

ATTITUDE TOWARDS MATHEMATICS AND THE DIFFICULTIES FACED IN LEARNING MATHEMATICS AMONG IX STANDARD STUDENTS IN CHENNAI DISTRICT

Dr. K. Devisri

Abstract

This Research investigates the relationship between attitudes toward mathematics and the difficulties faced in learning mathematics among IX standard students in Chennai district. Adopting a descriptive survey method, the research involved 300 randomly selected high school students from various schools in the Chennai district. Data were collected using a standardized Attitude towards Mathematics and Learning Difficulties towards mathematics Scale, validated at significance levels of 0.05 and 0.01. The findings reveal a significant correlation between students' attitudes toward mathematics and their learning difficulties.

Keywords: Attitude towards Mathematics, Learning Difficulty.

INTRODUCTION

Mathematics education teaches students to perform addition, subtraction, multiplication, and division. It also trains students to make and use measurements. It includes the study of computer programming, algebra, statistics, geometry and Calculus. Mathematics also teaches students' reasoning and problem solving skills that are critical to success in both the work world and other subject areas. The study of Mathematics also builds and enhances the broader mathematical skills necessary for school students. School systems generally develop their own set of learning objectives and goals for student performance. However, the list below includes some basic points that will help to monitor the student's progress and achievement in mathematics continues study of mathematics will lead to the development of more skill in this area.

Students should develop the ability to take and use measurements in both traditional and metric units. Mathematics can be learned through practice and hard work. Students should be able to see and solve problems and work with computers- use of computers should not be limited to drill and practices or to play games. However, some games can help students learn mathematics. Students should be exposed to the use of mathematics outside the classroom. They should know how it applies to various careers and how it is very necessary for everyday living.

STATEMENT OF THE PROBLEM

Formally the problem can be stated as follows: A study on attitude towards mathematics and the difficulties faced in learning mathematics among IX standard students in Chennai district.

Attitude towards mathematics is an individual's disposition or tendency to respond positively or negatively to mathematical concepts, tasks, learning experiences, or the subject as a whole. In this study, it is operationally defined as the measurable score obtained by a student on a standardized attitude scale that assesses components such as enjoyment of mathematics, perceived usefulness, motivation, confidence, anxiety, and willingness to engage in mathematical activities.

REVIEW OF LITERATURE

In line with this, Ellington's (2003) meta-analysis also found that instructional tools such as calculators, while not necessarily improving problem-solving strategies, contributed to positive shifts in student attitudes toward mathematics. This underscores Whitelaw's point that affective variables, even more than cognitive strategies alone, play a significant role in determining student engagement and performance. Moreover, Stevens et al. (2004) reinforce the relevance of self-efficacy and motivation in shaping mathematical performance across ethnic groups. Their findings echo Whitelaw's suggestion that educators need to understand the nuanced psychological and social dynamics that influence learning across different demographics, including gender. In a broader context, studies by Moscardini (2002), Goos et al. (2000), and Nakahara et al. (2008) further highlight the role of individualized and developmentally sensitive approaches in

enhancing student understanding, particularly for young learners or those with special needs. These findings align with Whitelaw et al.'s implication that tailored strategies based on student perceptions can be critical in optimizing learning environments.

SIGNIFICANCE OF THE STUDY

An understanding of the relationship between attitude towards Mathematics and difficulties faced by the students in learning mathematics will be of great importance in determining whether there exists any inter relation between the variables under study which will pave the way for better motivation for inculcating attitude towards Mathematics. The results of study would be useful to arrive at those pertinent causes which facilities or affects attitude. These findings can be utilized to the at most by the executives in the field of education to present through constructive remedial measures, the formation of poor or unfavorable attitude and this will go a long way in promoting high achievement and wholesome development among students.

OBJECTIVES OF THE STUDY

The following objectives have been set in the present study.

- To find out the Attitude towards Mathematics among IX students in Vellore district.
- To find out the difficulties faced by the students in Learning Mathematics among IX students in Vellore district.

- To find out the significant difference among boys and girls with respect to their attitude towards Mathematics.
- To find out the significant difference among boys and girls with respect to their learning difficulties in Mathematics.
- To find out the significant difference among the students of Government and Government aided school with respect to their attitude towards mathematics.
- To find out the significant difference among the students of Government and Government aided school with respect to their learning difficulties towards mathematics.
- To find out the significant difference among the students of Government and Private Schools with respect to their attitude towards mathematics.
- To find out the significant difference among the students of Government and Private Schools with respect to their learning difficulties towards mathematics.
- To find out the significant difference among the students of Government aided and Private schools with respect to their attitude towards mathematics.
- To find out the significant difference among the students of Government aided and Private schools with respect to their learning difficulties towards mathematics.
- To find out the significant difference between the students studying in English medium schools and Tamil Medium Schools with respect to their attitude towards mathematics.
- To find out the significant difference between the students studying in English medium schools and Tamil Medium Schools with respect to their learning difficulties towards mathematics.
- To find out the relationship between attitude towards mathematics and their learning difficulties of total sample wise.

