# Didactic Directions Of Organization Of Independent Work In Teaching Mathematics

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Annotation: The article deals with the organization of mathematics lessons in the system of continuing education and didactic directions of teaching, improving the quality and effectiveness of education at the stage of modernization of the content of education.

Keywords: quality of education, efficiency, teaching mathematics, independent work, creative activity, social order.

### **I.INTRODUCTION**

Improving the quality and efficiency of teaching subjects at all stages of the system of continuing education plays an important role in the organization of innovative activities of modern teachers in independent Uzbekistan. The state order for the education system is reflected in the main ideas of the National Program of Personnel Training of the Republic of Uzbekistan. In this regard, the organization of independent work of students in general secondary schools is characterized by its multifaceted goals and objectives, and the education system has a number of tasks:

- The organization of independent work in schools, the reconstruction of its content in accordance with the prospects of socio-economic development of the country, the needs of society, modern achievements of science, culture, engineering and technology; implementation of the tasks of solving the introduction;

- organization of independent work in the system of general secondary education, spiritual and enlightenment renewal in the society, adaptation to the processes of building a developed legal-democratic state.

In this article, we have tried to provide a valuable insight into the didactic basis of the organization of independent work in the teaching of mathematics. and enrichment is important in the context of the subject and is carried out in several stages:

1. At the general pedagogical level, general didactic, general educational, mathematical technology represents the whole structure of the educational process, the general laws of application in practice, scientific and theoretical bases, principles, conditions. It includes the goals and objectives of the educational process, content, tools and methods, the object of teaching mathematics and the algorithms of the subject.

2. At the special methodological level, mathematics is understood as a specific subject of teaching technology, a set of educational content, teaching aids, methods, forms used to achieve the goals and objectives of the course teaching process.

3. At the modular level, technology is understood to address the specific didactic and educational purpose of a particular part of the mathematics teaching process. It involves the use of tasks with inductive and deductive descriptions to help students master mathematical algorithms. The above-mentioned stages of mathematics teaching technology in general secondary schools require complementarity.

### **II. MATERIALS AND METHODS**

In the Republic of Uzbekistan, the organization of independent work of students at the stage of modernization of mathematics education is a key link in the acquisition of knowledge by the individual.

Assimilation of students at the stage of modernization of the educational process The problems of activity management are very urgent.

In the organization of independent work, the mental actions of the student are a variety of actions of the individual, which are carried out consciously, through internal psychological mechanisms. It has been experimentally proven that such movements always include motor movements. If in the process of organizing independent work there is a transition to mental processes based on external activity, such a process is called internalization in psychology, and vice versa, the transfer of ideas formed in the mind directly to external activities or external activities is called externalization.

Activities also vary according to the degree of direct involvement of the mind. At the beginning of some actions, each element must be performed seriously, individually, and it requires all the attention, the direction of the mind. But over time, the involvement of the mind diminishes, and many parts become automated. The ability of inductive and deductive observation in mathematics depends on how the teacher presents the teaching materials in order to occur in this language, that is, in an automated state, to find solutions to problems of educational importance.

The great scientist, thinker Abu Nasr al-Farabi divided the types of activities into several stages, and advanced the idea of the methods of their implementation, the definition of time and space, the physiological mechanisms. He acknowledges the existence of truth, the objective nature, and states that "the conformity of our knowledge to reality is the truth." Matematika o'qitish metodlarini bilish uchun asoslar bir necha turini tavsiya etish mumkin.

In order to organize independent work of students in the modernization and enrichment of the educational process, it is necessary to do the following:

- to constantly learn, generalize and apply new experiences;

- to 'rational use of planned scientific knowledge, pedagogical experience;

- special emphasis on the organization of special circles to increase knowledge of mathematics in secondary schools;

- free thinking for the younger generation communication, inculcation of logical observation skills is a guarantee of effective implementation of education.

Every subject taught in school, including mathematics, has its own pedagogical significance and potential. Proper use of these opportunities depends on the teacher's knowledge, experience, skills and creative pursuits.

It is known that the transfer of teaching knowledge and skills and is a process of acquisition. Therefore, the transfer of knowledge and skills is one of the main tasks of the modern computerized education system. How this system works depends on the teacher-student relationship.

Modernization of educational activities Effective use of every minute of training, teacher skills, rational use of computer technology use depends on the proper organization of student training, work and leisure.

Improving the quality of education in the educational process, planning the process leading to the goal, and most importantly, the introduction of advanced pedagogical technologies to ensure the expected result. Time requires the quality of teaching mathematics first of all. depends on the scientific and methodological training of the researcher. The principle of consciousness in didactics plays an important role in this. Understanding every mathematical concept, the exact meaning of terms, the proof of every theorem, every rule, every law is of particular importance to high school students.

