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METHODOLOGY OF FORMING MATHEMATICAL KNOWLEDGE IN STUDENTS THROUGH UNIVERSAL LEARNING ACTIVITIES

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Annotation: This article discusses the effects of applying the State Education Standards in the primary grades and their further application through the modeling method. In addition, the introduction of universal motion in the method of modeling was considered.

Keywords: modeling, DTS, universal action, success environment, interactive.

Introduction. At the modern stage of educational development, it is more important to equip students with the ability to perform actions that can be useful in various conditions and situations than to provide them with as much knowledge and as many skills as possible in a particular academic subject. These efforts contribute to the development of students' thinking abilities, logical reasoning, capacity to draw conclusions, generalize their findings, reach final decisions, engage in reflection, and accurately define objects and phenomena. In simple terms, the modern requirements of the educational system demand that students be taught **how to learn**.

An analysis of the primary methodological documents underlying the State Educational Standards shows that all forms of universal learning activities (also referred to as general learning activities) belonging to the four identified groups reflect the fundamental essence of a particular subject. These universal learning activities include management, cognition, generalization, and learner-centered educational actions. From this, it can be concluded that, on the one hand, universal learning activities are important elements within the structure of an academic subject, while on the other hand, they should be studied as integral components of that subject.

Based on the above, it can be stated that the four main types of universal learning activities may be applied either separately or in an integrated manner. Within a single lesson, each type can be implemented independently or collectively. The essence of applying modeling methods through management-oriented universal learning activities in primary education lies in the fact that the teacher plays a crucial role in guiding the flow of ideas and directing students' reasoning during the lesson. In this way, the process gradually moves toward introductory universal learning activities.

Within introductory universal learning activities, the teacher presents students with initial and fundamental information related to the concept being studied or the task to be solved. At the same time, the teacher encourages students who express correct opinions during discussions, even if their participation is relatively passive. In learner-centered universal learning activities, the teacher pays particular attention to students who actively participate in discussions, exchanges of ideas, and debates. Through this approach, all forms of universal learning activities are fully manifested within a single lesson. It should also be noted that the application of universal learning activities enables teachers to conduct lessons in accordance with the State Educational Standards and the most up-to-date educational requirements.

All forms of universal learning activities require a substantial amount of information on a particular topic as well as a variety of approaches to completing tasks. This is quite natural. For example, when an initial concept is being introduced, it may be difficult for the teacher to provide students with sufficient information on the topic. Consequently, the effectiveness of universal learning activities may be relatively limited in such situations. However, as subsequent topics are studied, more information becomes available, allowing for a deeper understanding of new concepts. The teacher can

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assign tasks that require students to identify relationships between concepts learned in previous lessons and those being studied in the current lesson, as well as to determine ways of constructing new concepts through these relationships.

As a result, universal learning activities develop progressively from one lesson to the next, continually improving and eventually becoming one of the teacher's primary instructional tools.

As students become familiar with expressions and relationships, they develop the ability to follow the sequence of completing tasks and maintain consistency in logical thinking. They acquire the ability to define concepts first in a didactic manner and later through logical reasoning and reflection. Students gain skills in performing actions and comparing results, identifying methods that lead to achieving set goals, and representing situations through symbols, signs, and notations. Their capacity to collect information, organize it systematically, and draw conclusions based on the collected data increases. Furthermore, they learn to classify shapes, numbers, and information and to determine their significance.

As a result of these educational and methodological activities, students not only master the subject matter but also learn to use systematic symbols and signs necessary for active participation in their studies and social life. Consequently, their socialization process becomes more intensive and effective.

It is recommended that the modeling method be introduced both independently and in an integrated manner within each group of universal learning activities. To develop and strengthen introductory universal learning activities, the following measures are recommended:

1. Selecting, designing, and implementing a variety of models for preparing students to solve text-based tasks (including symbolic, graphical, and subject-specific models);
2. Introducing the use of calculator models to properly organize research activities for younger learners;
3. Ensuring diversity in intellectual and practical tasks assigned as learning activities in order to promote the formation and development of universal learning activities. For each lesson, management-oriented, introductory, generalizing, and learner-centered universal learning activities should be designed (for example: explain, check, select, compare, identify a pattern, determine whether the conclusion is correct, find, reason, observe, draw a conclusion, etc.);
4. Assigning a thought-development task to two students, Shahlo and Mahmud, by providing them with the same information and the same assignment. Their ability to use information and their approaches to task completion are then evaluated;
5. Reinforcing previously learned key concepts by presenting them as contextual elements in new lessons. Through this approach, the "revision" and "consolidation of previous knowledge" stages of the lesson are conducted, and the effectiveness of the method is monitored. The level of effectiveness is determined according to the content, volume, and appropriateness of the context provided.
6. Two students, Shahlo and Mahmud, are selected as subjects for determining the extent to which learners have mastered the sequence of task completion. Indicators such as their ability to perform self-assessment, compare answers, formulate learning objectives, engage in reasoning, and follow the correct sequence of task completion are systematically observed and recorded.
7. Electronic textbooks are developed for individual subjects in order to support students' independent learning, goal setting, planning for subject mastery, and self-assessment activities.
8. New forms of assessment are recommended, including comprehensive evaluation tasks based on primary education subjects. Such assessments demonstrate not only students' achievements in a specific topic but also their overall performance in the subject area, as well as their ability to establish

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interdisciplinary connections. This creates opportunities for determining the extent to which universal learning activities have been developed.

