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Nigora Shuxratovna Ruzikulova PhD

*Tashkent State Pedagogical University*, [nigoraruzikulovaphd@gmail.com](mailto:nigoraruzikulovaphd@gmail.com)

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# VOLUME AND CONTENT OF EDUCATIONAL MATERIALS USED IN THE EDUCATIONAL PROCESS

**Ruzikulova Nigora Shuxratovna**

**Doctor of Philosophy on Pedagogical Sciences (PhD)**

**Tashkent State Pedagogical University named after Nizami**

[nigoraruzikulovaphd@gmail.com](mailto:nigoraruzikulovaphd@gmail.com)

## **Annotation:**

This article addresses the issues of developing a methodological system for the use of teaching materials in the educational process, didactic aspects of their use, selection and description of teaching materials by size and content on the basis of harmonization with international assessment programs.

**Key words:** teaching materials, international assessment programs, educational information, volume and content of teaching materials, teaching sciences, propaedeutic materials, TIMSS (Trends in International Mathematics and Science Study).

It is known that the subjects studied in primary education imply the provision of propaedeutic materials for the subjects studied in the later stages of education (based on a rigorous algorithm on the subjects, information studied at a lower level towards a specific goal). In particular, mathematics in primary school is characterized as the first stage of teaching to work with propaedeutic materials (learning information in these disciplines) for subjects such as algebra, geometry, computer science (assimilation on the basis of data collection, application on the basis of primary processing).

The main source of teaching materials in primary education is textbooks. Improving the content of textbooks is based on the definition of the content, flow and volume of information involved in solving the problem in science. According to the recommendations for the selection of the content and volume of teaching materials in the textbooks based on the assessment of students' mastery of mathematics in accordance with the international program TIMSS (Trends in International Mathematics and Science Study), educational information:

- 1) descriptive representation of educational materials based on the visual-figurative nature of the memories of primary school students;
- 2) formation of practical skills of educational materials in order to ensure the unity of theory and practice;
- 3) the use of different forms of information in the preparation of educational materials (allowing the creation, integration and interpretation of information).

Students' ability to constantly analyze, remember, and apply information about material objects, events, their behavior, and social relationships throughout

their lives plays an important role in understanding the importance of the information being studied. Therefore, it is advisable to organize the process of developing information competence in mathematics lessons in the same way as working with information during independent life activities (using information on the basis of analysis, synthesis, evaluation, memorization and comprehension). Analysis and synthesis of information helps to remember and apply the information perceived as the perfect level of information assimilation. In particular, it is useful to teach students to apply the learned learning information on the basis of an understanding of its importance for vital activities. Such assignments engage the student in mastering learning information and help them understand its importance for vital activities. Through learning to understand the content and consciously use the function of information during the learning process, students will be able to use information effectively and appropriately in learning and life activities.

The development of information competence of primary school students is inextricably linked with the selection (in terms of size and content) and systematization of teaching materials. After all, learning material is specially structured and structured information that is required to be mastered by students

[6; 12-b.]. The development of science education and the increasing flow of information require modern approaches to integrating national and foreign experience into the content of educational materials.

A number of scientific studies have been conducted on teaching materials and their role in improving the quality and effectiveness of education, according to which "educational material is a system of knowledge, skills and competencies related to this knowledge, experience of creative work, the system of relations. consists of"[10; 19-b.].

In research, textbooks have been singled out in the scientific literature as the most important source for students to learn to work with information. A.Abdikhamedov, B.Abdullaeva, N.I.Taylakov [1, 2, 3, 4, 5, 8] and others conducted research on the creation of educational literature, in particular, the study of teaching materials in the creation of educational literature in mathematics, the features of teaching mathematics [1, 2, 3, 4, 5, 8] went

Improving the content of textbooks in accordance with modern requirements, first of all, is based on the selection and systematization of teaching materials provided in the textbook. Selection of information for training - to determine the flow and volume of information involved in the flow and solution of the problem. This process allows you to conduct pedagogical research and create a set of information for educational work and create an information system suitable for the educational process. The selection of information in teaching and the creation of

their effective methods will be a solid scientific and methodological basis for the creation of modern promising options for teaching the studied processes and events on the basis of new information technologies [13; 418-p.].

