METHODOLOGICAL ASPECTS OF THE DEVELOPMENT OF INFORMATION PROCESSING COMPETENCE OF STUDENTS IN MATHEMATICS LESSONS

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МАТЕМАТИКА ДАРСЛАРИДА ЎҚӮЧИЛАРНИНГ АҲБОТЛЛАРИ БИЛАН ИШЛАШ КОМПЕТЕНЦИЯСИНИ РИВОЖЛАНТИРИШНИНГ МЕТОДИК ЖИҲАТЛАРИ

Рузикулова Н.Ш. - Тошкент давлат педагогика университети, докторант

Аннотация. Маколада математика дарсларида ахборотлар билан ишлаш таянч компетенциясини шакллантириш жараёнини мустақил ҳаётий фаолият давомида ахборотлар билан ишлаш каби ёндашув асосида ташкил этилган. Калиг сўзлар: ахборотлар билан ишлаш компетенцияси, ўқувчи, математика, ахборотлар мазмуни, ахборотларнинг кўринишлари, таянч компетенциялар, ҳаётий фаолият.

МЕТОДИЧЕСКИЕ ОСОБЕННОСТИ ПО РАЗВИТИИ КОМПЕТЕНЦИЙ УЧАЩИХСЯ ПО РАБОТЕ С ИНФОРМАЦИЕЙ НА УРОКАХ МАТЕМАТИКИ

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Аннотация. В статье разработаны методические рекомендации по организации процесса формирования базовой компетенции по работе с информацией на уроках математики на основе такого подхода, как работа с информацией в процессе самостоятельной жизнедеятельности.

Ключевые слова: компетенция по работе с информацией, ученик, математика, содержание информации, виды информации, базовые компетенции, жизненная деятельность.

METHODOLOGICAL ASPECTS OF THE DEVELOPMENT OF INFORMATION PROCESSING COMPETENCE OF STUDENTS IN MATHEMATICS LESSONS

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Annotation. The article develops methodological recommendations on the organization of the process of formation of the base competency of working with information in mathematics lessons on the basis of such an approach as working with information in the process of independent life activity.

Key words: competency of work with information, reader, mathematics, content of information, views of information, base competences, vital activity.

In the learning process, lessons should be designed in such a way as to facilitate the receipt, processing and simulation of information, as well as the development of information based on new ideas, increasing the competence of students in the use of knowledge and skills in training and analysis. The ancient Greek philosopher Socrates argued that "the teacher’s creativity is not to convey ready-made information to the reader, but rather the pursuit of truth and the development of independent thinking."

According to UNESCO, informatization is a widespread use of means of collecting, storing and transmitting information. It provides for the systematization of existing knowledge and the formation of new knowledge and their application for current management, further improvement and development. Therefore, the strategic task of informatization is the globalization of intellectual activity through the use of new information technologies, a radical increase in the efficiency and quality of training of creative thinkers that meet modern requirements.

"In the information space of world civilization, every member of society in his daily activities constantly uses information." In particular, elementary school students receive the information they need in their learning activities.

"Information" (a lot. Information is an introduction, an explanation) is a concept that has been used in philosophy since ancient times and has become a new and wider central category in recent years due to the development of cybernetics.

Information reveals the essence of everything, events, processes. Therefore, the effectiveness of training is determined by using the information received and the information received.

Key competencies are the student’s ability to act independently in uncertain situations when solving problems that are related to the student. Information competence - includes the search, sorting,
reproduction, storage, effective use of media sources, ensuring their safety, the development of media culture.

Mathematics is a priority in the formation of basic competencies for students working with information. This is because elementary school mathematics is propaedetical material for subjects such as algebra, geometry, physics, computer science. In other words, these disciplines are based on a tough algorithm that is studied at a lower level to achieve a specific goal.

Elementary school students are faced with problems in mathematics: from transforming information from one point of view to another, working with different content (scientific, logical, philosophical, social). Positive solutions to these problems may include:

- teach students in the lessons of mathematics the formation of information competence in primary school students on the basis of an integrated approach (for example, solving learning problems from drawing to diagram);
- methodological organization of the process of developing competencies for information processing;
- effective use of information and communication technologies;
- Teaching students to work with scientific information: receiving, processing, storing and sending from social networks.
- The content of information studied in elementary school mathematics: it is important to teach how to handle information in a scientific, logical, philosophical, social context.