Yan Amos Komenskiy in his book "The Great Didactics" commented on the main problem of didactics: "The alpha and omega of our didactics and discovery."

In the teaching of mathematics, the conscious principle of education is the basis, and other principles are subject to it. But in order to implement this principle, it is necessary to develop students' awareness. Consciousness is not only the ability to think and reason, but also the ability to determine one's actions according to the situation. The development of conscious perception begins with the development of logical thinking. That is why it is the duty of every student to cultivate logical thinking.

In the process of modernizing the content of education is based on the principles of realization of the goal, ensuring the integrity of the educational material, practicality, scientificity, systematization, reliance on certain sources, development of thought in the direction of a specific goal and so on. together it is important to teach students to think independently and to develop their creativity, to ensure the improvement of the system of mathematical knowledge. In this regard, one of the important factors in the development of students' mathematical skills is the formation of creative qualities in students, teaching them to think independently.

It is known that in the 9th grades of general secondary schools the concept of logarithm is given, then the basic properties of logarithm are given and the proof of logarithmic equations and inequalities is taught on the basis of the given data.

In general, in-depth teaching of mathematics in general secondary schools forms a system of fundamental knowledge in students. Provides and develops mathematical skills and competencies in them.

Observing when and under what circumstances teachers and students can learn to think this way, we conclude that this requires a change in the technology of the teaching process. This requires the use of active methods in the teaching of mathematics. The principles of education are mainly systematic, scientific, conscious, demonstrative, individualistic approach, solidity of knowledge, etc., which make an active contribution to the embodiment of mathematical education in the minds and observations of students. . Mathematics education in general secondary schools maintains the structure of secondary special mathematics education for two main purposes - firstly, to equip students with fundamental mathematical knowledge, and secondly, to provide them with comprehensive knowledge in the process of imparting mathematical knowledge. and to ensure their deep mastery. For example, the requirements for the content of the basics of algebra and analysis are as follows:-to'plamlar haqida dastlabki tushunchalarga ega bo'lish;

-know the methods of transfer of sets, empty sets, partial sets, combinations of sets, intersections, subtractions, finite, infinite sets;

- knowledge of arbitrary and existence quantifiers and their mathematical

- knowledge of finite decimal, infinite decimal periodic, non-periodic fractions, rational, irrational, real numbers;

- basic number to 'knowledge of plums (natural, integer, rational, irrational, real numbers);

- definition of a complex number, abstract unit, equality of complex numbers, operations on complex numbers, geometric meaning of a complex number, complex number know the square root of

- the canonical form of whole rational expressions, Bezu's theorem, polynomial division into two terms (Gorner's scheme), exact substitution of rational algebraic expressions, solution of rational equations and inequalities with one variable, know the basic methods of solving equations and inequalities;

- Al X to know the summary of Orazmi's book "Al-jabr and al-muqabala";

- to know the geometric meaning of the equation of two variables, to solve examples of systems of equations;

- to understand the concept of mathematical induction to be able to prove some identities and inequalities using the method of mathematical induction;

- correct use and understanding of terms related to the function, definition, change (increase and decrease) of the function

- to know the methods of transfer of the function, to know the graphs of the functions, to determine the duality, periodicity, the smallest positive period of the function, to find the zeros of the function, the elementary functions, their basic know the properties, have knowledge of reciprocal inverse functions;

-know the basic properties of logarithmic and exponential functions;

- be able to schematically describe the graphs of functions; be;

- be able to represent graphs of module-related functions in a plane;

- be able to solve simple logarithmic, exponential, exponential equations and inequalities; {{ 1}} - sequences, to know about their limit, to calculate the limit of some simple series, the circumference of a point, the limit of a function, one-sided limits, infinite limits, the continuity of a function, the basic properties of a continuous function , to know the continuity of elementary functions;

- to know the product, function, geometric and mechanical meaning of the product;

-production of some functions, calculation of products, second order product, increase and decrease interval of the function, function extremums, find the largest and smallest values of the function in the intersection, fully check the function, draw a graph, some of the product

- to know the basic trigonometric functions and their basic properties, to understand the harmonic oscillation, to convert the sum and difference of the basic trigonometric functions into a product, to replace the product of these functions into a sum, trigonometric solution of equations and inequalities, knowledge of the product of trigonometric functions;

- knowledge of the initial function and its properties, the rules of finding the initial function, indeterminate integral, calculation of curved trapezoidal faces, exact integral, Newton-Leibniz formula, know how to calculate the face, size of geometric figures using exact integrals;

- combinations, placement, displacement know how to calculate h and the number of groupings, solve examples of Newton's formula, solve combinatorial problems;

- to be able to find random, inevitable and impossible events, combinations and intersections of events, to calculate the probabilities of events, to know the concepts of frequency, polygon, histogram and to solve problems related to them.

