

METHODOLOGICAL PREPARATION OF THE FUTURE TEACHER OF MATHEMATICS

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<https://doi.org/10.5281/zenodo.7743122>

Abstract. *The general pedagogical function of the teacher includes the ability to master the forms and methods of teaching, including organizing students' project activities. The labor actions of the teacher of the subject area "Mathematics" should be aimed at the formation of an informational educational environment that promotes the development of mathematical abilities of each student.*

The importance of mathematical education, the importance of high-quality training of a future mathematics teacher are reflected in the Concept of the development of mathematical education, the end-to-end principle of which is to build learning based on active activity.

Keywords: *concept, mathematics, geometry, teaching, education, components, competence, formation, information.*

The global Internet network provides ample opportunities in the modernization of the training of future teachers of mathematics based on information interaction between students, teachers and all other participants in the educational mode.

Based on the analysis of research on the problem, we came to the conclusion that in pedagogical theory and practice, the important questions formulated below are not fully disclosed:

- Opportunities and advantages of the mathematical disciplines of a teacher training university in the formation and development of the methodological competence of a future teacher of mathematics;
- the didactic potential of network communities and the effectiveness of their use in the formation and development of the methodological competence of the future teacher of mathematics in the process of teaching mathematical structures;
- methods, forms of educational activity of students and means of the learning process aimed at the development of methodological competence in the study of mathematical disciplines, using the potential of networked educational communication.

Analysis of the tasks offered to graduates at the ascertaining stage of the experiment made it possible to identify the most typical difficulties of a methodological nature: the inability to analyze the school curriculum in mathematics was demonstrated by -2%; select mathematical material for studying a new topic - 35%; design tasks of various levels of complexity for students in accordance with the specified learning goal - 23%; establish interdisciplinary connections between mathematics and other sciences and connections between individual sections of mathematics - 14%; solve the problems of the school mathematics course in various ways - 24%; organize the educational activities of students - 27%.

Based on the above, as well as the analysis of the mentioned scientific works, it can be stated that comprehensive studies that would address the issues of formation and development of methodological competence of a future mathematics teacher in the process of teaching

mathematics based on educational activities in online educational communities have not been identified to date.

In this regard, the main contradictions between:

– the possibilities of fundamentalization of the content of mathematical disciplines of the pedagogical university in the formation and development of the foundations of methodological competence of a future mathematics teacher and the insufficient development of theory and practice of the development of methodological competence of a mathematics student in the process of mastering mathematical structures are becoming more and more acute;

– the structure-forming role of mathematical structures in the content of mathematical education of the future teacher and the lack of pedagogical justification for their development and use for the development of methodological competence of the future teacher of mathematics;

– the high demands of society placed on a modern mathematics teacher who is able to effectively carry out the educational process in the information society and the insufficient use of didactic capabilities of online educational communities in the mathematical and methodological training of a future mathematics teacher;

– the potentially positive didactic capabilities of network educational communities in the development of mathematical structures as structure-forming mechanisms for the development of the foundations of methodological competence of a future teacher in a pedagogical university and the lack of pedagogical technologies for implementing appropriate educational activities in network communities in the process of teaching a future mathematics teacher.

The modern period of development of post-industrial society is characterized by significant socio-economic changes associated with the integrated introduction of information and communication technologies (ICT) in various spheres of production, science and education, which entails a change in the nature and structure of production, the place and role of a person in it. A modern person is now not enough only subject knowledge, he needs meta-subject knowledge and skills.

Modern education should provide graduates not so much with the sum of certain knowledge, but with a set of competencies that ensure their readiness to carry out professional activities in conditions of uncertainty, the ability to critically assess and predict socio-economic processes, and ideally, and influence these processes.

The domestic school needs to replace the ultimate goal of modern education - knowledge with competence. Despite the fact that the competence approach has taken root in the Russian educational system at the legislative level and there are already a number of major scientific and theoretical studies on the problem of the competence approach, the conceptual apparatus characterizing the meaning of its key concepts has not yet been fully established.

As M.L. Zueva notes, in many pedagogical articles the content of the phrase "competence approach" is revealed through opposition to modern pedagogical entities [3].

For our research, the definition of O.E. Lebedev's competence approach is of interest, which defines it as "a set of general principles for determining the goals of education, selecting the content of education, organizing the educational process and evaluating educational results.

These principles are defined by the following provisions:

1) The meaning of education is to develop students' ability to independently solve various problems based on the use of social experience, including their own experience.

2) The content of education is a didactically adapted social experience of solving ideological, cognitive, political, moral and other problems.

3) The meaning of the organization of the educational process is to create conditions for the formation of students' experience of independently solving cognitive, organizational, communicative, moral and other problems that make up the content of education.

