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## Interest in Learning Mathematics and Achievement among High School Students

Antonysamy. J<sup>1</sup>, Kannan. B<sup>2</sup>

<sup>1</sup>Research Scholar, Centre for Educational Research, Madurai Kamaraj University, Madurai,

<sup>2</sup>Assistant Professor, Centre for Educational Research, Madurai Kamaraj University, Madurai

### Abstract

The present investigation has been carried out with a view to measure the level of interest in Mathematics and achievement among the high school students in Madurai District. Data were collected from 355 high school students by using Scale. The collected data were subjected to analysis in terms of the objectives of the study. Meaningful conclusions were drawn. This study reveals that the high school students those who male, who are studying in Mathematics medium, who are studying in urban schools, who are studying in unisex school and who have few friends have less interest in learning Mathematics and achievement in Mathematics than their counterparts.

**Keywords:** Interest, Learning Mathematics, Achievement

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### Need For The Study

Mathematics is a foundational subject that plays a critical role in the academic development of high school students. As students navigate through this educational phase, their interest in learning mathematics can significantly influence their overall achievement in the subject. Understanding the dynamics between student interest and academic performance in mathematics is essential for educators, policymakers, and researchers aiming to improve educational outcomes.

Learning mathematics is distinct from mastering many other subjects. In mathematics, specialized vocabulary and symbols are employed, making it crucial not only to grasp the concepts being taught but also to apply them effectively. Achieving success in mathematics requires more than just reading, attending classes, and studying; it necessitates frequent practice of the skills involved. Mathematics is not a subject that can be learned through observation alone; we must actively engage in doing mathematics to truly learn it.

Teaching math can often feel like a challenging endeavor. Students frequently enter the math classroom with preconceived notions, often expressing sentiments such as, “math is boring,” “math is difficult,” or “I just can’t do math.” However, mathematics encompasses much more than just calculations or following a fixed series of steps; it offers an enriching instructional experience filled with inquiry, exploration, and discovery.

Interest in mathematics encompasses various factors, including intrinsic motivation, personal relevance, and the perceived value of mathematics in real-world applications. Achievement in mathematics, often measured through standardized tests, coursework grades, and problem-solving abilities, is a key indicator of students' preparedness for higher education and future careers. High mathematical achievement is not only crucial for students pursuing STEM (Science, Technology, Engineering, and Mathematics) fields but also enhances critical thinking and analytical skills applicable across various disciplines.

This study explores the intricate relationship between interest in learning mathematics and academic achievement among high school students. By examining the factors that foster or hinder interest in mathematics, as well as their implications for achievement, this research aims to provide insights that can inform instructional practices and



strategies to enhance student engagement and success in mathematics education. Ultimately, fostering a positive attitude toward mathematics and improving achievement levels is essential.

Hence the researcher wants to know the relationship between the interest in learning Mathematics and achievement among high school students. Hence the conduct of the current study which is entitled “**INTEREST IN LEARNING MATHEMATICS AND ACHIEVEMENT AMONG HIGH SCHOOL STUDENTS**”.

### Terms And Definitions

**Interest in learning Mathematics-** refers to how involvement held by students on the teaching and learning of Mathematics

**Achievement** – refers to marks secured in Mathematics subject in the Quarterly examination by the high school students in Madurai District.

**High school students** – refers to students who are studying in IX and X standard in government, aided and unaided schools in Madurai District under state board syllabus of Tamil Nadu State.

### Variables Of The Study

The variables involved in this study are as follows:

#### Dependent Variables:

1. Interest in learning Mathematics
2. Achievement

#### Population Variables:

1. Gender : Male / Female
2. Medium of instruction : Tamil / Mathematics
3. School Locality : Urban / Rural
4. School Kind : Unisex / Mixed
5. School Management : Government / Self-Financing
6. Teacher in the family : Yes / No

### Objectives Of The Study

1. To measure the level of Interest in learning Mathematics and Achievement among school students.
2. To find out, whether there is a difference among high school students in terms of select population variables in their Interest in learning Mathematics & achievement.

### Hypotheses Of The Study

The following hypotheses are formulated for the present study:

1. High school School students have above average level of interest in learning Mathematics.
2. Gender exerts a significant influence on interest in learning Mathematics among school students.
3. Medium of instruction exerts a significant influence on interest in learning Mathematics among school students.
4. School locality exerts a significant influence on interest in learning Mathematics among school students.
5. School kind exerts a significant influence on interest in learning Mathematics among school students.



6. School management exerts a significant influence on interest in learning Mathematics among school students.
7. Teacher in the family exerts a significant influence on interest in learning Mathematics among school students.
8. High school School students have above the average level of achievement.
9. Gender exerts a significant influence on achievement among school students.
10. Medium of instruction exerts a significant influence on achievement among school students.
11. School locality exerts a significant influence on achievement among school students.
12. School kind exerts a significant influence on achievement among school students.
13. School management exerts a significant influence on achievement among school students.
14. Teacher in the family exerts a significant influence on achievement among school students.
15. There is a significant positive relationship between interest in learning Mathematics and achievement among the school students.

