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The Importance of Optimization in the Process of Education

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Abstract: The method of achieving optimality in teaching based on the "Problem-based educational methodology" is described in the article.

Key words: Optimality, problem, education, school, group, tutorial, student, lesson, knowledge, ability, skill.

A systematic process aimed at providing students with in-depth theoretical knowledge, skills and practical skills and developing their abilities is called school education.

From the content of this definition, it can be seen that the main task of the school science teacher is to increase the four levels of each student in the class:

1. sufficient arming with theoretical knowledge;
2. development of abilities;
3. development of skills;
4. Development of skills.

The image (images, graphics) of space elements with arbitrary dimensions in the human mind is called knowledge. The activity of being able to perform a certain practical action based on the acquired knowledge and experience of the student is called a skill. Ability is an individual psychological characteristic that is manifested in differences in the dynamics of knowledge acquisition necessary for successful performance of an activity. Knowledge gained. Competence is the combination of the levels of abilities, skills, and abilities in the activity of automatically performing a specific practical action.

Optimism in education means that the teacher achieves the highest results by spending less effort, less time and less money. In order to achieve optimality in education, it is necessary to abandon the education based on giving more information in classes, which has become a tradition today.

We give an example of the correctness of our opinion: for a year, we gave the information to the pedagogues who came for professional training, "Dialogue is an Arabic word that means conversation, interpersonal communication and mutual exchange of ideas" and translated it verbatim. we asked them to repeat the words. The result is zero. After repeating this sentence 3 times together in chorus, the result was around 90%. The teacher does not participate in the third repetition of the chorus. After this experience, some teachers said: "Once we give a reminder and ask the students to explain their homework. It is not easy for the students either.

In fact, the teacher who is teaching the lesson usually tells one piece of information about the topic once. That is why the effectiveness in education is in a bad state. This is also shown by the test results of applicants who applied for admission to family educational institutions in the next two years. 51.6% of them have less than two grades. This situation indicates that more than half of the students in each grade in the schools do not meet the requirements of education standars of the goverment.

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We describe the experimentally proven "Problem-Based Learning Methodology" to achieve effectiveness in teaching.

A problem that has not yet been solved, and the method of solution is unknown, is called a problem.

Teaching by creating problem situations in lessons is called problem-based education.

There are three levels of problem-based learning:

1. The teacher sets the problem and finds its solution in cooperation with the students;
2. The problem is set in cooperation between the teacher and the students, and its solution is found independently by the students;
3. The student himself sets the problem and finds its solution independently.

Our experience has shown that it is convenient to apply the problem-based educational methodology in small groups of students.

If there are 25 students in the class, 5 small groups of 5 students will be formed each. Many recommendations on forming small groups of students have been developed.

Now let's go to the description of our experimental work carried out in schools on the "Problem-based educational methodology":

The experience of Rohatoy Hakimova, a geography teacher of the 27th general secondary school in Pastdargom district: in the 2020-2021 academic year, an experience was held in class 5 "A".

Taking into account the level of preparation of the students and the lesson time of 45 minutes, the teacher prepares one question from each paragraph of the new subject to be studied. In order to strengthen the memory of the students, the question of the first paragraph is clearly stated by the teacher and repeated to the students. The teacher reads the first paragraph and together with the students they find the answer to the question.

The questions of the following paragraphs are also read by the teacher in turn, but the paragraphs are read by the students to the extent that their classmates can understand them. This requirement ensures that students gradually read fluently and develop their speech.

It takes 1-1.5 months for students to adapt to the described first level of problem-based learning. During this period, students are well adapted and developed in the direction of problem-based education.

In the first 2-3 lessons of the second stage of problem-based education, the teacher prepares questions based on the paragraphs of the topic to be learned in the next new lesson and gives homework to the students to find answers to them independently.

Also, at this stage, students are constantly trained to read and study the paragraphs of the educational material, form questions based on their content, and find reasonable answers to them. This methodology ensures effective mastering by students of the content of each paragraph, including the entire topic.

It takes at least 1.5-2 months for the implementation of the methods of the second stage, that is, for the adaptation of students.

In the last third phase of problem-based learning, the teacher creates questions at home about the paragraphs of the new lesson topic and begins to teach his partners based on the answers he finds. In the process of forming questions on paragraphs and finding answers to them, students do not even realize that they have mastered the educational material consciously and effectively.

In the classroom, the motto "Teaching others once is equal to learning three times myself" rules.

The third phase of the problem-based learning methodology is permanent until the students graduate from school.

Confessions of geography teacher Rohatoy Hakimova, who implemented problem-based teaching:

1. when working in small groups, there is noise and it leads to the objection of the school administration;
2. Solution: small groups are allowed to work without disturbing each other.
3. The individual characteristics of students in the class are different, it is not easy to deliver the topic to them. That's why I used to enter my classes with a lot of pressure. Since I have been using the problem-based learning method, I am happy;
4. One head, many heads are better. My students are not only teaching each other about the new subject, but even I am learning things that I did not know about geography. The reason is that students find answers to questions about a new topic not only in textbooks, but also on the Internet. Of course, I am aware of them in many cases.
5. In families known to all of us, children perform tasks appropriate for their age and take work from the hands of older people. They are called "Dastyor" in our people. I turned my students into a table in my geography teaching. There is no previous pressure when I enter the class, my students cooperate one hundred percent, express their opinions, everyone is active, I am happy, I am worthy of the recognition of the school team, my students' parents, and my parents.

In addition, experimental work on "Problem-based educational methodology" and "Working in small groups of students" will be held in 2021 and 2022 in the 128th general secondary school of Pastdargom district, in 2023 in Samarkand. was conducted in the 19th general secondary school belonging to the Department of Public Education of the city.

As a result of our experimental work carried out in the "Mother language and literature" classes of Maftuna Qayumova in the 8th "A" class in the 19th general secondary school in February - May 2023, a new lesson topic learned independently by students It was explained in Uzbek and English languages. Matluba Bakhridinova, a biology teacher who was interested in this method, said, "Teacher, our students live in the city, so they speak Russian not as a literary language, but as a street language. In order to get them to speak the Russian literary language, let's organize the lessons in Russian.

I asked the students of the class that they are learning a new lesson independently and explaining it in Uzbek and English, and if we add Russian as an additional language, it will not be difficult for you. The students unanimously accepted the presentation of the topic in Russian.

On October 19 of the 2023-2024 academic year, Matluba Bakhridinova entered not the experimental class 9"A", but entered the class 7"A" and taught "Vertebrate diversity. I witnessed all the students explaining the topic "Birds, Mammals" in three languages. Despite the fact that I am a mathematician myself, I learned a lot about biology from the students. This was caused by the students of the whole class repeating the same knowledge many times in three languages.

According to Matluba Bakhridinova, communication between science teachers and between students and teachers has increased. That's why students are learning information that they can't find in books and on the Internet by asking English and Russian language teachers.

In short, one of the important factors of achieving optimality and effectiveness in school education is organizing students to learn new lesson topics independently and teach them to their classmates based on the problem-based educational methodology.

In the course of our experimental work conducted in general secondary schools, we noticed a constant need for the lack of a state policy aimed at making it mandatory for teachers to take classes based on new methods. In the absence of a strict state policy in this regard, first of all, most school administrations, as well as teachers, abandoned the old teaching methods that they had historically learned and applied modern methods to education. They do not go to teaching. If such a state policy is established, the attitude of teachers to increase their professional qualifications, to pass classes in accordance with the requirements of the time, will change dramatically, and finally, the results expected by the country in education would be ensured.

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