4) The assessment of educational results is based on the analysis of the levels of education achieved by students at a certain stage of training" [2, p. 3-4]. Thus, from the point of view of the competence approach, the result of education should not be the sum of the information learned by the trainees, but the ability of the graduate to act independently effectively in various fields of activity based on the use of his own experience acquired in the learning process. In many European countries, the competence approach is implemented in national educational standards.

In vocational education, the essence of the competence approach consists in the formation of a certain set of key competencies in the student, which will subsequently allow him to successfully undergo professional adaptation in modern society.

Unlike the term "qualification", competence in the understanding of the educational standard is "a mastered disposition of achievements that develops as a result of the continuous formation of knowledge and skills in a specific subject or group of subjects and allows you to solve various tasks, problems and situations ..." [3].

General competencies include:

- instrumental (general scientific), including basic knowledge in the field of humanities and natural sciences; basic computer skills; the ability to search and analyze information from various sources; the ability to organize and plan their activities, etc.;
- interpersonal (socio-personal), including the ability to work in a team, the ability to carry out constructive criticism and self-criticism, own a common culture;
- systemic (including organizational and managerial), including the ability to apply the acquired knowledge in practice; the ability to adapt to new conditions; the ability to organize and plan their activities, etc.

Special (professional) competencies include:

- basic general professional knowledge in the chosen field of professional activity;
- professional profile (specialized) knowledge, taking into account the specific profile of the graduate. B of the third generation, the same set of general competencies is defined for one area of training, a sets of special competencies in accordance with the level of education received (bachelor, specialist, master) are made different in volume. Their number increases with the transition to a higher level of graduate training. The formation of each competence is provided by a well-defined set of disciplines combined into appropriate modules, the content of which is aimed at their formation.

After analyzing more than ten definitions [3, 75], we can draw the following conclusion.

Firstly, researchers interpret the term "competence" in different ways: it is a range of issues in which someone is well aware, and the level of development of the student's personality, and generalized methods of action, and a set of interrelated qualities.

Such an abundance of interpretations makes research in the field of competence approach disjointed and difficult. However, despite the disunity in the interpretation of this concept, most definitions not only do not contradict each other, but rather complement each other and are based on two general provisions

1. Competencies are considered in the unity of theoretical knowledge and practical activity.

2. Competencies are used to describe the results of education. A.B. Khutorskoy understands competence as "a set of interrelated personality qualities (knowledge, skills, skills, ways of activity) set in relation to a certain range of subjects and processes and necessary to act efficiently and productively in relation to them" [6 p.60]. Addressing to the primary sources (see, for example, Spencer L.M., Spencer C.M. "Competencies at work" [6]) of the competence approach, we see that initially competencies characterize a person's ability to perform social, rather than substantive actions described in terms of knowledge, skills and abilities.

Thus, competence is always associated with the personal qualities of a particular student. The researcher points out the need to separate the concepts of "competence" and "competence", meaning by the first a predetermined requirement for a person's educational training, and by the second – his already formed personal quality (a set of qualities) and minimal practical experience in the chosen field of activity.

The concept of E.E. Volkov's competence includes "not only cognitive (knowledge) and operational-technological (skills and abilities) components, but also motivational, personal, ethical, social and behavioral" [4, p.41].

In the definitions presented above, there is a variety of interpretations of the term "competence", which indicates the versatility of this concept, its relative novelty in pedagogical science, which led to a variety of scientific approaches that researchers relied on when defining it, starting with personal activity and ending with psychological.

When interpreting the concept of "competence", most researchers observed the unity of points of view on competence as a personally and socially integrated result of education; the presence of common components that make up its content (knowledge, skill, experience, personality qualities); understanding that competence is a manifestation of the relevant competence. Taking as a basis, the definition given by Senashenko B.C., Kuznetsova B.A. and Kuznetsov B.C., competence will be understood as an integral characteristic of this person, reflecting the integrity of her professional activity, evaluated by the professional community.

Thus, competence refers to the personality of the student and represents the unity of his qualifications and experience, when a graduate can not only successfully work in a certain field, but also applies his knowledge, skills, skills and personal qualities to create new objects of professional activity.

Based on the works of Russian psychologists, I.A. Zimnaya identified three groups of competencies related to: oneself as a person; to human interaction with other people; to human activity manifested in all its types and forms [6].

In the modern conditions of the development of post-industrial society, an urgent task of research in pedagogical education is to determine the composition of competencies, the possession of which will ensure high-quality and effective performance of pedagogical activity by a graduate. There is also an open question about the criteria and indicators of the formation of professional competence at different levels and stages of professional formation of a teacher.

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