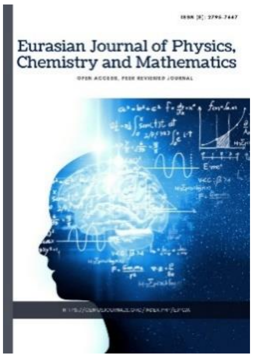

The Use of Technology in The Approximation of Didactic Units in The Training of Future Mathematics Shooters on The Basis of Innovative Education

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ABSTRACT

In this article, the question of the application of the technology of didactic unit approximation of future mathematics shooters in the conditions of innovative education today is justified, or rather, the fact that it can be used in the training of basic concepts of umatematic analysis on the basis of contextual education, on the example of the first excellent limit.

Keywords: Enlargement of the didactic units, contextual learning, mathematical analysis, first wonderful limit

Introduction. Today, a number of continuing educations, in particular higher educational institutions, at the current stage of the socio-economic development of our society, it is necessary not only to arm the student with a certain scope of knowledge, but also to strive to independently study changes in society, to educate the need to work on oneself. There is no doubt that the most correct way to educate current young people is to educate their talent for their creative activities, taking into account their personal interests, from school to higher education and beyond. One of the most pressing problems before higher education institutions is the improvement of the quality of training of graduate specialists. And the training of highly qualified scientific personnel is an issue of state significance. The difficulty of teaching mathematics is due to the rapid change in period agility, computational techniques and technologies today. As a result of this, many changes are being made to the DTS, especially to the educational plans of the Mathematical Sciences, which are taught in higher educational institutions. Nevertheless, excellent attention should be paid to the development of creative abilities of students. Because this is one of the main factors determining the future, progress of our country. As you know from world experience, the creative abilities of students are more developed by non-standard questions, specific problematic issues. In our republic, the implementation of a competency approach in the training of future mathematics teachers is one of the new tasks. In this area, the Critical

Study of foreign experiences, the accumulation of positive experiences, the introduction into practice is an urgent problem.

Thematic literature analysis. In recent years, a number of foreign scientists have devoted scientific work to a number of psychologist and pedagogical scientists to the problems of developing independent creative activities of students in the Republic. In different aspects of this problem, s.H.Sirazhidinov, B.R.Kadirov, J, Ikramov, N.R.Gaibullaev, M.Sh.Mamatov and other scientists conducted research. In this direction abroad, J.Adamar, A.Puankare, A.N.Kolmogorov, A.V.Usova, D.Poya, V.A.Krutesky, V.S.Merlin, V.V.Pechenkov, B.M.Teplov, A.M.Matyushkin, B.Blum, V.G.Razumovsky, V.L.Yurkevich, V.S.Yakovleva, J.Guilford, J.Renzulli, J, Ikramov, L.S.Vigotsky conducted scientific research and made a huge contribution to its development. V.A. Dalinger, I. A. Zimnyaya, Ye. V. Bondarevskaya, V. A. Kozirev, A. K. Markova, Dj. Raven, N. F. Radionova, A. V. Khutorskoy, V. D. Shadrikov et al.) and scholars from Uzbekistan (B.S.Abdullaeva, A.A.Abdukodirov, B.Z.To ' raev, N.A.Muslimov et al.) developed a theory for the formation of professional competencies of future mathematics teachers. It is worth noting that the famous Russian psychologist A.A.Verbisky says that a competency approach to education leads to a radical change in the educational system, that new psychological views and a coherent theory are needed to implement this approach, and proposes a contextual education theory created by himself as a psychological theory of successful implementation of a competency approach. He advances the idea of a contextual-competency approach to modernizing education [1].