9. Students' discussions, debates, questioning techniques, reasoning abilities, and the direction of their ideas create a productive discussion environment for the teacher. In this context, the teacher organizes the lesson using a conversational approach. As a result, universal learning activities are manifested in every learner. Students engage in dialogue with one another and discuss the opinions and reasoning of Shahlo and Mahmud. Through this process, their scientific language gradually develops, and their questioning skills improve. Furthermore, students enhance their ability to reject one participant's viewpoint, support another's argument, and justify their position with appropriate reasoning. Consequently, an environment is created in which every learner is encouraged and enabled to participate actively in discussion.

10. To promote collaborative learning, students may be organized into pairs and encouraged to create an environment of discussion and debate similar to that of Shahlo and Mahmud. Such an approach has been shown to produce positive educational outcomes.

11. It is advisable for the content and scenarios of text-based tasks to be based on value-oriented topics such as children's sports activities, labor, patriotism, family, and environmental protection. This approach increases students' interest in academic subjects, enhances their imagination when expressing solutions to tasks, fosters respect for national values, and gradually helps learners recognize the interrelationships among different disciplines.

12. Comparative learning activities may also be employed. For example, students can be assigned tasks and homework such as: "Compare your drawings with Eshmat's drawings and identify and understand your own mistakes and shortcomings." Such activities encourage self-assessment and reflective learning.

In education, it is essential to create a "success-oriented environment" that helps learners achieve academic success, strengthens their confidence in their own abilities and talents, enables them to recognize that they are equal members of the learning community, and fosters a sense of belonging. It is equally important for teachers to earn students' respect and trust and to approach them from a learner-centered perspective.

Transforming students' interests within the sphere of cognition into interests within the sphere of reasoning, and ensuring that instruction is organized interactively according to the sequence "I know – I want to understand – I have understood," should be regarded as a modeling method of learner-centered primary education. However, such outcomes cannot always be achieved by the entire class simultaneously. For example, learners may successfully reach the stage of "I know – I want to understand," while the stage of "I have understood" may not always be fully attained. Therefore, learner-centered instruction is introduced in primary education, which in turn necessitates the implementation of the concept of "multidimensionality" described above.

Conclusion:

The study demonstrates that the application of modeling methods in primary education contributes significantly to the development of universal learning activities. Through the effective integration of management, introductory, generalizing, and learner-centered learning activities, students improve their logical thinking, reasoning, problem-solving, and self-assessment skills. Modeling methods provide opportunities for learners to establish relationships between concepts, analyze information, draw conclusions, and apply knowledge in various educational situations.

Furthermore, the implementation of modeling methods promotes active participation, collaboration, and independent learning among students. It also supports the formation of key competencies required by modern educational standards, including critical thinking, communication,

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and the ability to learn autonomously. The use of discussion-based activities, comparative tasks, and value-oriented educational content enhances students' motivation and strengthens their intellectual and social development.

In conclusion, modeling methods serve as an effective pedagogical tool for improving the quality of education and fostering the development of universal learning activities in primary education. Their systematic application not only increases students' academic achievement but also prepares them to become active, responsible, and lifelong learners in a rapidly changing society.

References:

1. Kornilov, V.S. (2006). *The Humanitarian Component of Applied Mathematical Education*. Bulletin of Moscow City Pedagogical University. Series: Informatics and Informatization of Education, No. 7, pp. 94–99.
2. Mordkovich, A.G. (2008). *Conversations with Mathematics Teachers: Educational and Methodological Guide* (2nd revised and expanded ed.). Moscow: Oniks Publishing House; Mir i Obrazovanie Publishing House. 336 p.
3. Moro, M.I., Volkova, S.I., & Stepanova, S.V. (2014). *Mathematics: Textbook for Grade 1* (in 2 parts). Moscow: Prosveshchenie Publishing House.
4. Nurullaeva, Sh.U. (2021). *Theory and Methodology of Modeling the Pedagogical Preparation of Future Primary School Teachers*. Author's Abstract of the Dissertation for the Degree of Doctor of Pedagogical Sciences (DSc). Karshi, 63 p.
5. Piaget, J. (1966). *How Children Form Mathematical Concepts*. Questions of Psychology, No. 4, pp. 121–127.
6. Podkhodova, N.S. (2004). *A Metamethodological Approach to the Educational Process*. Modern High Technologies, No. 6, pp. 14–16.
7. Pyshkalo, A.M., & Stoylova, L.P. (1976). *Improving the Mathematical and Methodological Training of Primary School Teachers*. Soviet Pedagogy, No. 2, pp. 90–96.