

FEATURES OF THE DEVELOPMENT OF MATHEMATICAL COMPETENCE OF STUDENTS OF HIGHER EDUCATIONAL INSTITUTIONS

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ABSTRACT

The change in the description of the learning outcomes of the concepts of "education", "general culture" to "competence" and "competence" is characteristic of the entire educational process and is implemented through a competency-based approach. The latter provides a qualitatively new level of education, in which goals and results are presented in the form of a set of competencies, with the help of which new educational standards are implemented.

Keywords: Development, competencies of students, higher educational institutions.

INTRODUCTION, LITERATURE REVIEW AND DISCUSSION

As a result, there is a change in the content of education, a rethinking of its goals and results. Of course, the idea of a competency-based approach is not new, but as before, its application to various components of the educational process is either at the development stage or at the stage of refinement.

According to V. I. Baidenko [1], the transition to new standards, the conceptual basis of which is the competency-based approach, is necessary, since a complete integral assessment of the quality of training of graduates is possible only when describing their competence in the relevant field of activity.

The transition from a qualification model of a specialist to a competency model is justified, because more and more often, employers need not qualifications, which, as a rule, are identified with the ability to perform various operations, but competencies, which combine both qualifications and social behavior, the ability to work in a group, initiative. The qualification approach implied that the educational program describes objects or objects of activity, but does not affect what knowledge, abilities, skills and experience of behavior correspond to the effective and high-quality life of a person in various aspects.

The competency-based approach as a concept, as a system for describing the result of education, as competency-based learning began to develop intensively at the end of the twentieth century, this process continues to this day.

A competency-based approach to training focuses on the result of education, which is recognized as significant outside the education system. The most important goal of this approach is to develop a person's ability to act in various life problem situations, rather than mastering a certain amount of information.

The main difference between the competence-based paradigm of education and the qualification one is that all groups of competencies are personality-oriented, that is, each

competency is based on a personality. That is why it can be argued that the competency-based approach significantly expands the content of the educational process with its own personal components, which allows us to consider the student's personality as the highest value and suggests its development on the basis of the unity of general cultural, moral and professional formation. At the same time, "the studied knowledge should be personally significant for the student".

The concepts of "competence" and "competence" are the main categories of the conceptual basis of the competency-based approach that researchers form in accordance with various grounds, and today there is no clear understanding of them. In this connection, there are many interpretations of these concepts, some of which are given below. The standard notes "Competence - the ability to apply knowledge, skills, personal qualities for successful work in various problematic professional or life situations. Competence is the level of ownership of a set of competencies, reflecting the degree of readiness of a graduate to apply knowledge, skills, and competencies formed on their basis for successful activity in a certain field" [7]. According to I. Zimniya, competence is a combination of knowledge, rules operating them and using them. Competence is a knowledge-based, intellectually and personally determined experience of a person's social and professional life activity, a personal property that manifests itself in his behavior and is characterized by cognitive, motivational, semantic, relational and regulatory components" [3], according to A.V. Khutorsky competence - this is a set of interconnected personality traits (knowledge, skills, methods of activity), defined in relation to a certain circle of objects and processes and necessary for productive activities in relation to them" [8], according to V.S. Bezrukov, competency is the possession of knowledge and skills that allow professionally competent judgments, assessments, opinions to be expressed" [4], according to V.V. Serikov, competence - it is possession of a holistic situation of action. Competence is a self-generated form of existence of activity, a psychological mechanism of continuous self-education, the production of new knowledge and skills, the identification and adoption of tasks" [2].

Despite the many interpretations of the main categories that make up the competency-based approach, some general ideas are still visible:

- competence is considered as an activity characteristic of a person, which represents not only knowledge, but also experience, which together allow in the future to successfully and productively carry out activities;
- competency is a category by which they represent the results of education;
- competence represents the willingness of students to solve various levels of complexity of tasks both in the scientific field and in the surrounding reality.

We adhere to the following definition: "Competence is a qualitative characteristic of a person, his potential ability and willingness to solve various problems that form in an activity and integrate a value-semantic attitude towards it. Competence is the possession of certain competencies".

Accordingly, by the mathematical competence of students in humanitarian areas of training at a university, we understand the integrative quality of the student's personality that characterizes his ability and willingness to use the system of general scientific and general methodological mathematical concepts, approaches, methods and methods of activity for solving humanitarian problems, practical activities, the study of related disciplines, continuing education.

In the course of our work, we have identified the components of mathematical competence, criteria criteria, stages and levels of its development.

In our opinion, the following aspects of educational and cognitive activity should be reflected in the structure of mathematical competence: motives, thought activity, performing and planning actions. That is why, its structural components are the following: value, intellectual, operational-activity, organizational-activity.

A competency-based approach to updating the content of the mathematical education of humanities will allow the theoretical knowledge acquired in the process of mastering it to transform into a holistic experience of various ways of working to solve a wide range of problems in both the scientific field and the surrounding reality. At the same time, mathematical education itself should not be highly specialized, traditional, which will allow students to form an integral scientific picture of the world, a new interdisciplinary worldview. Interdisciplinary integration is necessary on the basis of a complex of cultural, system-activity and competency-based approaches to modern education. Such a vision will allow integrating the natural science and humanitarian component cultures of the student.

There are a number of factors that confirm the need for re-development of the content of the mathematical training of humanities, namely:

- changing requirements for the quality of training of graduates;
- introduction of a standard based on a competency-based approach;
- deepening the process of mathematization of humanitarian fields of knowledge;
- the need to improve the general cultural and general methodological training of students.

The analysis of the educational process, carried out during the dissertation research, revealed a low level of mathematical preparation of students of humanities. As a result, it was decided to analyze the more thoroughly available textbooks, teaching aids and curricula in mathematics, to get acquainted with the experience of other universities in the field of this issue.

It should be noted that mathematics has not been taught at the humanities departments of universities since the beginning of the 20th century, when there was a transition from the course form of instruction to the subject form. Such a long absence of the natural-science education of the humanities was the reason for the current situation, when the level of intellectual training of the younger generation was mostly reduced. You can not talk about the high level of human development of the individual, if he does not have certain knowledge, including in the field of mathematics.

Again, the mathematical education of humanities was introduced along with State educational standards and retained the name of the discipline. As for the minimum requirements for the level of training of specialists, then in this area there were no significant differences.

Now the standards set signs, namely: component-based approaches; modular construction. According to the definition given in the standard, a module is a combination of parts of an academic discipline or academic disciplines that has a certain logical completeness in relation to the established goals and the results of education, training, i.e. responsible for the development of a particular competency or group of competencies. the volume of the study load, calculated in credit units. The standards are focused primarily not on communicating a complex of theoretical knowledge to students, but on developing competencies among students that will allow them to become competitive in the labor market and successfully professionally realize themselves in a wide range of sectors of the economy, culture and education.

This indicates the strengthening of the fundamental component of the learning process, which can be regarded as an opportunity to return to universal, fundamental university education. It can be concluded that in terms of content, radical changes did not occur, which cannot be said about the requirements for the level of training of specialists, which, according to new standards, are expressed in the form of competencies, which are the main design of the content of each curriculum.

Instead of the “from general to particular” approach, i.e. from didactic units to the program, the approach “from each specific competence to the development of the content of each discipline” is being implemented.

Our comparative analysis of educational standards showed the following differences:

1. The targets in the standards were expressed in the form of requirements for the compulsory minimum of educational content, which are a system of didactic units, and in the qualification requirement in the form of requirements for the formation of certain competencies.
2. The standards dictated the formation of the content of mathematical training based on the list of didactic units, the requirement of qualification from the content of competencies.
3. The standards determined intersubject communications based on didactic units, the new standards form each competency not as a separate discipline, but as a combination of them, thereby deepening the process of integrating the content of education.
4. Standards independent work was regarded as an addition to the classroom. In the requirement of qualification, they regard it as the most significant type of student's educational activity for competency development, not inferior in value to the classroom.

Thus, the new standards, built in a competency-based format, regulate not the content of education, but also the requirements for the structure and results of mastering the basic educational programs and the conditions for their implementation, giving universities the opportunity to build flexible, modular curricula.

The competency-based approach even more actualized the issues of selecting content and designing new technologies for implementing the educational process in relation to mathematical education. This requires the search for new methods and approaches to learning, which initiated this study.