Research Methodology. The basis of professional activity, which is being mastered in contextual education, is built using a system of plot educational issues, problem situations and issues, the static content of education is dynamically developed. The student occupies the subject's actions and social relations with an individual and collaborative analysis of “professionally similar” situations, develops both as a specialist and as a member of society. Plato (e.a 427-347 BC) the Socratic method of teaching known to us from his works – that is, in a lecture-conversation method, the teacher proposes to the audience the correct and incorrect ideas prepared in advance, the students express their thoughts by accepting or denying them. Socrates ' pedagogical method, which is based on “bringing conversational thought into a conflict situation”, called mayevtica, is one of the main ways to create a problematic state. When teaching mathematical analysis to teachers of mathematics in boulajaki, didactic unit rejuvenation (DBY) technology can be used in the implementation of hususan contextual education. Didactic unit rejuvenation technology P.M.Proposed by Erdniev, one of its essences consists of [2,3]: exercises consist of multicomponent tasks, these tasks are logically different, but from a psychological point of view should consist of several parts that make up a certain unit. For example, (a) solving the usual "ready" problem; (b) constructing and solving the inverse problem; (c) constructing and solving an issue similar to the given problem form (equation, inequality, the singular); d) to construct and solve a problem according to part of the elements in the given issue; e) to construct and solve a generalized issue according to one or another parameter of the given issue. In the process of applying the technology of didactic unit rejuvenation, the student's mental actions to some extent repeat the mental actions of a professional mathematician as well as a mathematics teacher. Indeed, a mathematician not only performs calculations, but also puts an independent issue; seeks a general solution for a class of issues, that is, works with similar issues; studies the relationship of one fact or another with necessary and sufficient conditions, that is, works with mutually opposite opinions; receives a generalization of mathematical facts. So, as a result of the application of didactic unit approximation technology, some important aspects of mathematical research, methodological work of a mathematics teacher are repeated.

Analysis and results. Below, let's look at the tasks used in the technology of didactic unit approximation related to the first amazing limit topic of mathematical analysis.

№1. Calculate this limit: $\lim_{x\to 0}\frac{\sin 4x}{x}$.

Directly using the calculation $\lim_{x\to 0}\frac{\sin 4x}{x}=4$ (1)

the answer is obtained.

№2. $\lim_{x\to 0}\frac{f(x)}{x}=4$ find a function f(x) satisfying the Equality. Give examples of such functions.

Assignments 1 and 2 are inextricably linked. Indeed, to derive task 1 (1) from equality, it is enough to take the right side of this equality as unknown, to take the assignment of Task 2, to take the image of the fraction in the formula as unknown. The solution to the issue is not simple. First we divide both sides of the equality by 4 and pass the divisor under the limit symbol: $\lim_{x\to 0}\frac{f(x)/4}{x}=1$. From this we derive that X and f(x)/4 are equivalently infinite minors of functions. Naturally, as a function f(x)/4, the following equivalent arbitrary function on the chain of infinite minors can be obtained:

$x \sim \sin x \sim \mathrm{tg} x \sim \arcsin x \sim \mathrm{arctg} x \sim e^x-1 \sim \ln(1+x) \sim ((1+x)^{\alpha}-1)/\alpha$ (2)

As a result, we get the following answers: $f_1(x)=4x$, $f_2(x)=4\sin x$, $f_3(x)=4\mathrm{tg} x$, $f_4(x)=\ln(1+4x)$.

But it is also possible to show another set of solutions: for example: $\bar{f}_i(x)=f_i(x)\varphi(x)+\psi(x)$, bu yerda $f_i(x)$ – (2) one of the functions in the row is, φ(x) funksiya $\lim_{x\to 0}\varphi(x)=1$ satisfies equality, ψ(x) and the function is an infinitesimal function of higher order with respect to X. Thus, different responses can be generated. It should be noted that in general we solved task 2, but could not describe its set of answers. Describing a set of answers is an independent and complex issue in its olrn.