In turn, the systematization of selected information as learning materials guarantees its mastery. "The system of teaching materials, which is reflected in the material or materialized models of didactic material and is intended for use in educational activities" [7; 159-p.]. Hence, the selection and systematization of teaching materials are important factors that determine the quality of education.

In the educational process, the effective use of information as a learning material is associated with the following factors:

1. Analyze the information as a learning material. As mentioned above, it is necessary to incorporate the latest achievements of science and education in the content of educational materials, but in the presentation of information selected as educational material, first of all, its analysis is important. Analysis of information (data) in teaching - to determine the content, form and content of information in education, to determine the criteria [13; 418-p.]. It is also important to determine whether there is access to information in the presentation (presentation) of the scientific problem in question, in the solution (solution) of the problem;

2. Processing of information as a training material. "Learning materials are a source of information and ... are" adapted "for students to master" [11; 16-b.];

3. Information support of the educational process, as well as the ability to constantly update information about the periodic processes: the process of regular (continuous) reception or transmission of information constitutes the content of education. Providing the necessary information to the process of formation of information processing competence in primary school students ensures the effectiveness of this process [9]. Provides ample opportunities for the separation and processing of the received information into systems (subsystems) and the implementation of algorithms for the transfer of the required purposes;

4. The basis for the effective use of information provided as educational material is an understanding of the content of the information. Students' conscious mastery of the content and function of information allows them to use it appropriately throughout life.

Research on the development of mathematics education shows that along with the content and volume of teaching materials, it is also important that they be presented on the basis of what information they look like.

Tasks developed on the basis of a competency-based approach to the development of information competence are divided into three areas:

1. Tasks on creating information imitations.

2. Tasks on integration of information (on their mutual integration when working with different types of information: linking (integration) or description of objects and models with information about them in the implementation of analytical-synthetic processing of information).

3. Tasks to teach the transfer of information from one form to another on the basis of the interpretation of information presented in different forms.

Let's talk about these directions in more detail:

1. Tasks on creating information imitations.

Tasks to create imitations of information (imitation - (lat. Imitation - imitation) - imitation of something, analogy [12; p. 129]) from tasks to create imitations of information on the basis of exact or different repetition, as well as the plot of events (common issues) in addition, it contains details about the structure and significance of the simulated process and objects [7; P. 76] were divided into tasks:

- Tasks on creating imitations of information on the basis of exact or different repetition;

- Tasks that contain details about the structure and significance of the imitation process and objects, in addition to the plot of events (common issues).

2. Tasks on mutual integration of information (integrated approach to work with different types of information and linking or describing information with objects and models in the implementation of analytical-synthetic processing of information).

Integration is the integration of the goals and factors of teaching as a whole. Integration - Latin "integer" - commonality, "integerara" - to fill, create, restore commonality. The problem of ensuring consistency in the content of education is also an area of integration. He taught to generalize concepts [13; 122–123-p.]. Training in the integration of information includes tasks on the integration of various forms of information, as well as tasks on the connection or representation of information with objects and models in the implementation of analytical-synthetic processing of information.

It is important to give examples and problems based on the use of various forms, pictures, tables, diagrams, graphs based on information in the form of images, given that the thinking of primary school students is more practical. Several forms of information can be used simultaneously in the preparation of training materials on the explanation of topics.

