EMERGENT: JOURNAL OF EDUCATIONAL DISCOVERIES AND LIFELONG LEARNING (EJEDL)
ISSN: 2776-0995 Volume 4, Issue 7, July, 2023

WAYS OF EFFECTIVE USE OF MODELING METHODOLOGY IN THE DEVELOPMENT OF SEMIOTICS IN MATHEMATICS IN YOUNG STUDENTS

Abdusamatov Alisher Sobirovich
Termiz University of Economics and Service
Department of "Social and Humanities" Assoc., etc
Doctor of Philosophy (PhD) in Pedagogical Sciences, Termiz (Uzbekistan)
E-mail: aabdusamatov912gmail.com, Phone: 91-577-62-99

Abstract:
In this article, the importance of semiotic aspects in teaching mathematics to young students, its applications, the necessary pedagogical conditions, the scientists and their views are described in detail, the branches, directions of semiotics and how we can use it in our daily life. passed.

Keywords: Semiotics, primary education, mathematics, semasiology, pragmatics, syntactics.

G. The theory of sets developed by Cantor (1845-1918) had a great influence on the development of mathematics teaching in schools as well as on the science of mathematics. One of the main concepts in this theory is the concept that sets are equal, and this concept made it possible to create a finite power countable theory of countable numbers in a set of natural numbers.

This theoretical model reveals another aspect of the nature of numbers. Although in the traditional teaching of mathematics, this aspect is shown in detail, in most cases, students have some difficulty in clarifying the importance of this characteristic of numbers in the teacher's professional activity. From this point of view, it can be considered that they cannot sufficiently evaluate the value of set theory as a content-symbolic basis of mathematics (arithmetic) teaching methods to young students.

By mutual strict correspondence between two sets (sets) of equal value, we mean that one item in one set corresponds to one and only one item of the other set, because none of them has an "extra" item left. This strict correspondence allows us to determine the ratio between two sets of equal values:

- the number of objects in both sets is the same;
- both sets are equivalent, therefore, they are mutually equivalent (it should be said that equivalence ratio has the same meaning as equivalence ratio).

Based on the determined ratios, we determine the level of equivalence. Each level of equivalence includes sets that have the same and quantitatively equal objects. At the same time, it is possible to obtain a set that belongs to any level of equivalence, that is, can express a specific number demonstratively and has a certain name, to express the number determining the quantity by means of the object.

If we order sets of finite capacity based on their visual presentation, we create a cross-section of the series of natural numbers that serves as a template.
When determining the power of a finite set of objects by this method, two types of actions are performed:
1) compatibility of a finite set of bodies with the cross section of the series of natural numbers on the same values is established;
2) the order in the set to be determined is defined and each of its elements is indicated by a specific number. If the number of elements in both sets is the same, it is possible to renumber them and determine the correspondence between the same values, or if the correspondence between the same values is established, then the two sets are considered to have the same number of elements.
Future teachers need the following skills to transform students' theoretical knowledge into cognitive actions and to form the representations of mathematical operations in young students during these actions:
- to justify the practical effect of working on symbols by considering collections that can be combined only by the power of imagination;
- to translate the conclusion obtained as a result of combining the sets with the power of imagination into ordinary language (the number of elements of two sets that do not have similar objects and are presented as a "whole" set means the result obtained by adding the elements of each set to each other);
- construction of a graphic interpretation for specific counting numbers by means of visual semantics;
- clarifying the operations performed on each number when performing the operation of finding the value of the corresponding expressions (Appendix 1.2).
Understanding the basic meaning of the operation of multiplication is of great importance in the mathematical development of young students. Multiplication of natural numbers as a power unit of finite sets is performed using several methods (Appendix 1.2). We believe that the method proposed by N.I. Lobachevsky to reproduce this concept from the point of view of visualization will be more useful.
The advantage of N.I. Lobachevsky's procedure and its visualization with the help of visualization tools is that various functions of multipliers are clearly expressed in it: this makes their semantic properties visible, and as a result, the student has the ability to visually imagine the conceptual components specific to the operation of multiplication. . At the same time, it can be seen that the complex definition of the multiplication operation expressed in words (text) is simplified, that is, each element of the set with the power equal to the value of the second multiplier in the multiplication "forms" the set with the power equal to the value of the first multiplier. At this point, we should visually note that the role of multipliers in multiplication is different from the role of adders in addition. By easily visualizing each mathematical operation performed in this order, it is possible to present the practice of finding the product of exact numbers in a visual form.

