

THE IMPORTANCE OF LOGICAL CONCEPTS IN MATHEMATICS TEACHING IN SPECIALIZED PRIMARY CLASSES

Muhiddinova Gulzoda Shukur qizi
Teacher of Karshi International University
E-mail: gulzoda0301@gmail.com

Abstract

This article talks about the role of logical concepts in the teaching of mathematics in specialized primary classes and what needs to be given more importance in this regard.

Introduction

Logical concepts are very important in teaching mathematics in primary grades. At this age, children's logical thinking skills begin to form, and the correct organization of this process has a great impact not only on their success in mathematics, but also on their general intellectual development. It is necessary to teach them what logical concepts are and why they are important. The use of logical concepts in mathematics should be explained in sequence and instilled in their minds. Using the methods of forming logical concepts, children should be taught the importance of logical concepts in their skills. Mental activity, like any other activity, must be trained and developed. In today's world, a child often faces similar challenges, so this is the topic is the most relevant today.

Literature Review

There is no clearly structured sequence of explaining logical concepts for elementary school students. Stoylova recognized the formation of habits of analysis, synthesis, working with concepts, drawing conclusions, reasoning, and independent thinking in students through logical concepts. T.Jumayev explained "Why is it necessary to use logical concepts in the daily life of elementary school students." He explained how important logical thinking is in the period of junior school age and that it is an active propaedeutic stage of developing logical thinking.

Research Methodology

In order to develop the logical thinking of elementary school students, it is important to implement the following practices: Ask students questions and create opportunities for them to express their thoughts. It is very important to develop the ability to think through questions, to express one's own thoughts, and to be able to comment on the opinions of others without requiring serious answers. Provide opportunities for students to exercise their thinking, consult, and solve problems together by giving them logical problems and tasks. It is very effective to teach students through logic games. For example, cards with logical questions, cooperative games, logical tasks, etc. This gives them the opportunity to develop important logical thinking and concepts.



Analysis and Results:

What and Why Are Logical Concepts Important?

Logical concepts are: Analyzing (distinguishing elements), ordering (determining order and rules), comparing (comparing objects and events), methodological thinking (step-by-step solving of problems).

Development of logical thinking in children of primary age makes it easier to learn mathematical basics. Prepares to solve complex problems. It teaches them to think independently. It will be useful in solving problems in everyday life.

Application of logical concepts in mathematics.

Mathematical topics taught in primary grades are mainly designed to develop children's logical thinking skills:

1. Numbers and counting: Grouping objects, continuing series, and comparing numbers.
2. Geometric shapes: Classification of shapes, development of symmetry and spatial thinking.
3. Operations: Logically coherent explanation of operations of addition, subtraction, multiplication and division.
4. Problem Solving: Transforming and solving simple life situations into mathematical problems.

Ways of forming logical concepts.

Games and Puzzles: Math games and puzzles keep children engaged and interested.

Problem Solving Exercises: Teaching how to solve the same problem in different ways.

Visual materials: Use of pictures, diagrams and shapes help to make logical connections.

Supporting Alternative Thinking: Showing that there may be more than one correct answer to a question.

The importance of teaching logical concepts

The main benefits of forming logical concepts in elementary grades:

1. Development of mathematical skills: Children who master logical concepts well will understand algebra, geometry and other complex topics in the future.
2. Creative thinking: Children learn to think creatively and find new solutions.
3. Study success: Learning other subjects is also easier because many subjects require logical thinking.

There are specific differences in the teaching of logical concepts in the process of teaching mathematics in non-specialized schools and specialized primary classes. These differences are mainly seen in the educational content, methodology, organization of the educational process and taking into account the individual abilities of students. We will analyze these differences below.

The difference in educational goals: In non-specialized schools, the main goal is the formation of general literacy in all students and the acquisition of basic mathematical knowledge. Logical concepts are seen as part of the curriculum, but not in-depth or specifically targeted. Special attention is paid to the development of logical concepts in specialized schools. The curriculum



is more challenging and focused on deeper development of logical thinking. For example, complex puzzles, creative problems, tasks requiring strategic thinking are included.

Curriculum and content: In non-specialized schools, the curriculum is standard and covers the main topics. The examples, problems and tasks are simpler and their main purpose is to teach children fundamental concepts. In specialized schools, the curriculum is expanded and deepened, and includes additional topics designed to develop logical concepts. For example: elementary elements of algebraic logic, methods of creating mathematical models, complex tasks that develop geometric thinking.

Teaching methods and approaches: In non-specialized schools, teaching is more adapted to the general abilities of students, and the main goal is to bring everyone to a common minimum level. More traditional and standard methods are used. Modern and innovative methods are used in specialized schools. This includes: Game technologies (mathematical puzzles, intellectual games), determining the level of students through diagnostic tests and choosing appropriate exercises for them, teaching how to solve complex problems in a group (cooperative learning).