#### **III. CONCLUSION**

Selection of teaching methods and tools for the organization of independent work of students in the process of modernization of the educational process; In particular, it is advisable to strengthen theoretical knowledge, interest in science, to recommend to students practical issues in the connection of science with the future profession.

To increase students' interest in mathematics, school mathematics course in this subject It is necessary to organize the content of mathematical education with questionnaires, tests, written works, which determine the level of knowledge, skills and abilities of the constituent departments, as well as a comprehensive analysis of their results.

#### **References:**

1. Abduqodirov A.A Teoriya i praktika intensifikatsii podgotovki uchiteley fizika-matematicheskix dissiplin. – Toshkent:Fan,2010.-91-bet.

2. Arxangelskiy S.I. Nekotorie novie zadachi visshey shkoli i trebovaniyak pedagogikneskomu masterstvu.-Moskva:Znaniye,2010.-C.-45.

3. Karimova V. Ijtimoiy psixologiya.-Toshkent: Me'ros,2008.-49-bet.

4. ogli, Yarashov Mardon Jobir; ,THE IMPORTANCE OF USING DIGITAL TECHNOLOGY IN PRIMARY SCHOOL MATHEMATICS EDUCATION,ACADEMICIA,1,11,5,2021,ACADEMICIA: An International Multidisciplinary Research Journal

5. Косимов Ф. М., Ярашов М. Ж. ТВОРЧЕСКИЕ САМОСТОЯТЕЛЬНЫЕ РАБОТЫ НА УРОКАХ МАТЕМАТИКИ В НАЧАЛЬНЫХ КЛАССАХ //ИННОВАЦИОННЫЙ ПОТЕНЦИАЛ РАЗВИТИЯ НАУКИ В СОВРЕМЕННОМ МИРЕ: ДОСТИЖЕНИЯ И ИННОВАЦИИ. – 2020. – С. 178-181.

6. Yunus Y. S. Methodology Of Teaching Assignments To Work With Non-Standard Solution In Primary School Mathematics Education //The American Journal of Social Science and Education Innovations. – 2021. – T. 3. – №. 02. – C. 439-446.

7. Саидова Г. Э. Ситуация свободного выбора на уроках математики в начальных классах //Вестник науки и образования. – 2019. – №. 7-3 (61).

8. Jumayev M.E, Boshlang`ich sinflarda matematika o`qitish metodikasidan praktikum. (O O`Y uchun ) Toshkent. "O`qituvchi" 2004 yil

9. Xoliqulovich J. R. Toponymics-a Linguistic Phenomenon in The Work of Sadriddin Aini //Middle European Scientific Bulletin. – 2021. – T. 8.

10. Yoʻldashev J. G., Usmonov S.A. Zamonaviy pedagogik texnologiyalarni amaliyotga joriy qilish. - T: Fan va texnologiya, 2008.

11. Adizova N. B. RHYME, RHYTHM IN FUN GENRE //Theoretical & Applied Science. – 2019. – №. 10. – C. 65-67.

12. Raximqulovich, Ismatov Sobirjon; ,METHODS OF WORKING WITH TEXT IN LITERARY READING LESSONS IN ELEMENTARY SCHOOL,EPRA International Journal of Multidisciplinary Research,1,,345-347,2020,EPRA Publishing

13. Rustamova G. B. THE INTERPRETATION OF THE WILLOW IMAGE IN UZBEK FOLKLORE //ЛУЧШАЯ НАУЧНАЯ СТАТЬЯ 2020. – 2020. – С. 53-57.

14. Yusufzoda, Shabnam. "Organization of independent work of students in mathematics." Bridge to science: research works. 2019.

15. YARASHOV M. BOSHLANG 'ICH SINF MATEMATIKA TA'LIMINI IJODIY TASHKIL ETISHDA TA'LIM TAMOYILLARINING O 'RNI //ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ. – 2020. – Т. 1. – №. 1.

16. YUSUFZODA S. OʻQUVCHI MANTIQIY TAFAKKURINI SHAKLLANTIRISH OMILLARI //ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ. – 2020. – Т. 1. – №. 1.

17. Olloqova M. O. Intensive education and linguistic competence in mother tongue //ACADEMICIA: AN INTERNATIONAL MULTIDISCIPLINARY RESEARCH JOURNAL.  $-2021. - T. 11. - N_{\odot}. 1. - C. 580-587.$ 

18. Хамраев А. Моделирование деятельности учителя при проектировании творческой деятельности учащихся //Педагогічні інновації: ідеї, реалії, перспективи. – 2018. – №. 2. – С. 23-26.