In traditional lessons, teachers conduct students in the sequence of memorizing, understanding, using, analyzing, synthesizing, evaluating (or reevaluating) the information they need during their studies or life activities. Students gain knowledge by understanding the information. They are then asked to explain the information and apply it when possible.

That is, students are less involved in independent work. There is a time limit for analysis, synthesis and evaluation. In traditional education, new subjects are taught in mathematics, giving students an algorithmic approach, and then giving exercises to strengthen it. In supporting lessons, knowledge of past topics is systematized.

However, when students are given the opportunity to independently find information without mastering ready-made information (encouraging students to think through lessons, historical events or logical problems in the lessons), that is, information during the lessons, for example, independent life actions How about working with data analysis, then synthesis, evaluating, remembering, understanding and applying information?

Throughout their lives, people are constantly engaged in the proper analysis of life problems and testing solutions. They not only learn to do this, but also learn throughout life. Analyzes problems throughout life.

Analysis and synthesis of the results is an excellent level of information collection and contributes to information competence. It is very important for students to remember their knowledge in the lessons they learned. The principle of “teaching students to think” makes passive students more inclusive. They reduce teacher addiction and create independent students. This gives rise to students who can deal with the complexities and complexities of adulthood.

For this:

- Engage students as independently as possible: let students understand the concepts themselves. Because they experience this process again and again throughout their lives. To remember the facts, you need to study the facts, as well as the context.
- creating a more memorable environment: if the teacher provides first-hand information, explains it and puts it into practice to strengthen the concept, students' understanding will remain at the level of “know” and “apply”. They do not think at higher levels.

Normalizing grades in grades does not cause students a lack of self-confidence. An accurate assessment of students' knowledge helps to determine the level of performance. The assessment should not only show the level of competence, but also serve as an incentive. Although the accuracy of the assessment indicates that academic standards have been met, sometimes exaggeration can be an incentive. Teaching students as a person, individual orientation on them activates them. It is important to respect the person through evaluation. The ability and speed of learning of each student is fundamentally different. It is important to create a learning environment in which students can evaluate
themselves based on their cognitive abilities. It is well known that during his life a person constantly evaluates information about his actions, events, social relations and existing material values. Based on the assessment, information about them is remembered, understood and used. Students must understand themselves so that they can develop their knowledge. Understanding the importance of the information under investigation is of great importance. He attracts information, gives you directions, is of interest. Many training materials relate to a specific topic or for tests that determine whether the program is being mastered, but soon forgotten. Students rely more on knowledge, understanding and voluntary perception, including active participation. It is necessary to organize the process of forming the basic competence of working with information in mathematics, using the same approach to working with information in the course of independent life (based on analysis, synthesis, evaluation) and application (understanding). It will teach you.

The most important aspects of the competence to work with information in the organization of education for this approach are:

1. Develop flexibility. If you want to get a clear idea of competencies, you need to teach that they have several solutions for each problem, as well as a specific algorithm for achieving these solutions and choosing the right algorithm. That is, the algorithms are selected based on the volume and aspect of the problem. Depending on the direction of the process, analysis and monitoring of the progress of the case will provide an effective result even in unforeseen situations.

2. Training and information retrieval. The information and literature available to solve problems may vary. However, you need to learn more about how to find reliable information and evaluate whether it is reliable or not. It is not only about providing students with information, they must allow them to discover it for themselves. For example, when explaining the subject “Meter” in 2nd-grade mathematics, students should measure their educational equipment (at least 1 meter long) and find that they are “1 meter per 100 cm” and exchange ideas. Lessons that students learn independently will help them analyze, summarize, evaluate, memorize, understand and apply the information received. When students understand the meaning of information through research and discovery, they can think, explore, and understand. Students will be able to research, research and discover and learn to analyze these processes, as well as the process. The organization of the learning process on how to search and “discover” information is based on positive interaction (teacher-student, student-student relationship).

3. Providing ongoing new information. If the learning process is in the form of a study, teachers should be provided with additional information to help students understand. The only way to achieve the assimilation of complex materials is to master the algorithmic construction of simple data. Because complexity is simplicity built on simplicity. They guide students in the right direction. And the student does the result. A comparative analysis of the best and most satisfactory samples will give them the necessary information. It should be said that they expect better results than samples. The learning process should never be passive. Activation of information opens up new ways to solve the problem. They are the basis for the emergence of new ideas.

