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Diagnosing Students' Knowledge And Ensuring Effectiveness In Teaching Mathematics In Primary Education

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Abstract: This article highlights the importance of diagnosing students' knowledge in the effective teaching of mathematics at the primary education level. Through the diagnostic process, the students' knowledge level, individual characteristics, and learning approaches, in particular, the effectiveness of using interactive methods, tests, practical tasks, and the EGMA evaluation program were analyzed. Also, the role of formative assessment in monitoring the dynamics of student development is revealed. According to the results of the research, it was concluded that regular and systematic assessment serves to deepen students' mathematical knowledge, develop independent thinking and problem-solving skills.

Keywords: Assessment, diagnosis, interactive methods, effective teaching, communication, formative assessment.

Introduction: Effective teaching of mathematics at the primary level requires regular assessment of students' knowledge, skills and abilities. Therefore, the diagnosis of students' knowledge is an integral part of the educational process. Through diagnosis, students' level of knowledge, learning difficulties and individual characteristics are determined, and an opportunity is created to direct the educational process. The process of diagnosing mathematical knowledge in elementary grades should not be limited to traditional control work. The use of various interactive methods, tests, practical assignments and international evaluation programs is of great importance based on modern approaches. In particular, assessment tools such as EGMA (Early Grade Mathematics Assessment) are effective in determining students' basic mathematical skills. Through this program, the level of students' recognition of numbers, comparison, arithmetic operations and logical thinking is determined.

Literature Analysis And Methodology

Based on the results of the diagnosis of students' knowledge, the teacher organizes the educational process based on a differential approach. That is, stronger students are worked on more complex tasks, and students who are facing difficulties are given additional explanations and exercises. This serves to ensure the individual development of each student. Proper planning of the educational process, the use of modern pedagogical technologies, and increasing the activity of students are important factors in ensuring effectiveness. Creating problem situations in lessons, using game technologies, using methods of group and pair work increases students' interest and helps to strengthen knowledge. Also, when evaluating students' knowledge, it is necessary to pay attention not only to the final result, but also to the educational process. Through formative assessment methods, the dynamics of the student's development are monitored and the

necessary pedagogical measures are taken in time. This leads to students' deeper assimilation of knowledge.

Result And Discussion

The effectiveness of the assessment process helps students understand their level of mastery and take the necessary steps to improve. For example, if a student has trouble memorizing mathematical formulas, the teacher can help with new approaches and exercises. Assessment also provides an opportunity for students to learn a creative approach to solving problems and develop thinking. Evaluation methods and methods. There are several ways to assess student learning in mathematics. Each method helps measure different student skills. The main assessment methods are:

Theoretical assessment: In this method, students memorize mathematical theorems, formulas and other theoretical material and work on them. Through theoretical assessment, students' level of understanding is evaluated, which topics they have understood correctly and how they can apply this knowledge in practice. Theoretical questions help to test students' understanding of mathematical language and their ability to discuss topics.

Practical assessment: Through practical activities, problem solving, reading graphs and solving problems in a practical way, it is possible to measure what knowledge students can apply in practice. Practical assessment encourages students to apply mathematical concepts to practical problems. The effectiveness of this method can be seen in measuring students' ability to solve real-life mathematical problems.

Tests and quizzes: Tests, quizzes and short questions can be used to measure the general knowledge of students. This method allows the students to give clear and quick answers and shows the teacher which topics the students have difficulty with. Temporary assessment of students' knowledge with the help of tests provides an opportunity to quickly check the knowledge they have acquired.

Project works: Projects and works can be given to assess students' creative and analytical thinking skills. In this way, students learn new approaches to solving mathematical problems and have the opportunity to demonstrate their knowledge in practice.

Conclusion

In conclusion, regular assessment of students' knowledge and ensuring effectiveness in teaching mathematics in primary education is an important condition for improving the quality of education. This process creates a solid foundation for the development of independent thinking of students and their successful education in the future.The ability to analyze, interpret and effectively solve problems,learns the possibilities of thinking and communication. Students cannot fully master everything they are supposed to learn in school. To be an effective learner, one must be aware not only of knowledge and skills, but also how and why they are learned.

References

1. Decision PQ-4319 of the President of the Republic of Uzbekistan. "Concept of development of public education in the Republic of Uzbekistan".
2. Vygotsky L.S. "Pedagogical psychology".
3. Zankov L.V. "Fundamentals of developmental education".
4. Polat E.S. "Interactive methods and modern technologies".
5. Tojieva M. "Methodology of teaching mathematics in primary education".
6. Jorayev R. "Pedagogical technologies and pedagogical skills".
7. Alikhanov.S. Mathematics teaching methodology. - Tashkent: Creative publishing house named after Cholpon, 2011. – B 304