As a result of generalizing the first task, there is a transition from convergent thinking associated with finding the exact answer to the problem (in Issue 1) to divergent thinking (in Issue 2), which is associated with the independent laying and solving of a mathematical problem [4]. №3. 2-Write and solve a task similar to a task. Undo. As one of the tasks similar to task 2, one can replace x with some infinitesimal function. We choose a task other than this: we look at the denominator as unknown. This assignment can be said as follows: $\lim_{x\to 0}\frac{\sin 4x}{h(x)}=4$ find the Equality satisfiability function h(x). Give examples of similar functions. The solution of this assignment is similar to the solution of Task 2, and in this case the question of describing the set of answers remains open. №4. 3-make and solve a task that summarizes the task. Undo. One possible generalization of the Equality used in Task 3 is to substitute the limit value for an arbitrary number. The new assignment can be expressed as follows: $a\neq 0$ when $\lim_{x\to 0}\frac{\sin 4x}{h(x)}=a$ find the Equality satisfiability function h(x). The solution to this issue can be brought to task 3 solution. To do this, it is necessary to multiply both sides of the tenlique by a/4, or it can be solved by analogy with the previous issues. When drawing up issues 1-4, we looked at (1) one or another element of the formula as unknown. Now we come to the following task by changing the remaining element, that is $x\to 0$

№5. $\lim_{x\to b}\frac{\sin x}{x-b}=1$ find B where equality is performed

Undo. The denominator of the fraction tends to zero, the fraction itself has a finite limit, from which there is a limit of the numerator of the fraction, and from which it follows that it is zero: $\lim_{x\to b}\sin x=0$. sinx since the function is continuous sinb=0, from this $b=\pi n$, $n\in Z$ is formed. Indirect verification results in the fact that at odd values of n, b does not satisfy the required conditions, satisfying when n is even.

So,b=2πk, k∈Z. In this matter, it is useful to draw a picture and a possible variety of maharajini graphs in a single coordinate plane. 5-we express the assignment that summarizes the assignment according to its different symptoms as follows: №6. when what relationships are appropriate between parameters a, b, c, d $\lim\limits_{x\to\frac{b}{a}}\frac{\sin cx}{ax-b}=d$ will equality be appropriate? $\begin{cases} d=(-1)^n\, c/a\,, \\ b=\pi n\, a/c\,, \end{cases}$ here n∈Z javobni 5-the assignment can be obtained as in the solution. It is clear that the proposed DBY is intended to perform a whole complex of complementary mental actions. First, the calculation (No. 1), which is standard, is performed. It is filled with issues that are reversed in one sense or another to this issue (No. 2, No. 3). An independent description of two affirmations (№3, №4) is proposed. In this, one of them is similar to one of the previously solved ones (since No. 3 is similar to No. 2), confirmation No. 4 summarizes confirmation No. 3. In addition to these, a generalizing confirmation of the previous ones according to several symptoms is considered (confirmation No. 6 summarizes affirmations No. 3-5). Function construction is widely used, which in turn leads to an open, unsolved issue arising from previous issues (No. 2-4). Task # 5, on the other hand, connects analytical reasoning with a graphic image. The multiplicity of all exploratory actions is based on the first remarkable limit and the resulting equivalent infinite chain of minors. Thus, in the example of the study of the first excellent limit, it turns out that traditional issue materials can be replaced in a form that meets the requirements of DBY technology, through which contextual education can be carried out. The list of mental actions used when working with a particular DBY allows you to draw the following conclusion: the application of DBY technology allows you to formulate the main properties of mathematical research in the process of teaching on an objective basis, elements of the methodological activity of a mathematics teacher.

Conclusion/Recommendations. In conclusion, it should be noted that the composition of assignments, the speciation of its components in accordance with concrete methodological goals, the generalization of the affirmations obtained are considered from important professional competencies of the mathematics teacher, regardless of which pedagogical concept he is based on. The use of DBY technology allows future mathematics students to indirectly familiarize themselves with this technology. Therefore, problematic education protects the pedagogical system from authoritarization, develops students ' extensibility to knowledge and forms them as creative personalities. Psychological Laws of the process of cognition, the fundamental function of the methodology of problematic education.

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