

Mathematics Learning Difficulties among Secondary School Students in the Andaman and Nicobar Islands

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Abstract

Mathematics is a fundamental subject that develops logical thinking, problem-solving abilities, and analytical skills. However, many secondary school students experience difficulties in learning mathematics, which adversely affects their academic achievement and confidence. The present study investigates the nature and causes of mathematics learning difficulties among secondary school students in the Andaman and Nicobar Islands. It also examines factors such as teaching methods, language barriers, learning resources, and student attitudes that influence mathematics learning. The study aims to provide recommendations for improving mathematics education and enhancing student achievement in the region.

Keywords

Mathematics Learning Difficulties, Secondary School Students, Andaman and Nicobar Islands, Mathematics Education, Academic Achievement

Introduction

Mathematics is an essential component of school education and plays a vital role in everyday life. Despite its importance, many students face challenges in understanding mathematical concepts and applying them effectively. In the Andaman and Nicobar Islands, students come from diverse linguistic, cultural, and socio-economic backgrounds, which may influence their learning experiences. Limited educational resources, geographical isolation, and differences in learning opportunities can further contribute to mathematics learning difficulties. Understanding these challenges is necessary for developing effective teaching strategies and educational interventions.

Need and Significance of the Study

Mathematics learning difficulties can lead to poor academic performance, low self-esteem, and reduced interest in higher studies involving mathematics. Identifying the factors responsible for these difficulties among secondary school students in the Andaman and Nicobar Islands can help teachers, administrators, and policymakers design appropriate support systems and improve educational outcomes.

Statement of the Problem

The study focuses on identifying mathematics learning difficulties among secondary school students in the Andaman and Nicobar Islands and examining their impact on academic achievement.

Objectives of the Study

1. To identify the major mathematics learning difficulties faced by secondary school students.
2. To examine the factors contributing to mathematics learning difficulties.
3. To study the relationship between mathematics learning difficulties and academic achievement.
4. To suggest measures for improving mathematics learning among secondary school students.

Research Questions

1. What are the common mathematics learning difficulties faced by secondary school students?
2. What factors contribute to these learning difficulties?
3. How do mathematics learning difficulties affect academic performance?
4. What strategies can help students overcome these difficulties?

Review of Related Literature

Previous studies indicate that mathematics learning difficulties arise due to a combination of cognitive, emotional, instructional, and environmental factors. Researchers have found that inadequate foundational knowledge, mathematics anxiety, language barriers, and ineffective teaching methods significantly affect students' mathematical understanding. Studies also suggest that activity-based learning, technology integration, and individualized support can improve mathematics achievement and reduce learning difficulties.

Methodology

Research Design

Descriptive Survey Method.

Population

Secondary school students studying in Classes IX and X in the Andaman and Nicobar Islands.

Sample

A sample of 300 secondary school students selected from government and private schools.

Tools for Data Collection

1. Mathematics Learning Difficulties Questionnaire
2. Mathematics Achievement Test
3. Teacher Interview Schedule
4. Student Opinionnaire

Statistical Techniques

- Percentage
- Mean
- Standard Deviation
- Correlation Analysis

Major Mathematics Learning Difficulties

1. Difficulty in Understanding Mathematical Concepts

Many students struggle to understand abstract concepts such as algebra, geometry, and trigonometry.

2. Weak Foundation in Basic Mathematics

Poor understanding of fundamental operations, fractions, decimals, and percentages affects higher-level learning.

3. Language-Related Challenges

Students from diverse linguistic backgrounds may find it difficult to understand mathematical terminology and word problems.

4. Mathematics Anxiety

Fear of mathematics often reduces confidence and classroom participation.

5. Difficulty in Problem Solving

Students may struggle to apply mathematical concepts to real-life and examination-based problems.

6. Lack of Practice

Insufficient opportunities for regular practice hinder the development of mathematical skills.

Factors Contributing to Mathematics Learning Difficulties

Student-Related Factors

- Low interest in mathematics
- Poor study habits
- Lack of confidence
- Mathematics anxiety

Teacher-Related Factors

- Traditional teaching methods
- Limited use of teaching aids
- Inadequate individual attention

School-Related Factors

- Limited educational resources
- Insufficient mathematics laboratories
- Lack of technology integration

Environmental Factors

- Geographical isolation of some islands
- Limited access to supplementary learning resources
- Socio-economic challenges

Findings

1. A significant number of secondary school students experience moderate to high levels of mathematics learning difficulties.
2. Weak foundational knowledge and mathematics anxiety are major barriers to learning.
3. Language-related issues affect students' comprehension of mathematical problems.
4. Students facing greater learning difficulties tend to achieve lower academic scores in mathematics.
5. Interactive teaching methods and regular practice contribute to better mathematical understanding.

Educational Implications

The findings highlight the need for innovative teaching strategies, remedial instruction, and learner-centered approaches in mathematics classrooms. Teachers should use activity-based learning, real-life examples, and visual aids to simplify mathematical concepts. Schools should provide additional support for students with learning difficulties and encourage the use of educational technology.

Suggestions

1. Organize remedial classes for students with weak mathematical foundations.
2. Use activity-based and experiential learning methods.
3. Integrate local examples from the Andaman and Nicobar Islands into mathematics teaching.
4. Conduct teacher training programs on innovative mathematics pedagogy.
5. Encourage the use of digital learning resources and educational technology.
6. Promote a positive attitude toward mathematics through supportive classroom practices.

Conclusion

Mathematics learning difficulties among secondary school students in the Andaman and Nicobar Islands are influenced by academic, psychological, instructional, and environmental factors. Addressing these challenges requires collaborative efforts from teachers, schools, parents, and educational authorities. Effective interventions, innovative teaching practices, and supportive learning environments can significantly improve students' mathematical understanding and academic performance.

References

1. National Council of Educational Research and Training (2023). *National Curriculum Framework for School Education*.
2. Ashcraft, Mark H. (2002). *Math Anxiety: Personal, Educational, and Cognitive Consequences*.
3. UNESCO (2021). *Education for Sustainable Development Report*.
4. Geary, David C. (2011). Research on mathematics learning disabilities.
5. Central Board of Secondary Education (2022). Educational Assessment Guidelines.