HYPOTHESES OF THE STUDY

- There is no significant difference between the boys and girls with respect to attitude towards Mathematics.
- There is no significant difference between boys and girls with respect to their learning difficulties in Mathematics.
- There is no significant difference between the students of Government and Government aided school with respect to their attitude towards mathematics.
- There is no significant difference between the students of Government and Government aided school with respect to their learning difficulties towards mathematics.
- There is no significant difference between the students of Government and Private Schools with respect to their attitude towards mathematics.
- There is no significant difference between the students of English medium schools and Tamil Medium Schools with respect to their attitude towards mathematics.
- There is no significant difference between the students of English medium schools and Tamil Medium Schools with respect to their learning difficulties towards mathematics.
- There is no significant difference between the students studying in Government and private schools with respect to their attitude towards Mathematics.
- There is no significant difference between the students studying in English medium schools and Tamil Medium Schools with respect to their learning difficulties towards mathematics.

Government and private schools with respect to their learning difficulties towards Mathematics.

- There is no significant difference between the students studying in Government aided and private schools with respect to their attitude towards Mathematics.
- There is no significant difference between the students studying in Government aided and private schools with respect to their learning difficulties towards Mathematics.
- There is no significant difference between the students studying in English medium schools and Tamil Medium Schools with respect to their learning difficulties towards mathematics.
- There is no significant difference between the students studying in English medium schools and Tamil Medium Schools with respect to their attitude towards mathematics.
- There is no significant relationship between attitude towards mathematics and their learning difficulties of total sample wise.

RESEARCH DESIGN

Methodology

The study was through descriptive survey method of research and it is most suitable for the present study.

Sample and sampling Techniques

A simple random sampling technique was adopted for the selections of Sample 300

IX standard students were taken for the present study.

Tools Used in the Present Study

To verify the hypotheses formulated in the study, the following tools were used.

- Mathematics Attitude Scale constructed and standardized by Dr. C. Dhandapani
- Learning difficulties towards mathematics constructed by the Investigator.

Statistical Techniques

Suitable descriptive and inferential statistical techniques were used in the interpretation of the data to draw out a more meaningful picture of results from the collected data. In the present study the following statistical measures were used:

- Mean
- Standard Deviation
- t-test
- F-ratio
- Correlation

Major Findings of the Study

- It is found that there is no significant difference between the mean scores of boys and girls with respect to attitude towards Mathematics.
- It is found that there is no significant difference between boys and girls in their Learning difficulties towards Mathematics.
- It is found that there is a significant difference between the students of Government and Government aided

school with respect to their attitude towards mathematics.

- It is found that there is a significant difference between the students of Government and Government aided school with respect to their learning difficulties towards mathematics.
- It is found that there is a significant difference between the students studying in Government and private schools with respect to their attitude towards Mathematics.
- It is found that there is a significant difference between the students studying in Government and private schools with respect to their learning difficulties towards Mathematics.
- It is found that there is no significant difference between the students studying in Government aided and private schools with respect to their attitude towards Mathematics.

- It is found that there is no significant difference between the students studying in Government aided and private schools with respect to their learning difficulties towards Mathematics.
- It is found that there is a significant difference between the students studying in English medium schools and Tamil Medium Schools with respect to their attitude towards Mathematics.
- It is found that there is a significant difference between the students studying in English medium schools and Tamil Medium Schools with respect to their learning difficulties towards mathematics.
- It is found that there is a high correlation between attitude towards Mathematics and difficulties faced by the students in learning Mathematics.

Table-1 showing the Attitude towards Mathematics with respect to Gender

Variable	Gender	No. of Students	Mean	Standard deviation	't' value	Level of significance
Attitude Towards Mathematics	Boys	150	39.04	11.23	0.8945	N.S
	Girls	150	37.89	11.05		

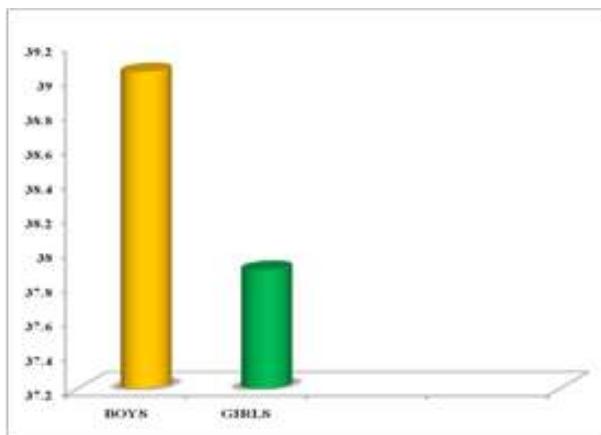


Figure 1 showing the Attitude towards Mathematics with respect to Gender

Table 2 Showing the Difficulties Faced in Learning Mathematics with Respect to Gender

