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FACTORS IN THE DEVELOPMENT OF LOGICAL THINKING IN MATHEMATICS LESSONS

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ABSTRACT

This article describes the views formed on the basis of science and experience aimed at developing independent thinking and creativity in students in the educational process. In this regard, it can be said that the teaching module of the subject in the education system: educational-methodical complex, electronic educational-methodical complex (syllabus), glossary in many respects has the ability to provide students with a variety of additional information. Such cases are quite common in the interpretation of data types and additions, data classifications. This is probably necessary for transition textbooks, but they cannot be justified from a mathematical and didactic point of view. Therefore, such withdrawals should be phased out of textbooks.

KEYWORDS: *Educational-Methodical, Necessary*

INTRODUCTION

Achieving our great goals and noble intentions today, the renewal of our society, the development and prospects of our lives, the ongoing reforms, the effectiveness of our plans, the fate, first of all, depends on the problem of training highly qualified, intelligent, independent thinking and creative professionals. The role of pedagogical-mathematical knowledge in the formation of the younger generation as a mature and harmoniously developed person is invaluable.

Significant changes and restructuring in the education system remain a vital necessity to nurture a creative, active, independent-minded individual. Therefore, radical changes in education, the

creation of a scientific basis for the training of active, creative, intelligent, intelligent professionals are becoming an urgent task of a number of disciplines, including mathematics.

Also, one of the most important issues facing the world of pedagogy and mathematics today is the search for ways, means and means of forming an independent thinking person who is not only knowledgeable but also logically thinking.

If we look at the history, our thinkers who have lived and worked in our country, in their time, have put forward important ideas on what methods and means of teaching should be used in the education of independent-minded, creative people. In particular, the encyclopedic scholar Abu Rayhan Beruni in his works focuses on these issues and explains which aspects should be paid more attention in education in order to develop the personality and thinking of the student. In particular, Beruni emphasizes that in teaching it is important not to memorize, but to understand, to think logically, to draw conclusions.

Based on the above, it is possible to identify the following current problems facing the science of mathematics in the education of an independent-minded, logical-minded person in the educational process today:

- Mathematical methods (methods, forms), tools, methods that can meet the modern requirements of the process of education (formation) as a person in educational institutions, enriching them with new content, dialogic, innovative (innovation-based), cooperation with the teacher from the monologue teaching system transition to new types of education, such as harmonization of student activities);

- revision of the curriculum, syllabus for teaching students and textbooks, manuals, developments, lecture notes based on them, taking into account the achievements of modern mathematics;

- The formation of thinking in students in the educational process, teaching them to think logically, to achieve the formation of critical thinking;

- organization of activities of talented students in educational institutions, ensuring their diversity of logical tasks and the formation of their ability to perform them, understanding the existence and continuity of elements of logical thinking, directing students to perform non-standard tasks;

- Education should be built on the basis of active methods, so that the teacher-student cooperation takes precedence. Ensuring that active, independence-oriented teaching methods and forms, such as tests, debates, business games, complex pedagogical problems, heuristics, training, psychodrama, puzzles, brainstorming, logical problem solving, and problem-solving, become the basis of education.

In the organization of education in this area, the correct choice and application of teaching methods, improving the quality of education, the education of an independent thinker in the educational process, the following have risen to the educational center:

- Cognitive - is an educational activity that leads a person to the process of thinking, encourages cognitive activity to enter into the essence of a vague, unknown new elemental problem and directs to solve it, and leads to the growth of knowledge and information, individual consciousness, creativity and intellectual development;

- Dialogic learning - ensuring the interest of each learner not only by activating learners, but also by creating a creative environment and providing an exchange of ideas by discussing the topic or problem in a group setting with the teacher. Through this the learner becomes the subject of the learning process from its object;

- Consciousness - the ability to demonstrate a conscious attitude to the learning process, to draw inductive conclusions through the thought process of the given task or tasks.

- Problem-based learning - teaching students to solve problems and situations

Naturally, the above criteria allow students to think independently and freely, to be active and analyze their own point of view, providing them with the opportunity to take the initiative, knowledge and make full use of their intellectual potential.

