]. The works of B. D. Tsukanov prove the need for special work on the development of educational skills, starting with the introductory lecture and continuing in subsequent lessons. For this purpose, a number of reports have been developed, the main objectives of which are:

- formation of ideas about the profession of an officer and the characteristics of the educational activities of cadets;
- mastering methods of working with literature and other sources of information;
- formation of skills to organize, plan, conduct independent work in the classroom and outside the classroom.

According to B.D. Tsukanov, the development of professional-cognitive motives in the study of physics occurs primarily through interest. The formation of interest in physics and the officer profession, through the use of visualization tools, as well as lectures, demonstrations, participation in experiments, giving an emotional coloring to all cognitive activities, stimulating creative activity, the use of computer interactive programs and interdisciplinary connections, can be realistically implemented.

Achieving this goal is achieved by understanding that physics as a science forms the basis of modern technologies, and as an academic science - the basis of special technical and general engineering sciences, the basis of the scientific worldview as a whole [12].

Conclusions

Thus, competencies are understood as the unique characteristics of a person, the capabilities and abilities to perform various tasks, the body of knowledge, skills and abilities necessary to carry out a certain professional activity, and prepare for effective work in the profession. actions. The uniqueness of a military university is determined by the impact of various requirements for military service, therefore the nature and structure of the graduate's professional competencies must correspond to the nature and tasks of modern military service.

Physics teachers also have the task of conveying specific physical knowledge to cadets and teaching them to acquire it. Also, cadets must update their physical knowledge when studying general professional and special subjects and understand their practical significance and application.

At the same time, in the latest literary sources on the topic being studied in the process of teaching physics in the formation of professional competencies in military universities:

- ensuring consistency in the teaching of physics and special sciences in military universities (interdisciplinary connections);
- use systematic and logical schemes for studying subjects;
- independent work outside the classroom; counseling cadets;
- teamwork;

learning through experience;
interdisciplinary and problem-oriented education;
research method;
use of various visual aids;
use of computer interactive programs;
participation in seminars, conferences;
research activities;
problematic situations;
ready-made and independently developed graphic tools;
laboratory experiments; individual development plan;
project activities.

Promising is a more in-depth study of various pedagogical technologies used in the formation of professional competencies in the process of testing individual technologies and determining their effectiveness in teaching physics.

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