In-depth teaching of mathematics is an educational method aimed at providing a broader and deeper knowledge of the subject, which aims to develop students' mathematical abilities and prepare them for successful work in scientific and technical fields. Below we consider the main features of in-depth teaching of mathematics:

Expansion and deepening of the curriculum

Advanced topics: Teaching topics not covered in the regular school curriculum, such as combinatorics, probability theory, mathematical logic, and linear algebra. **Deep learning of theory:** Deep study of the theoretical basis of mathematical concepts, rules and theorems and their proof. **Problem-solving level:** Learning tasks that require solving large mathematical problems (for example, Olympiad problems).

Develop logical and creative thinking: Students learn to use a variety of techniques to reason, draw conclusions, and solve problems. In-depth teaching of mathematics helps to develop creative thinking, because in the process of solving complex problems, it is necessary to find several solutions.

Integration of theory and practice: In the in-depth teaching of mathematics, great attention is paid to the integration of theory and practice. For example, strengthening theoretical knowledge by solving Olympiad problems. Mathematical modeling of life problems (for example, transportation problems, economic calculations, graphical analysis). In-depth teaching of mathematics requires more theoretical depth, development of logical thinking and practical orientation than standard education. In this type of education, students develop not only knowledge, but also analytical and creative thinking skills, which lays the foundation for their future success.

Student abilities and needs: In non-specialized schools: teaching may be less personalized because students have different abilities. The program should be accessible to students of generally low level. Demand is higher in specialized schools. Students are usually selected



based on logical thinking and mathematical skills. Therefore, more attention is paid to solving complex problems and developing logical concepts.

Effectiveness in teaching logical concepts: In non-specialized schools, logical concepts are linked to simple life tasks, and the main focus is on solving everyday problems. In specialized schools, teachers try to explain logical concepts in depth. For example: Methods of finding and proving logical connections are taught. More theoretical knowledge is given, which lays the groundwork for mastering complex mathematics in the future.

Learning outcomes and future prospects: In non-specialized schools, students acquire general mathematical literacy and acquire the minimum level of logical thinking skills necessary for everyday needs. In specialized schools, children are prepared for scientific activities, their creative and analytical thinking skills develop. They are better prepared to continue their education in mathematics, computer science, engineering or other technical fields.

Conclusions and recommendations

The main difference between teaching logical concepts in non-specialized and specialized schools is in the educational content and approaches. Logical concepts are studied more deeply and widely in specialized schools. Special approaches are used in accordance with the individual abilities of students. Students' thinking skills are developed through complex problems and creative tasks. This increases the interest of children studying in these schools in mathematics and allows them to achieve higher academic and professional achievements in the future.

Recommendations for teachers

- Choosing an approach from simple to complex: Each new concept should be related to previous knowledge.
 - Using interactive methods: question and answer, working in groups and using games.
 - Individual approach: adaptation of tasks according to the abilities of each student.
- Teaching logical concepts in elementary grades increases children's interest in mathematics and plays an important role in shaping them as successful individuals in the future. The task of teachers is to organize this process conveniently and efficiently.

References

1. Стойлова Л.П. Теоретические основы начального курса математики. Учебное пособие. Москва. "Академия". 2014. 272 с.
2. Jumayev. M.E. Matematika o'qitish metodikasi. (OO'YU uchun darslik) TOSHKENT. "TURON-IQBOL", 2016-yil. 416 b.
3. Jumayev M. Boshlang'ich matematika nazariyasi va metodikasi. (OO'YU uchun darslik) Toshkent. "Turon-Iqbol", 2010-yil. 320 b.
4. Boshlang'ich ta'lim jurnallari. 2020-2023 y.y.
5. I.V.Repyova. Uchinchi sinf matematika darsligi. Toshkent. "Novda" 2023 y.
6. Bikbaeva N. 4- sinf matematika darsligi. Toshkent. "O'qituvchi" 2020 y.



7. Jumayev M.E. Boshlang'ich matematik tushunchalarni rivojlantirish nazariyasi va metodikasi. Pedagogik yo'nalishdagi kasbhunar kollejlari uchun o'quv qo'llanma. "Ilm-Ziyo" nashr. Toshkent-2007.
8. Jumayev M.E. Bolarada boshlang'ich matematik tushunchalarni rivojlantirish nazariyasi va metodikasi. Pedagogik yo'nalishdagi kasb-hunar kollejlari uchun o'quv qo'llanma. "Ilm-Ziyo" nashr. Toshkent - 2014.
9. Vygotskiy, L.S.Fikrlash va nutq / L.S. Vygotskiy - M: AST, 2005 yil.
10. Jumayev M.E. Boshlang'ich sinflarda matematika o'qitish metodikasidan laboratoriya mag'ulotlari. Oliy ta'lim muassasalari uchun darslik.Toshkent., «Yangi asr avlodi» 2006 yil. 20 b.t