4. Creating a student resource base.

One of the important aspects of assisting students in the development of teaching materials is that the student has basic knowledge. Possessing the knowledge that students sometimes receive in their lessons, some of them do not have the necessary information at all, but its absence can cause a big problem in the future. Integration of education with life skills in the development of information competence:

Course title → Important information → important questions (activating and increasing students' interest) → Criteria → Analysis → Generalization → Assessment → Remember → Understanding the importance of the material studied → understanding (collection, collection, design)

To carry out these tasks, a pilot study was organized. The experiment was conducted in 2 secondary schools of Tashkent. Parallel primary classes with similar levels of development were selected and divided into experimental and control classes, respectively. In control classes, work with information was carried out according to the generally accepted approach: memorization, understanding, application, analysis, generalization, assessment (assessment). In the experimental class, work with information was carried out on the basis of the proposed approach: data analysis, synthesis of information, evaluation and storage of information, understanding and use of information.
The experiment was conducted in secondary school No. 255 of Tashkent. The criteria for evaluating the lessons learned in the control and experimental classes are the same:

Class Type: Control and Experience. Number of classes: 2.

<table>
<thead>
<tr>
<th>Results (%)</th>
<th>Number of classes</th>
<th>Number of pupils</th>
<th>56-70%</th>
<th>71-85%</th>
<th>86-100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>1</td>
<td>35</td>
<td>10</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td>Practice</td>
<td>1</td>
<td>36</td>
<td>5</td>
<td>17</td>
<td>14</td>
</tr>
</tbody>
</table>

To get a clearer picture of how students study information in the control and practical classes, we present the following diagram:

Mastering is based on the degree to which the student's knowledge, skills and abilities are complete, deep, intellectual and strong. Student's levels and performance are evaluated as five points based on requirements established by state standards and curricula. Achieving high mastery is one of the most important tasks facing domestic teaching practice. Intellectual development and vocational training of students and students directly depend on their level of development. In evaluating the results, attention was also paid to the quality and effectiveness of assimilation. In determining the level of quality, the results were evaluated on the basis of "... the level of suitability of the work, the nature of its compliance with the requirements." In determining the effectiveness (effect - result, profitability, profit), the study was based on a positive level of efficiency. The quality and effectiveness of the results were determined by the following methods used in secondary schools:

When determining the quality of student learning, the number of students receiving "5 points" and the number of students receiving "4 points" are divided by the total number of students. The result is multiplied by 100 and rounded.

Control group: \( \frac{16 + 9}{35} = \frac{25}{35} = 0.7142857143 \)
Experimental group: \( \frac{17 + 14}{36} = \frac{31}{36} = 0.8611111111 \)

Efficiency will be multiplied by the number of students who received "5 points", the number of students who received "4 points", and the number of students who received "3 points", will be multiplied by the total number of students. The result is multiplied by 20 and rounded.

Control group: \( (10 \pm 3) + (16 \pm 4) + (9 \pm 5) = 30 + 64 + 45 = 139; \frac{3.9714285714 \times 100}{20} = 79.428571428 \)
Experimental group: \( (5 \pm 3) + (17 \pm 4) + (14 \pm 5) = 15 + 68 + 70 = 153; \frac{4.25 \times 20}{20} = 85 \)

The control results were as follows: 10 students were enrolled from 56% to 70%, 16 students - from 71% to 85%, 9 students - from 86% to 100%. The following results were obtained from the experimental class: 5 students were enrolled from 56% to 70%, 17 students were enrolled from 71% to 85%, 14 students were enrolled from 86% to 100%.

The control and experimental classes were compared and the following results were obtained:

<table>
<thead>
<tr>
<th>Classes</th>
<th>Quality</th>
<th>The effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control class</td>
<td>71%</td>
<td>79%</td>
</tr>
<tr>
<td>Practice class</td>
<td>86%</td>
<td>85%</td>
</tr>
</tbody>
</table>

As can be seen from the table, the quality of the test classes increased by 15% compared with the control classes, and the efficiency increased by 6%. The results obtained in the experimental class will confirm the basis of the experiment and help make sure that the goal is achieved. The information competence of students in experimental classes was compared, and the results of experiments revealed a difference in the competence of students to work with information in control classes. The organization of the process of forming the basic competence of working with information in experimental and mathematical lessons has shown an increased level of informational competence of students in the experience of control classes compared with control classes.

Students can analyze, synthesize, memorize the information they need based on data evaluation, for example, independent life actions, understand the importance of information and synthesize data. Only then will knowledge be based. With this approach, students create hypotheses, experiment with them, draw conclusions from them, and revise conclusions as necessary.

REFERENCES:


