

METHODS OF INTENSIFICATION OF TEACHING MATHEMATICS OF HUMANITARIAN STUDENTS

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ABSTRACT

This article discusses the features of teaching and methods of intensifying the teaching of mathematics for students in the humanities. The role and significance of the formation of students' independent activity skills are also considered.

Keywords: Intensification, method, feature, independent activity, individualization, didactic, methodological tools.

INTRODUCTION, LITERATURE REVIEW, METHODOLOGY

At the present stage of the development of university education in teaching mathematics to students of humanitarian specialties, significant contradictions have been identified between: the increasing penetration of mathematical technologies in the humanities and the low motivation of students of humanitarian specialties in the study of mathematics; the need to individualize the training of students in humanitarian specialties due to their different abilities, interests, pre-university training in mathematics and the lack of appropriate science-based didactic and methodological tools in the context of intensification of education; a decrease in class time, with a simultaneous increase in students' independent work in humanities mathematics and a low level of students' independent activity skills formation.

Discrepancies found determine the relevance and determine the choice of the topic of this article, the problem of which is to identify and implement ways to improve the teaching methods of mathematics for students of humanitarian specialties of universities in the context of intensification of education.

Another matter is the question of teaching mathematics students in the humanities profile. I must say that from the moment the decision to switch to specialized education was made, both mathematics programs and textbooks for the social sciences and humanities appeared, but difficulties in teaching remained ... Here we must proceed from the fact that mathematics is a humanities science. Since mathematics is a language that has its own vocabulary and its own grammar. In addition, mathematical ideas and methods gradually penetrate the humanities, instilling in them a strict style of thinking. This is logic, this is linguistics, sociology, psychology, etc.

From all that has been said, it is necessary to teach mathematics to humanitarian students taking into account their psychology. We are talking about the content of the course and how to teach it. Speaking about the content of any course in mathematics, three main aspects can be distinguished: logical, figurative, and technical. For the humanitarian profile, the logical aspect is most important. To formulate concepts, build classifications, separating essential features from non-essential ones, to conduct rigorous logical reasoning and evidence in an attempt to

convince someone - this is the main achievement in mathematics for humanitarian students. Marc Fabius Quintilian, in 12 Books of Rhetorical Instruction, wrote: "... order is needed in geometry; Is he not needed in eloquence? The geometry of the previous proves the next and the known unknown, isn't that what the speaker does? The strongest arguments are usually called geometric proof. What is more needed in speech than proof? " It is necessary for the student to master the vocabulary of the mathematical language: understand the meaning and features of mathematical signs, distinguish definable concepts from undetectable ones, understand what a definition is, an axiom, a theorem, and be able to formulate complex mathematical statements from simple ones. Of course, all these questions can and should be solved on the basis of most of the traditional sections of the mathematics course. Of particular importance is the "probabilistic" chapter, because stochastic thinking is a special form of cognition of reality, with the principles of which every person should be familiar.

But mathematics is not only a school of logical thinking, it is also a source of images. Its figurative aspect is certainly very important for people with humanitarian interests. To be able to see various forms in their spatial and planar images, to recognize configurations, to imagine the type of graph, knowing the properties of the function - all this contributes to the development of imagination and aesthetic feeling. Such teaching of mathematics contributes to the emergence of associations and helps to feel the integrity of the studied objects.

The computational aspect of mathematics in the humanitarian profile does not play a paramount role, but like any modern person, it will be necessary to carry out various computational operations from time to time, not to mention the fact that the idea of number as one of the elements of culture must enter the flesh and blood of the humanities. In addition, a humanitarian student would need to get acquainted with some concepts and computational methods that are directly applied to psychology, sociology, linguistics and other humanities.

The humanitarian style of teaching requires that students of the humanities faculty: be able to clearly and correctly express their thoughts, choose the right words and build sentences, learn how to use mathematical terms correctly, etc.

RESULTS, DISCUSSION

Of course, the humanitarian teaching of mathematics is unthinkable without studying its history. Here we are talking about the history of the emergence of mathematical concepts, terms, and outstanding humanities who knew mathematics well. For example, Omar Khayyam and the Fifth postulate of Euclid, A.S. Pushkin and the special mathematical rhythm of the Onegin stanza, the architect A. Voznesensky is an excellent mathematician, and therefore not like his other poems, composed according to special mathematical laws, and many other examples.

Studying mathematics in the humanities faculties does not suspect a decrease in knowledge.