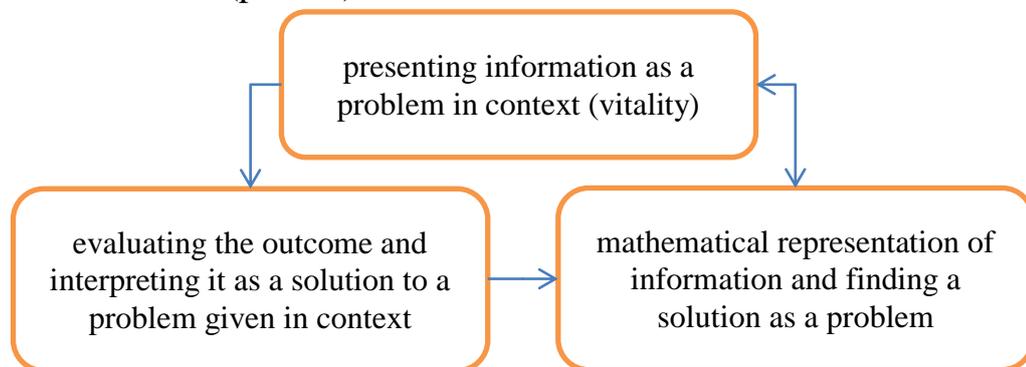
3. Tasks to interpret information based on the transfer of information from one form to another when working with information presented in different forms.

In mathematics, in the stages of "information processing" and "application of information" in the process of working on different types of information, it is

practically explained that information can be expressed in different forms, first of all, in teaching to interpret and interpret their essence on the basis of understanding. For example, interpreting the condition of a given problem in the form of text using information in the form of numbers, images, etc.

In teaching the interpretation of information in different forms, skills are first formed on the basis of practical teaching that the same information can be expressed in different forms.

Expression of the given condition (condition) of the given problem in the form of the text in the form of numerical expressions: writing the condition of the article in short, that is, translating its content into the language of mathematical terms and defining the mathematical structure in the form of short text (drawings, figures, diagrams, tables); calculate their values (solve the article both arithmetically and algebraically); expressing the solution of the problem in different forms of information (such as expressing the solution of numerical expressions in the form of text, diagrams). The mechanism of this process can be described as follows (picture):



**Picture. The mechanism of using information in different forms in the process of interpreting information**

For example, depending on how the information in the form of text is presented in the context, the process of mathematical expression and solution in another form, as well as the interpretation of the result in the form of numbers as a solution to a given problem. However, it should be noted that in very rare cases, the results are expressed in other forms of information.

One of the main tasks of elementary mathematics as a propaedeutic material for the science of geometry is to teach students to apply theoretical knowledge about spatial perceptions, spatial forms of being, their properties and relationships in everyday life. Therefore, the use of visual information in mathematics lessons is important. In elementary mathematics lessons, students have a high chance of presenting problems, logical assignments, etc., using visual information.

No matter how important the learning material is, it cannot sustain interest because the attention of primary school students is not stable. In primary education, students' perceptions are directly related to practical activities, and their memories become more visual. An analysis of the materials of international research in the field of direct assessment of the quality of education, as well as on the basis of these views, it can be said that it is necessary to use different forms of information in the presentation of educational materials.

Given the study of propaedeutic materials for the science of geometry on the basis of the science of mathematics, the geometric literacy of students in primary school mathematics lessons is formed and developed. Early development of spatial imagination in students, increasing technical capabilities of the media and the need to use them, the formation of practical skills of teaching materials, the use and interpretation of different forms of information in students based on the requirements of science and basic competence, develops logical thinking, teaches spatial forms and quantitative relationships between them.

Information in visual form provides a visual representation of learning materials. The fact that the learning materials are not uniform, boring, helps to understand the connection between the objects, the objects encountered in the existence of the studied geometric figures.

In conclusion, the study of geometric materials in primary education is of a practical nature, and the use of visual information in teaching students is important. In addition, the use of practical types of work gives high results. Also

1. Pedagogical possibilities of use of educational materials are developed on the basis of interpretation of the information in the form of the text, the image, the number, analytical-synthetic processing of the educational information, creation of imitations.

2. Increases the efficiency of the process by providing the necessary information for the continuous reception or transmission of information, expands the possibilities of systematization and processing of the received information and the implementation of transmission algorithms for the desired purposes.

3. Selection and systematization of information as learning materials on the basis of a competency-based approach in terms of volume and content increases the ability of students to develop practical skills.

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