#### Methodology- In -Brief

**Design** : Descriptive

**Method** : Normative

**Technique** : Survey

#### Sample

A sample of 355 high school students in Madurai District served as the subjects of the study.

#### Tools used

1. Personal Information Schedule
2. Scale on Interest in learning Mathematics constructed and standardized by **Rajaram, K. (2019)**.

#### Statistical treatment

1. "t" test between the large independent samples.
2. Pearson's Product Moment Correlation

#### Data Analysis

##### Interest In Learning Mathematics Among High School Students

The empirical average score of interest in learning Mathematics among high school students is found to be 46.17, while the theoretical average is 40 only. This shows that the Interest in learning Mathematics among the school students is above the average level. In other words, Interest in learning Mathematics is found to be good among the school students.



**Interest In Learning Mathematics And Population Variables**

**Table 1: Statistical Measures And Results Of Test Of Significance For Difference Between The Means Of Interest In Learning Mathematics: Population Variables – Wise**

Sl. No.	Variable	Sub-variables	N	M	SD	't' - value	Significance At 0.05 level
1	Gender	Male	120	44.001	8.170	3.743	Significant
		Female	235	47.242	6.753		
2	Medium of Instruction	Tamil	283	46.523	8.108	3.045	Significant
		Mathematics	72	44.666	3.166		
3	School Locality	Rural	212	47.306	5.165	3.279	Significant
		Urban	143	44.426	9.609		
4	School Kind	Unisex	175	44.240	7.630	6.483	Significant
		Mixed	180	48.000	6.711		
5	School Management	Govt.	261	46.325	8.155	0.959	Not Significant
		Self-finance	94	45.648	4.782		
6	Teacher in the Family	Yes	117	46.521	5.953	0.738	Not Significant
		No	238	45.962	8.038		

**Achievement Among High School Students**

The empirical average score of achievement in Mathematics among school students is found to be 61.82, while the theoretical average is 50 only. This shows that the achievement among the high school students is above the average level. In other words, achievement is found to be higher among the school students.

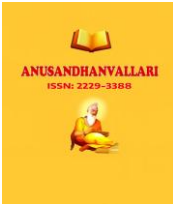
**Achievement In Mathematics And Population Variables**

**Table 2: Statistical Measures And Results Of Test Of Significance For Difference Between The Means Of Achievement In Mathematics: Population Variables– Wise**

Sl. No.	Variable	Sub-variables	N	M	SD	't' - value	Significance At 0.05 level
1	Gender	Male	120	57.000	12.781	4.958	Significant
		Female	235	64.276	13.646		
2	Medium of Instruction	Tamil	283	63.890	14.437	9.280	Significant
		Mathematics	72	53.666	5.862		
3	School Locality	Rural	212	63.890	14.437	4.575	Significant
		Urban	143	53.666	5.862		
4	School Kind	Unisex	175	59.571	12.530	3.097	Significant
		Mixed	180	64.001	14.601		
5	School Management	Govt.	261	63.118	15.457	4.301	Significant
		Self-finance	94	58.202	6.070		
6	Teacher in the Family	Yes	117	62.341	11.243	0.552	Not Significant
		No	238	61.558	14.884		

**Hypotheses Verification**

1. High school students have above average level of interest in learning Mathematics- **Accepted**
2. Gender exerts a significant influence on interest in learning Mathematics among high school students- **Accepted**
3. Medium of instruction exerts a significant influence on interest in learning Mathematics among high school students- **Accepted**
4. School locality exerts a significant influence on interest in learning Mathematics among high school students- **Accepted**
5. School kind exerts a significant influence on interest in learning Mathematics among high school students- **Accepted**
6. School management exerts a significant influence on interest in learning Mathematics among high school students- **Rejected**
7. Teacher in the family exerts a significant influence on interest in learning Mathematics among high school students- **Rejected**
8. High school students have above the average level of achievement- **Accepted**
9. Gender exerts a significant influence on achievement among high school students- **Accepted**



10. Medium of instruction exerts a significant influence on achievement among high school students- **Accepted**
11. School locality exerts a significant influence on achievement among high school students- **Accepted**
12. School kind exerts a significant influence on achievement among high school students- **Accepted**
13. School management exerts a significant influence on achievement among high school students- **Accepted**
14. Teacher in the family exerts a significant influence on achievement among high school students- **Rejected**
15. There is a significant positive relationship between interest in learning Mathematics and achievement among the high school students- **Accepted**