Education in mathematics for students of humanitarian specialties should:

- 1) make full use of psychological and pedagogical approaches to learning: taking into account the characteristics of the humanitarian student audience (memory, attention, thinking, fatigue), the use of individual tasks, visibility, a combination of various forms of conducting classes, propaedeutics of introducing new concepts and facts, creating a favorable psychological climate for classes;

- 2) be built on a differentiated basis, be level in complexity and depth of study of educational material;

- 3) have a problem-developing character and for the formation of positive motivation, and students' interest in learning;
- 4) to stimulate and intensify the independent cognitive activity of students, to educate students with abilities, skills and inclinations to continuous self-education, independent development, analysis and selection of new information;
- 5) characterized by scientific and fundamental knowledge, implemented through the content (the presentation of material in large blocks) and the logic of constructing a training course, to widely use the axiomatic and deductive principles of building courses;
- 6) to develop students' intuition, for which it is advisable to use heuristic techniques in suitable situations;

Thus, it is possible to implement the intensification of teaching mathematics by using elements of individual, differentiated, problematic and programmed teaching. Moreover, a special role is given to the intensive monitoring of students' knowledge, which increases students' activity in studying this discipline, preparing them for classes and timely completion of tasks, as well as students' independent work proper.

In addition to classroom hours, the curriculum provides for a fairly large part of the time for independent work. So, for the specialty "philology", 40 hours are allocated to it from the entire course of the volume of 116 hours. Therefore, it is necessary to organize the activities of students optimally. In this regard, it is proposed not only that students complete current general and individual homework, but also creative work in the form of research and essays. A. Disterweg wrote "where boredom begins, attention stops there, and therefore education", confirming the need for the learning process to motivate learning and the interest of students in the subject. In this regard, the teacher should think over the topic of essays (focusing on the specialty), indicate possible sources of information, develop a sufficient number of differentiated tasks that are interesting and feasible for students to carry out various training, as well as give them relevant necessary recommendations at the beginning of classes. Experience has shown that the search for new knowledge in mathematics for humanitarian students really causes interest, broadens their horizons, reveals the depth and breadth of mathematical facts, their applications in various fields of human activity. At the same time, students often use Internet sites, which contributes to the implementation of intersubject communications of mathematics and computer science. The famous mathematician, academician of the Russian Academy of Sciences L.D. wrote about the importance of self-education for modern man. Kudryavtsev: "the learning outcome is assessed not by the amount of information, but by the quality of its assimilation, the ability to use it and the development of the learner's abilities for further independent education" [5].

To highlight the issue related to testing students' knowledge, as an example, we will use a mathematics course for the specialty "philology", which is studied at the Jizzakh State Pedagogical Institute. The course of mathematics includes the following sections: the basic elements of algebra and analytical geometry, the basics of differential and integral calculus, probability theory, elements of mathematical statistics. In turn, each of them is divided into several separate themes, which is a reflection of the programmed approach.

The study of each topic involves not only the study by the student of the relevant theoretical and practical material of lectures or study guides, but also the implementation of individual homework. Such tasks can be differentiated by three difficulty levels, which each student chooses independently, based on the level of their basic school training in mathematics and confidence in their implementation. At the same time, the student uses the material of lectures,

textbooks and teaching aids for the course of mathematics. It is important to emphasize that in the first lesson, the teacher covers the entire plan for studying mathematics. This includes: the structure of the course, recommended literature, work requirements for students who need to report a certain amount (which is discussed right there) of classroom (test) and individual homework, do independent work and protect it from the teacher, and in the end - go through the test computer control of the course. Only if all the conditions described are met and their successful fulfillment is a student considered to have mastered the corresponding course.

By identifying and informing students in advance of the level of requirements for their knowledge, we thereby allow them to develop a reasonable plan of action and remove the state of uncertainty and anxiety regarding such a complex subject in the view of humanities as mathematics.

Each practical lesson begins with a little test work. Students are given individual assignments on topics covered for 5-7 minutes. Such tasks may include definitions, problems, incomplete statements of theorems, properties, and formulas. This method of knowledge control allows you to check the current preparation of all students for classes. This is really important, because in two academic hours an ordinary oral questioning cannot cover the entire audience, and feedback should be fully implemented during the intensification of training [7].

CONCLUSIONS

Thus, the use of tests requires careful preparation of students for classes, which contributes to better learning with the same time spent in classroom time. In the practical lesson, the main attention is paid to informing students of the necessary theoretical information, to analyzing and solving problems on the topic under discussion, and to verbally interviewing three or four students. With such a small time frame of the course of mathematics, a greater bias is placed on the independent work of students at home. In order to enable students who are lagging behind to rectify the situation, individual lessons (or, as they say, "workouts") are held throughout the semester. On them, students perform missed them or re-solve incorrectly completed test tasks, receive teacher advice, and use additional literature. This creates the conditions for everyone who wants to get the help of a teacher in case of difficulty in solving homework and eliminate "hopeless" situations [3].

Only with this approach to learning can we count on its success.

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