The difficulties associated with teaching mathematics to the humanities are due to the following factors:

- features of students' thinking;
- insufficient level of mastery of the mathematical apparatus during the period of study in high school;
- lack of a natural science direction in the development of students' abilities;
- those methodological aspects that would ensure the combination of the course of mathematics with the general cultural, general professional and general methodological formation of future specialists were not sufficiently developed.

The low level of mathematical training of students in humanitarian specialties is associated with insufficient study of mathematics in high school graduate certification, and therefore the orientation of the school curriculum on a single goal: preparation and passing exams, and such goals as the formation of a stable positive motivation for studying mathematics, their awareness of the role and the places of this science in the knowledge of the surrounding reality, the formation of the natural science and mathematical culture, remain unaffected and unrealized.

Students themselves face difficulties: they do not have the necessary basic training in this subject, many lack the skills of independent work.

Moreover, students have various abilities and inclinations to learn, which causes them certain psychological difficulties in the process of perception of often abstract concepts. This causes teachers such problems as the design of the mathematical education of humanities. B. M. Teplov believes that “the thinking of humanities is characterized by a slow generalization, which determines the solution to each specific problem as completely new” [6].

According to I. Osmolovskaya “the peculiarities of the thinking of humanities students are figurative thinking, mastery of the art of speech, which leads to a lack of rationality and the ability to think with concise and concise conclusions” [4].

All topics in mathematics once again emphasizes the important role of mathematical education and the need for competent sciences is wide enough and each of them requires a different level of mathematical preparation. For this reason, we highlight those humanitarian areas of training for which the study is relevant and for students whose mathematical competence is an element of their common culture. In the context of our study, such areas include history, teacher education. As you can see, all the course material is grouped around the main issues of using the mathematical apparatus for processing information.

At the same time, students are transferred not only ready-made templates of methods of activity in various situations, but also, most importantly, knowledge on the methods of searching and acquiring new ones. This will maximize the students' creative potential, their cognitive activity, and thinking. Which ultimately will allow students to independently transfer previously acquired knowledge to a new situation; find a problem in a familiar situation; see the new properties and functions of a familiar object, its components in the relationship; see alternative solutions; combine previously known methods.

So, the understanding of the need for the joint implementation of the above approaches as the methodological and psychological foundations of the educational process initiated the search for an integrative approach that would combine their basic principles and make it possible to achieve the quality of education for which in modern conditions there is a request.

REFERENCES

1. Bidenko, V.I. Competency-based approach to the design of state educational standards of higher professional education (methodological and methodological issues); method. The allowance / V.I. Bidenko. - M. Research Center for the Problems of Quality of Training of Specialists, 2005. - 114 p.
2. Bezrukov, V.S. Pedagogy; textbook. The allowance / V.S. Bezrukova. - Rostov n / a. Publishing house <Phoenix> 2013. -- 381 p.
3. Winter, I.A. Key competencies as an effective and targeted basis for a competency-based approach to education; materials for the 1st meeting method. Workshop May 20, 2004 / I.A. Winter.- Moscow. Research Center for the Problems of Quality of Training of Specialists, 2004. - 40 p.
4. Osmolovskaya I.M. Key competencies in education: their meaning, significance and methods of formation / I.M. Osmolovskaya // School Director.-2006.-№8.-p.64-69.
5. Serikov, V.V. Competency model; from idea to educational program / V.V. Serikov, V.A. Bolotov // Pedagogy. - 2003 -№10 - S. 8-14.
6. Teplov B.M. Selected works: in 2 t / B.M. Teplov.-M.: Publishing House Pedagogy.-1985.-T.1.-385 S.

7. Federal state educational standard in the direction of preparation "Pedagogical education" (bachelor's degree 4 years)

8. Khutorskoy, A.V. Competence as a didactic concept; content, structure and design models / A.V. Khutorskoy, L.N. Khutorskaya // Design and organization of students' independent work in the context of a competency-based approach; interuniversity. Scientific Review / ed. A.A. Orlova. - Tula; Publishing House of Tula. Gos. Ped Univ., 2008 - Vol. 1. - S. 117-137.