

## **THE COMPLEXITY OF EXPLAINING MATHEMATICAL THEORIES FOR YEMENI MATH TEACHERS IN PUBLIC SCHOOLS**

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**Abstract** Mathematics education plays a vital role in shaping students' analytical and problem-solving skills. The ability to effectively explain mathematical theories is crucial for math teachers, especially in Yemeni public schools. However, Yemeni math teachers face numerous challenges in this endeavor, stemming from limited resources, overcrowded classrooms, and inadequate teacher training. This study explores the complexity of explaining mathematical theories for Yemeni math teachers and the implications for mathematics education in public schools.

**Key words:** Yemen, public schools, math teachers.

### **Introduction**

Mathematics education is a cornerstone of academic development, equipping students with critical thinking and problem-solving skills. In Yemeni public schools, math teachers play a pivotal role in imparting mathematical theories to their students. However, these teachers face numerous challenges in effectively explaining the complexity of mathematical theories. Limited resources, crowded classrooms, inadequate teacher training, cultural factors, and language barriers all contribute to the intricacies of explaining mathematical concepts to Yemeni students. Research has shown that limited resources, such as textbooks, manipulatives, and technology, can hinder the variety of instructional materials available to teachers. Large class sizes pose another challenge, making it difficult for teachers to provide individualized attention and address the diverse learning needs of students. Inadequate teacher training programs and professional development opportunities have been identified as factors contributing to the lack of pedagogical strategies for effective explanation of mathematical concepts. Moreover, mathematical theories themselves are inherently complex. Abstract concepts and intricate relationships within mathematics can pose difficulties for Yemeni math teachers in conveying these theories to students. The abstract nature of mathematics can also present challenges for students in grasping the underlying principles and applying them to real-world problems. Concepts such as algebraic equations, geometric proofs, and calculus require careful explanation to ensure students' understanding. To address these challenges, Yemeni math teachers can employ various strategies. Utilizing visual aids, real-world examples, hands-on activities, and collaborative approaches have been found to enhance students' understanding of mathematical concepts. Professional development programs that focus on effective explanation strategies can also empower math teachers to overcome the complexity of conveying mathematical theories [1-3]. This study aims to explore the complexity of explaining mathematical theories for Yemeni math teachers in public schools, shedding light on the challenges they face and offering recommendations for improvement. By addressing these challenges, Yemen can foster a stronger foundation in mathematics education, empowering its students for future success.

### **Results and discussion**

Yemeni math teachers face several obstacles that impede their ability to comprehensively explain mathematical theories. The scarcity of resources, including textbooks, manipulatives, and technology, limits the availability of instructional materials. Moreover, the substantial class sizes pose challenges in delivering individualized attention and addressing diverse learning needs. Furthermore, insufficient teacher training programs and professional development opportunities contribute to a dearth of pedagogical strategies for effectively explaining mathematical concepts.

Mathematical theories inherently possess complexity, encompassing abstract concepts and intricate relationships. Yemeni math teachers often struggle to communicate these theories in an accessible manner to students. The abstract nature of mathematics presents difficulties for students in comprehending fundamental principles and applying them to real-world problems. Concepts like

algebraic equations, geometric proofs, and calculus demand meticulous explanations to ensure students' understanding.

Cultural factors and language barriers further complicate the explanation of mathematical theories in Yemeni public schools. Cultural beliefs and attitudes towards mathematics exert influence on students' motivation and engagement with the subject. Yemeni math teachers must navigate these cultural nuances to foster a positive learning environment. Additionally, language-related challenges may arise due to translation issues or the absence of technical vocabulary in students' native language, affecting the clarity of explanations.

To overcome the complexity of explaining mathematical theories, Yemeni math teachers can employ various strategies. Utilizing visual aids such as diagrams, charts, and manipulatives can enhance students' comprehension of abstract concepts. Real-world examples and applications assist students in connecting mathematical theories to practical situations. Engaging students actively through hands-on activities and problem-solving tasks promotes effective learning. Collaboration among teachers, sharing best practices, and participating in professional development programs can also enhance teachers' pedagogical skills.

Improving math education in Yemeni public schools necessitates a multifaceted approach. Policymakers and educational authorities should prioritize investment in teacher training programs that address effective explanation strategies for mathematical theories. Provision of adequate resources, including textbooks, technological tools, and manipulatives, can enrich the learning experience. Reducing class sizes to facilitate individualized attention and fostering a supportive learning environment are crucial. Collaboration between educational institutions and international organizations can contribute to positive change in math education.

### **Conclusion**

The complexity of explaining mathematical theories poses significant challenges for Yemeni math teachers in public schools. Addressing these challenges requires a comprehensive effort involving policymakers, educational authorities, and teacher training programs. By providing necessary resources, incorporating effective pedagogical strategies, and fostering a positive learning environment, Yemeni math teachers can enhance their ability to explain mathematical theories, ultimately leading to improved mathematics education in public schools and empowering students with strong mathematical skills for their future.

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## **THE SIGNIFICANCE OF UTILIZING CONTEMPORARY TECHNOLOGY IN THE MEDICAL DOMAIN TO MINIMIZE EFFORT AND DURATION OF PROCEDURES [MINI REVIEW]**

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**Abstract** Advancements in contemporary technology have revolutionized the medical field, providing healthcare professionals with innovative tools and techniques to enhance patient care. This mini review highlights the significance of utilizing cutting-edge technology in the medical domain to minimize the effort and duration of procedures. By examining recent research and