

THE ROLE OF INTERACTIVE METHODS IN DEVELOPING MATHEMATICAL SPEECH

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Annotation: This article discusses the importance of interactive methods in the development of mathematical speech among primary school students. It analyzes how interactive teaching techniques contribute to improving logical thinking, analytical reasoning, and the ability to express ideas coherently using mathematical terminology. The paper also explores the teacher's role in applying interactive methods, their practical outcomes, and the relevance of these methods in modern education systems.

Keywords: mathematical speech, interactive methods, primary education, logical thinking, teaching technology, learning activity, communication skills, teaching effectiveness.

In the modern era, education systems are undergoing significant transformation, focusing on developing students' independent thinking, reasoning, communication, and creativity. Primary education plays a foundational role in this process, as it establishes the base for all further learning. Therefore, one of the key tasks of teaching mathematics at this stage is the **development of students' mathematical speech**.

Mathematical speech refers to the student's ability to express ideas clearly, logically, and with appropriate use of mathematical terms. A student who has mastered mathematical speech can understand problems deeply, reason through them, and explain conclusions based on logical evidence. Achieving this skill effectively requires the use of **interactive methods**, which make learners active participants rather than passive recipients of knowledge. Interactive approaches encourage cooperation, communication, and independent expression — all essential elements for mathematical literacy.

In the teaching of mathematics in primary grades, students' speech development largely depends on the teacher's chosen approach and methodology. Traditional methods are mostly teacher-centered, while interactive methods make students the core participants in the learning process. For this reason, teachers today actively use methods such as *Brainstorming*, *Cluster*, *Insert*, *Blitz Survey*, *Cinquain*, *Boomerang*, *Problem Situation*, and *Debate*.

For example, the **"Brainstorming"** method allows students to generate multiple ideas and solutions for a given mathematical task. During this activity, students express their thoughts verbally, listen to others, and learn to evaluate different viewpoints. As a result, their oral mathematical communication and ability to use mathematical terminology appropriately improve significantly.

The “**Cluster**” method helps students organize their existing knowledge around a central concept. For instance, in a lesson about *geometric figures*, the teacher writes the central term “Shapes” on the board, and students contribute related words such as “circle,” “square,” “rectangle,” and “triangle.” This activity enriches mathematical vocabulary and teaches students to use these terms correctly in both spoken and written forms.

The “**Insert**” method develops students’ abilities to distinguish between known and new information, identify key points, and draw logical conclusions from texts or examples. This not only improves comprehension but also builds reasoning and argumentation skills — the foundation of mathematical speech.

When interactive methods are used, the lesson becomes a dialogue-based and cooperative environment. The teacher facilitates rather than dominates, while students actively engage, ask and answer questions, and participate in discussions. For instance, in the “**Problem Situation**” method, the teacher may present a challenge such as: “*If we have three chocolates and two children, how can we divide them equally?*” This prompts students to reason, suggest various solutions, and justify their choices. Such interactions develop logical thinking and coherent verbal expression.

The “**Cinquain**” method encourages students to describe a mathematical concept poetically. For example, when learning about “Triangle,” students may create:

1. Triangle.
2. Equal, isosceles.
3. Measure, draw, compare.
4. A shape with three sides.
5. Geometry.

Through this process, learners enrich their vocabulary and gain confidence in articulating ideas related to mathematics.

Interactive methods also enhance **logical reasoning**. In the “**Boomerang**” technique, each student contributes an idea and passes it to the next participant, who continues and develops the thought further. This chain-like process fosters logical, sequential, and well-supported reasoning — crucial components of mathematical speech.

Another significant advantage of interactive methods is that they create a **communicative learning environment**. Students learn to listen actively, respect others’ opinions, and defend their own views. This not only refines their mathematical communication but also strengthens their social and emotional intelligence.

Practical experience shows that mathematics lessons organized through interactive methods help students:

- use mathematical terminology accurately and confidently;
- express ideas clearly and logically;
- reason step by step in problem-solving;
- develop teamwork and communication skills.

In today's digital education context, combining interactive methods with **information and communication technologies (ICT)** has become a powerful trend. For instance, integrating interactive games, digital quizzes, and online tools such as *Kahoot*, *Quizizz*, or *GeoGebra* enhances both students' mathematical fluency and their expressive abilities. These platforms provide real-time engagement, motivation, and opportunities for collaborative discussion — all essential for developing mathematical speech.

The main strength of interactive methods lies in transforming students from passive listeners into active participants. Each student contributes to the learning process, articulates ideas, provides justifications, and reflects critically on mathematical reasoning. Consequently, these methods play a vital role in forming clear, structured, and logical mathematical communication skills.

Conclusion

In conclusion, the use of interactive methods in primary school mathematics education is highly effective in developing students' mathematical speech. Such methods not only promote cognitive engagement but also foster linguistic precision and logical articulation. They make lessons more dynamic, increase motivation, and improve comprehension.

Developing mathematical speech is not merely about teaching vocabulary — it is about cultivating a culture of reasoning and structured expression. Therefore, every primary school teacher should systematically and thoughtfully apply interactive methods suited to students' age and psychological characteristics. Through this approach, learners not only master mathematical concepts but also acquire the ability to express ideas coherently, logically, and convincingly — essential qualities for lifelong learning and intellectual growth.

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