



CHALLENGES AND PROBLEMS FACED IN TEACHING MATHEMATICS

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ABSTRACT

As it is crucial for a person to live a better life, Mathematics has a special position in the educational curriculum. However, it is well known that the majority of kids find mathematics challenging. This study investigates the challenges teachers and students in high school perceive when learning and teaching mathematics. Fourteen maths teachers and 200 ninth grade pupils took part in the poll. Both close and open ended questions are included in the questionnaires on how students and teachers are perceived.

The study took into account cognitive, emotional, and contextual factors that affect learning mathematics. The factors that make mathematics difficult for students to learn included difficulty in remembering the content learned in the previous classes, rapid forgetting of the learned material and the difficulty in understanding mathematics concepts. Further analysis revealed that students who feel mathematics highly difficult tends to believe that they lack in learning strategies. Such students have lack of self efficacy and feel more difficulty in understanding mathematics. Students who feel Mathematics as highly difficult tends to forget it faster. Conversely students who feel mathematics as fairly easy report their teachers teaching them well and understanding the concepts quickly. It was noted that the students who feel Mathematics as highly difficult tends to leave the task with little effort than those who feel the subject easy. Teachers cite prerequisites and students' lack of effort as the main causes of mathematics being a challenging subject for students. It was also believed that pupils' lack of enthusiasm, unwillingness to ask for assistance, and inattentiveness in class contributed to the challenge of learning mathematics. Additionally, teachers stated that it is challenging to teach mathematics due to the lack of necessary prerequisites, the difficulty of children quickly learning the ideas, and the increased number of students in a classroom. The results show that teachers must understand the value of making classroom mathematics engaging so that pupils will put forth the effort necessary to acquire it. The outcome is discussed in light of the students' perspectives and learning methods.

Brief History of Math Teaching

Most pupils will admit that learning maths is challenging when questioned about it. The fact that it's so abstract might be one of the major obstacles. Drilling and solving problems that are irrelevant to the student or lack context are frequently combined when teaching maths. For many students, the equation $2x + 4 = 10$



is unrelated. In American mathematics classes before the 1960s, computation was emphasised. One of the primary tenets of this method was to calculate till you got. A shift to a methodology known as "new math" that concentrated on the structure or the elements/theories of mathematics occurred in the 1960s. This increased the abstraction of maths. Additionally, learning was made challenging by the "new math" approach's focus on theories without a lot of computational practise. At least with the focus on computation, a student could memorise the steps to solve problems.

Teaching Math Today

Today, the degree of maths being studied by the pupils determines more whether to emphasise computation or structure. Students who are headed for college are nonetheless exposed to more structure, while those who are not are frequently taught with a more computational emphasis. The problem with this is that everyone wants every child to be college-bound, therefore most children are basically taught with an emphasis on the structure and theories of mathematics with the purpose of understanding why certain steps are required while calculating anything.

Math teachers typically prioritise conceptual knowledge above procedural processes when instructing students in high school and above (elementary is typically hands-on). Alternatively put, providing theory and the rationale behind the methods before actually employing them to solve problems. The teaching of lengthy, difficult mathematical proofs for various ideas, such as the quadratic formula, can occasionally result from this. For a math specialist, proofs are essential to understanding why a particular strategy works, but for the ordinary learner, proofs can be quite perplexing because they sometimes require advanced algebra that has no practical utility.

Learning procedural steps first has the drawback of making it challenging to use them in other contexts or transfer the information to new ones. In my personal experience, for instance, it was typical for a maths instructor to explain the methods for solving a problem, but when it came time to practise, the problems were always a little bit different from what the teacher had shown. To succeed, I would need to factor something that the teacher did not factor or square something that the teacher did not square. It was unable to bring in more tools or deal with circumstances that required different stages because of the emphasis on the steps.

Because of their mastery of theory, the maths teacher, who was a natural specialist, found it simple to recognise a problem, add additional tools, subtract steps, and add them back in. For the rest of us, it is necessary to practise and get comfort with the principles first before applying them to new scenarios.

Conclusion



The intention is not to suggest that there is a single best method for teaching maths. The main difficulty is assisting non-math kids in excelling in maths. In order to help poorer pupils survive or perhaps flourish in a challenging academic setting, this includes combining concepts and drill.

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