Therefore, the readiness of the teacher to form the image of the multiplication operation in the imagination requires him to master the following professional skills:
- to be able to substantiate with the help of evidence the practical effect of performing new actions in problem situations that are difficult to solve using common mathematical methods: (for example, how many should be the number of objects to be divided into several equal parts?);
- knowledge of various rules of multiplication expressed in words;
- to know the methods of presenting the rules of multiplication expressed in words through the means of visual semantics;
- to be able to verbally describe the successive operations of multiplying specific numbers in accordance with each rule;
- to be able to make the same statement with an arbitrarily selected number.

The above methods of action aimed at revealing the meaning of the teacher's addition and multiplication actions show that it is possible to describe problem situations in texts of different levels of abstraction - objective, graphic, visual, verbal and symbolic methods.

In order for the teacher to expand his knowledge of the methods of performing actions with arithmetic operations, it is necessary to master the laws specific to addition and multiplication operations (properties of these arithmetic operations). It should be said that the deductive justification of these laws is lacking in the preparation of the teacher for the mathematical development of young students, because deductive reasoning is not considered effective in elementary grades. However, it pays to use deduction instead of deduction to achieve completeness and detail in reasoning and to begin building early reasoning skills in elementary school students. Moreover, while the commutativeness of the addition operation is intuitively obvious to every student (in fact, the role of each addendum in the sum is determined by the child to be invariable in any situation), if we derive from the rules of the multiplication operation learned in elementary grades, the commutativeness in it can happen unexpectedly. As we mentioned above, the role of two multipliers in the rule of multiplication used in primary classes - like N.I. Lobachevsky's order - is different.

Indeed, the question of why the sum of addends each equal to a corresponds to the sum of addends equal to a is a good puzzle for elementary students. In accordance with this question, in the training of teachers who develop young students mathematically, the task of finding more symbols that embody the properties of the multiplication operation, searching for means of enriching the existing symbols and revealing the commutative properties of the multiplication operation through these means is of great importance. It is known that the commutative property of the multiplication operation in elementary mathematics is based on the order of Cartesian multiplication, which consists of multiplying the powers of the corresponding sets.

The experience gained as a result of the multiplication operation based on the student's selection of the order of multipliers in accordance with known (familiar) rules strengthens his ideas about the role of multipliers in the expression.
If students not only learn the different rules of multiplication, but also perceive that they are equivalent, it will be easier for them to successfully carry out the task of revealing the basic meaning of multiplication. For example, revealing the essence of this operation often leads to problematic situations: if we consider that there are three rules for multiplying numerical numbers and each of them has a separate method of finding the product, then "wouldn't the product of exactly the same numbers, found using different methods, be different? " the question arises. At this point, we are thinking only about methods (rules) of multiplying numbers. Proof that different multiplication rules are mutually equivalent. The theoretical knowledge acquired by the students allows to create didactic situations in the lesson processes organized in primary classes. These didactic situations, in turn, serve to increase the mathematical experience of young students.

LIST OF REFERENCES USED

1. Александрова Э.И. Психолого-педагогические основы построения современного курса математики // Начальная школа.-2013.-№ 1.-С. 56.
2. Avliyakulov N.Kh. Modern teaching technologies. Study guide. -T.: 2001.-68 p.
3. Abdusamatov A.S. Teaching technology science in elementary grades using universal learning activities. Pedagogical sciences and teaching methods international conference. 10.10.2021.-P.165-170.
4. Abdusamatov A.S. The use of modeling methods in elementary mother tongue lessons. Models and methods for increasing the efficiency of innovative research International scientific-online conference 2021-Germanya.-P.147-153.
5. Абдусаматов А.С**.** Aspects of primary mathematical education different from other disciplines of education.//Актуалъние вопросы современной науки 2020 г.**-**P.111-115.
6. Беспалько В.П. Педагогика и прогрессивные технологии обучения. -М.: ипро,1995.