### Conclusions

1. High school students are found highly interested in learning Mathematics.
2. Interest in learning Mathematics among the students is dependent upon
  - Gender
  - Medium of instruction
  - School locality
  - School kind
3. Interest in learning Mathematics of the students is independent upon
  - School management
  - Teacher in the family
4. Interest in learning Mathematics among the students is in favour of
  - Female students
  - Tamil medium students
  - Rural school students
  - Mixed school students
5. Achievement among high students is above the average level.
6. Achievement among the students is dependent upon
  - Gender
  - Medium of instruction
  - School locality
  - School kind
  - School management
7. Interest in learning Mathematics of the students is independent upon Teacher in the family
8. Achievement among the students is in favour of
  - Female students
  - Tamil medium students
  - Rural school students
  - Mixed school students
  - Government school students
9. There is a significant positive relationship between Interest in learning Mathematics and achievement in Mathematics



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### **Educational Implications For Results: Interest In Learning Mathematics**

The results of the statistical analysis presented in the table reveal significant differences in interest in learning mathematics based on various population variables, such as gender, medium of instruction, school locality, and school kind. Here are the educational implications derived from these findings:

#### **School Locality:**

Implication: The significant variation in interest levels between rural and urban students suggests that environmental factors significantly influence engagement in mathematics. Educational authorities should prioritize enhancing resources and learning opportunities in rural schools to cultivate interest in mathematics. Providing access to technology, extracurricular math-related activities, and community learning experiences can help bridge this gap.

#### **School Kind:**

Implication: The observation that students in mixed schools demonstrate higher interest levels in mathematics than those in unisex schools indicates the advantages of diverse learning environments. Schools should aim to foster collaborative learning experiences that encourage interaction among students from different backgrounds, thus creating a richer educational setting that enhances interest in mathematics.

#### **School Management:**

Implication: The absence of significant differences in interest in mathematics between students in government and self-financed schools suggests that the type of management may not be the primary factor influencing students' interest. Educational policymakers should concentrate on enhancing teaching quality and curriculum relevance across all school types, ensuring that both government and private institutions provide engaging mathematics programs.

#### **Teacher in the Family:**

Implication: The lack of significant variation in interest levels based on whether a student has a teacher in the family implies that this factor may not be crucial in shaping interest in mathematics. Nonetheless, schools can benefit from engaging parents in the educational process, regardless of their profession, by promoting family participation in mathematics-related activities. Hosting workshops and community events can help parents learn how to support their children's interest in mathematics at home.

The findings from the statistical analysis underscore the need for a multifaceted approach to enhance students' interest in learning mathematics. By recognizing and addressing the diverse factors influencing interest—such as gender, language, locality, school type, and familial influences—educators and policymakers can develop targeted strategies that foster a more engaging and inclusive mathematical learning environment. Implementing these educational implications could lead to improved mathematical achievement and a greater appreciation for the subject among high school students.

### **Educational Implications For Achievement In Mathematics**

The statistical analysis presented shows significant differences in achievement in mathematics based on various population variables, including gender, medium of instruction, school locality, school kind, and school management. Below are the educational implications derived from these findings:



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School Locality:

Implication: The significant disparity in achievement levels between rural and urban students underscores the differences in educational resources and opportunities available to them. Educational authorities should aim to improve the quality of education in rural schools by investing in teacher training, enhancing infrastructure, and ensuring access to essential learning materials. Implementing targeted programs and resources specifically designed for rural schools can help bridge the achievement gap.

School Kind:

Implication: The observation that students in mixed schools outperform those in unisex schools suggests that a diverse learning environment may have a beneficial effect on achievement in mathematics. Schools should promote collaborative learning experiences that facilitate interaction among students from various backgrounds, creating a more enriching educational environment that enhances academic performance.

School Management:

Implication: The significant differences in achievement levels between students in government and self-financed schools indicate that the type of management may influence students' academic performance. Policymakers should ensure that government schools receive sufficient resources and support to elevate the quality of education. Additionally, self-financed schools should be encouraged to incorporate best practices from successful government institutions to improve their students' learning outcomes.

Teacher in the Family:

Implication: The lack of significant difference in achievement based on whether a student has a teacher in the family suggests that this factor may not have a direct effect on academic performance. However, schools can benefit from promoting parental involvement in students' education. Providing workshops and resources for all parents—regardless of their profession—to support their children's learning at home can significantly enhance students' achievement in mathematics.

The findings from the statistical analysis underscore the importance of recognizing and addressing the diverse factors influencing students' achievement in mathematics. By implementing targeted strategies that account for gender, language, locality, school type, and management, educators and policymakers can create an inclusive and effective educational environment that promotes higher achievement in mathematics among all students. These educational implications can lead to improved outcomes and greater equity in mathematical education, ultimately fostering a more competent and confident generation of mathematics learners.

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