Based on the above, the main directions of educating an independent-minded, logical-minded person in the educational process today can be identified as follows:

- "Industrialization of education", ie the strengthening of the intellectual activity of modern youth on the basis of computerization and technology;

- Transition from the most prevalent forms of education to the methods and forms of active learning. This direction is the transition from the "school of memory" to the "school of understanding", the "school of thinking";

- Transition from strictly defined control methods in the organization and management of the educational process to developmental, activating, improving methods and game methods. This creates an opportunity to support and develop the organizational-creative, independent activity of students;

- organization of interaction between the student and the teacher, ie ensuring the participation of students as a joint team activity. In this case, the main emphasis is shifted from the teacher's "teaching" activities to the student's "learning" activities.

It should be noted that today many textbooks and manuals are being prepared in a content aimed at developing students' independent thinking and creativity. In particular, curricula and textbooks in the general education system, developed in accordance with state educational standards, are based on the criteria and scientific principles set out in the Law "On Education" and the "National Training Program". Clearly, they are composed of materials in the context of things and events related to the student’s lifestyle and daily life, designed for the level of psychological development of learners at each age stage.

Both the step-by-step sequence in the teaching of new textbooks and assignments, the ways in which the practice of developing students' mental activity in each subject becomes more complex, and the process of learning begins with active observation and ends with practical application. fully compatible with cognitive psychodidactic foundations. Clearly, the consistent application of such a method of education in practice, gaining experience in this area requires correction, supplementation and clarification.

To do this, we can first list the following methods and techniques aimed at solving the tasks facing the system of continuing education:

- One of our most important tasks is to popularize the method of verbal cognitive education (a new pedagogical technology of education today) among teachers. Because unless teachers learn to use modern pedagogical technologies, computer technology, and the practical use of visual aids to apply this method, they will not be able to achieve effective results in this area;

- In order to increase the effectiveness of textbooks and teaching methods, students must be provided with additional sources of information, which currently include textbooks, Internet data, electronic resources, student memory, daily life, other subjects, and inquiries from others. That's definitely not enough. Therefore, teachers must be provided with an encyclopedic reference, a variety of information (explanatory information, logical situational issues, pictorial materials, etc.) that combines the riches and capabilities of science and can convey them to learners. In this regard, it can be said that the teaching module of the subject in the education system: educational-methodical complex, electronic educational-methodical complex (syllabus), glossary in many respects has the ability to provide students with a variety of additional information. In addition, this would drastically reduce the current size of the textbooks, which would basically consist of an algorithm of assignments to study each topic (think creatively and create something within each topic). Of course, this is a big deal. But whether we have stepped into the method of verbal cognitive education and set ourselves the goal of nurturing a creative and independent-minded person, we have no choice but to do so. Without them you will not achieve our goal;

- In our opinion, in some of the current textbooks, "looking back" - it seems out of the norm to first rely on previous scientific interpretations and then deny or update them. Such cases are quite common in the interpretation of data types and additions, data classifications. This is probably necessary for transition textbooks, but they cannot be justified from a mathematical and didactic point of view. Therefore, such withdrawals should be phased out of textbooks. To do this, it seems necessary to reconsider the curriculum and textbooks of the primary grades in the entire education system, especially in secondary schools. The main factor in this is purely pragmatic - as shown in the program, the scientific knowledge that is not necessary for mass practical application is redundant for students, especially students of a young age;

- Do we think that in some textbooks it is necessary to give comments with the comment "learn", which completes the study of each topic, which is sometimes encountered, and the essence of which serves to check the independent conclusion of the learner ?! In this case, the reader prefers to read what is ready rather than invent it! In essence, these "learns" are answers and solutions to examples and problems in mathematics. So we think that if these, too, were too concise and given at the end of the textbook, it would have encouraged the children to search more independently;

- Tests are given in textbooks, especially in the repetition sections. These tests, on the other hand, are far from cognitive and verbal, they are more retroscopic and receptive in nature. It's time to think and research on the creativity of these tests. To this end, it would be expedient to increase the number of questions and assignments required for our own old, oriental tests, or 'competition of the talents', which are partially reflected in the textbooks.

In conclusion, the above-mentioned ideas are the views formed on the basis of our scientific and life observations aimed at developing the ability of students to think independently and creatively in the educational process. However, in our opinion, such issues have a special place

in the educational process in the formation of students' ability to think independently and in the development of a creative personality.

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