TECHNOLOGICAL APPROACH TO DESIGN A METHODOLOGICAL SYSTEM OF TEACHING MATHEMATICS FOR HUMANITARIANS

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Abstract. There are also methodological problems, the study of which is important both for the history department and philological, as well as for mathematical education. These are the general patterns of development of any science, the internal springs that cause its generalizations, ramifications, and specialization. And in this area it is equally effective to bring examples from mathematics, and from historians, philology - due to the already noted unity of the process of cognition.

Keywords: technology, teaching mathematics, humanities, the National Curriculum, history, philology, theory and practice.

Modern society poses non-trivial tasks for the education system related to the development of a pedagogical strategy in the context of mass computerization and informatization. Natural science education in today's higher education will experience serious difficulties, primarily due to the decline in the prestige of mathematical education.

As a result, the competition for non-mathematical specialties in universities is increasing and the number of applicants seeking to receive a liberal arts education is increasing. At the same time, the introduction of new State Educational Standards for Higher Professional Education (National Curriculum of Uzbekistan) and the transition to modern teaching technologies presuppose good mathematical training for secondary school graduates. One of the ways out of this situation can be the formation of a new model of mathematical education for the humanities, which involves the development and implementation of:

-pedagogical technologies, including modern approaches to training and education;

-mathematical courses for the humanities based on the ideas of knowledge synthesis and an interdisciplinary approach.

We are all so used to the fact that MATHEMATICS combines many familiar (arithmetic, geometry, etc.) and little-known sciences (topology, calculus of variations, etc.) that we do not think about the origin of this word. And if we look into the dictionary, we will be surprised to find out that mathema again means knowledge, science. And this is quite understandable, since in ancient Greece exact knowledge, cognition, first of all, was associated with quantitative assessments, with mathematics.

Thus, even in the name of the seemingly opposite sciences of mathematics and history, philology, their unity and common goal - knowledge are embedded! This also reflects a more general position: knowledge is one, its division into separate specialized sciences is convenient for the development of research in narrow areas, in separate directions, but harms education.

Teaching a traditional course of mathematics (even in a truncated form) is not very effective and does not achieve its goal. The following questions need to be asked:

☐ What can philology expect from mathematics?

 How can philology help mathematics?

The answers to the first question are more or less obvious: to provide tools for substantiating various research hypotheses, quantifying their reliability, and formalizing structures. These goals are served by various frequency studies, structural linguistics, methods of encoding and deciphering texts, analysis of the origin and connection of ethnic groups based on the comparison of languages, assessment of text authorship using cluster analysis and pattern recognition.

The answers to the second question are less obvious, although the experience of recent decades contains quite a few examples of such a "backward influence": patterns of creation and analysis of special artificial languages on the basis of the experience of analyzing natural languages, the creation of a dictionary and grammar in various mathematical "calculus", patterns of using the already mentioned linguistic variables, etc.Mathematics should be considered as the most important component of the quality training of a future specialist. This is due to the fact that mathematics is not only a powerful tool for solving applied problems and the universal language of science, but also an integral element of a common culture. Indeed, one can say that modern society lacks a mathematical research culture in the Galilean sense: one must measure what can be crushed, and try to measure what cannot be measured.

Mathematics arose as a tool for the most general and objective, and therefore the most abstract and formal description of the laws of nature. And no general cultural education without a reasonable teaching of mathematics is simply impossible.

The design of a mathematics course for the humanities should be carried out in such a way that students have a holistic view of:
• about the main stages of formation of modern mathematics;
• about the basic mathematical concepts and methods used in major disciplines;
• about the role and place of mathematics in various fields of human activities.

Pedagogical design is a special kind of professional activities of the teacher, representing a system of technological regulatory, ensuring the construction of a holistic educational process.

The design activity of the teacher is considered by many methodologists: N.A. Alekseev, O.S. Anisimov, V.M. Monakhov and others.

The concept of modernization of education, the National Curriculum of Uzbekistan and its priority tasks: the quality, accessibility and effectiveness of education are considered as the methodological basis of the study.

The mechanism for modernizing the mathematical education of humanities students is a new class of tasks facing university practice. The process of modernization of mathematical education, carried out at Termez State University and Termez State Pedagogical Institute, is based on pedagogical design activities, a technological approach to design activities and the implementation of an innovative educational system, which reflects new philosophical, psychological and pedagogical approaches to studying and understanding the personality of a humanities student, to his education and self-development.

Determining the features of the perception of mathematics by students in the humanities made it possible to take a fresh look at the formation of motivation for studying subjects of the natural and mathematical cycle. By focusing on enriching the content of motivation among humanities students, it is necessary at the first stages of studying mathematics to encourage the very activity of humanities students, and not just its results, and to promote the overall natural and

mathematical development. Consideration of the mathematical component of the professional training of humanities in accordance with the NUP (National Curriculum of Uzbekistan) is actually the boundary condition of the study. The content of the course of mathematics amuses the following aspects: figurative, logical, computational, applied.

For the humanities, the first of them is most important - figurative, and the entire study of mathematics should be based on it (A.A. Mukhanova, E.A. Morozova, I. L. Proshletsova, N.Kh. Rozov, E.V. Shikin, etc.). It contributes to the development of associative thinking and helps to feel the integrity of the studied objects.
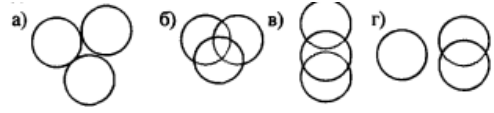
Particular attention in the development of logical thinking should be paid to the active mastery of the vocabulary, syntax, semantics and pragmatics of the mathematical language by the humanities, while the computational aspect of the humanists fades into the background. And since the traditional methods of teaching mathematics are focused mainly on technical applications, it is necessary to reorient the course of mathematics towards applied humanitarian tasks.

When adapting the technology of V.M. Monakhov to the peculiarities of teaching mathematics at the humanitarian faculties of the branch, it turned out that simply copying it does not give the expected result. It was decided to modify the passport of the educational process that has already become standard - the technological map and to abandon the explicit presentation of its two parameters - the logical structure and correction.

As a result, a new form of the educational process project was created in the form of a technological module with three parameters: goal setting, diagnostics, dosing. The technological module acts as the main design document in teaching mathematics for the humanities.

Next, we consider a range of methodological problems related to the fundamental issues of developing a model of design activity to create teaching mathematics for humanists. As a result of theoretical studies, a list of fundamental technological approaches has been identified, which are the methodological basis for constructing a theoretical model of this study.

Learning topic	Microgoal Acceptance methods. decisions became the assignment of requirements to the results. learning in the form of a system of micro-goals, which. will be presented next.	Diagnostics
1. The role of mathematics in the modern world • Axiomatic approach, induction and deduction in mathematics • Principles of mathematical reasoning and mathematics evidence	B_1, Know the principles of mathematical reasoning and evidence	D_1 1. Prove the equality by mathematical induction: $1 + 3 + 5+...+ (2n-1)=n^{\wedge}$ 2. Prove that the sum of the interior angles of any convex l-gon is equal to 18CP(n~2)

2. Fundamentals of set theory • Set, subset, finite and endless sets, ordered and unordered sets, ways of specifying a set, Euler-Venn diaphrams • Operations on sets: union, intersection, difference, addition • Splitting the set into classes	B$_2$ Be able to smash sets into classes, based on the concept of operations on sets	D$_2$ 1. Compose many different letters: A - "Euclid", B - "Dedekind", C - "Gauss"; Which of the Euler-Venn diagrams (a, b, c, d) corresponds to D = A u B u C ? 2. Will the division of the set M into subsets M, M, and M3 be a classification: M - natural numbers. Mg - composite numbers, Mz={1}; Draw the sets M, M], Mg and Mz with diaphrams Euler Venn.
3. Beginnings of mathematical logic • Statements, operations 01denials, disjunctions and conjunctions of sentences • Implication and equivalence of statements	B$_3$ Be able to perform actions on statements and determine their truth	D$_3$ 1. Find out in which cases it is possible to establish the truth value of statement B if: 1) A V B = 1; 2) A V B = 1; 3) A V B = l, A = 0. 2. Let statements be given: B: it's clear today S: I'm going hunting D: I'm going to the country. Formulate a statement that has a structure: B A V (C∨D). $\dot{B} \wedge \bar{(C \vee D)}$
4. Elements of combinatorics and introduction to probability theory • Permutations, selections, combinations and accommodation • The concept of a random event,	B$_4$ Be able to solve complex problems finding probabilities	D$_4$ 1. A forgotten six-digit phone number does not contain the same digits and starts with 37. What is the probability that we will guess it from the first set? 2. There are 4 white, 6 red and 3 green balls in the basket. 2 balls are drawn at random. What is the probability that both balls are green?

probability of a random event. law of large numbers • Calculation of probabilities. addition and multiplication theorems		

We turn to the description of the content of the pedagogical experiment. The ascertaining stage of the experiment was carried out under the conditions of traditional teaching of mathematics. His tasks:

• study of the psychological, pedagogical and didactic foundations of teaching mathematics to students of humanitarian faculties;

• studying the experience of teaching mathematics to students in the humanities;

• studying the level of knowledge of students in mathematics and their motivation;

• study of the role and possibilities of the mathematics course in the professional development of the future humanities teacher.

The results of the ascertaining stage of the experiment revealed students' low motivation to study mathematics

In conclusion, the main conclusions and results are given:

1. This study is one of the possible options for designing the mathematical component of the professional training of humanities teachers in accordance with the National Curriculum of Uzbekistan. When developing the scientific foundations of design, a technological approach was used to design a methodological system for teaching mathematics, which required a radical rethinking of traditional approaches to the professional training of humanities teachers.

2. Designing the mathematical component of the professional training of a humanities teacher involves a clear definition of the following components: target, diagnostic, content:

1) the target component is the design of a system of micro-goals with a specific set of educational elements that reveal the completeness of the content of each educational topic;

2) a diagnostic component is the design of a technological mechanism that allows obtaining information about the fact that a student has achieved a micro-goal or the fact that it has not been achieved;

3) the content component is the design of a special system of tasks and exercises, the independent implementation of which guarantees students the successful completion of the diagnosis.

3. A theoretical model for designing a methodological system for teaching mathematics for the humanities has been created, which incorporates the entire logic of the technological approach and the previous components of the mathematical component of the professional training of humanities students.

4. The results of the implementation of the theoretical design model were a new curriculum "Mathematics for the Humanities" and its educational and methodological support in the form of a set of technological modules.

5. The results of the experiment on the introduction of the educational program and its educational and methodological support at the correspondence departments of the philological and

historical faculties of Termez State University and their subsequent examination showed the fundamental suitability and effectiveness of these pedagogical products.

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