Variable	Gender	No. of students	Mean	Standard deviation	't' value	Level of significance
Difficulties faced in learning mathematics	Boys	150	16.25	5.95	0.453	N.S
	Girls	150	15.60	5.84		

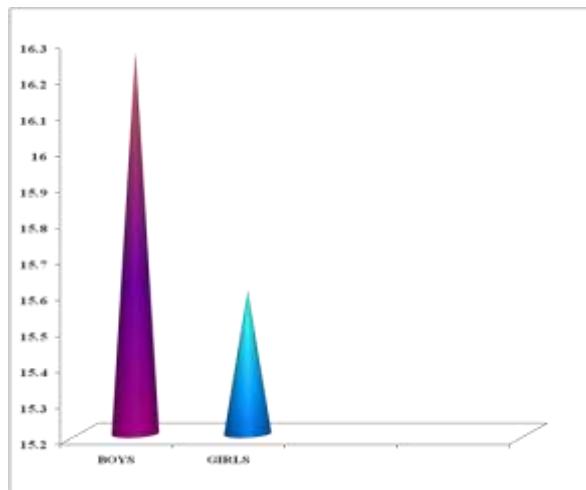


Figure 2 Learning Difficulties towards Mathematics with respect to Gender

Table 3 Showing the Relationship between Attitude towards Mathematics and Learning Difficulties towards Mathematics

Variable	Sample	'r' Value	Level of Significance
Attitude towards mathematics Vs Difficulties faced in learning mathematics	300	0.75	S

EDUCATIONAL IMPLICATIONS

In today's world, natural resources or military strength do not determine the pace of a nation's progress. Education does. Education is about raising the confidence of an individual to think a worthy dream, and to translate that dream to reality by high performance action. It is about opening up one's mind, to accept new ideas, to evaluate them and to use them for progress.

The findings of the present study, point out that learning difficulties in Mathematics is affected by attitude. Efforts should make to enhance attitude in order to promote higher efficiency in learning Mathematics. The school authorities and teachers should take care to cultivate good attitude. The role of school is very important in shaping the destiny of the nation. Therefore the educational institutions should take all the steps to develop good attitude among students. Here some methods of developing attitudes are given:

- Other than text book problems extra new problems and the problems should be explained with life oriented basis.
- Easy to difficult problems should be given to the students.
- First step formulas should be explained clearly in class.
- Some credits for extra reading should be given to the students.
- In the high school classes the students should be encouraged to his dictionary and reference books and to read news papers.

- The students should be prepared a note book in which summary of the books read by them should be recorded.
- Apart from the school library class room library may organized.

RECOMMENDATIONS

- Educators can come step closer to prepare all students for their roles in the ever changing society by selecting suitable techniques to promote curriculum development and instructional strategies for a class to respond to the learners needs according to their different learning style.
- Sessions of supervised study can be arranged for pupils of IX standard who have not adopted proper attitude towards Mathematics.
- Modern methods of teaching should be adopted to create interest among students in learning Mathematics.
- Remedial coaching classes should be organized for those who perform poorly in Mathematics.
- To make mathematics an interesting subject the teaching method and approach of teachers should be improved.
- Conducive atmosphere should be creative for the formation of mathematics clubs, organizing seminars, preparation of teaching aids, conducting quiz programs, debate, discussion, arranging lectures of experts in the field etc.
- The teacher of Mathematics should help the students in eradicating their

fear for Mathematics by way of motivating them to develop positive attitude towards Mathematics. Always the teacher should encourage the students.

- Parents also develop positive attitude towards Mathematics among their children.
- The student should refer so many books as possible and also they have to do lot of problems to practice daily.
- Other than text book problems the student has to try to solve so many problems according to their syllabus wise.

SUGGESTIONS FOR FURTHER STUDIES

- An in-depth study into attitudes towards Mathematics among various districts and states and its influence on learning difficulties would be undertaken.
- Study should be undertaken at all levels of education i.e. primary to university.
- A similar study may be undertaken in science and social studies at the high school level.
- Case study of under achievers with low social economic status can be undertaken.
- Determination of attitudes of primary and secondary students as well as teachers can be another area of investigation in this connection.

CONCLUSION

The present investigation aimed at analyzing learning difficulties in mathematics as related to attitude towards mathematics with reference to some selected variables like type of school, gender and medium of instructions. This study indicated significant difference and relationship among the variables. Necessary steps should be undertaken to promote attitude towards mathematics and learning difficulties in mathematics of Tamil Medium Students. Teacher should pay individual attention to the students in order to improve them in their studies and mould them to become good citizens for the country. The student-teacher relationship must be improved in all type of schools so that the pupil may not have fear in approaching the teacher to clear their doubts. Teachers must use different techniques to develop good attitude among the pupils and this may improve the educational achievements of the pupil. This study may enrich the educators in the field of Mathematics education and may serve as a database for future research.

REFERENCES

1. Akinsola, M. K., & Olowojaiye, F. B. (2008). Teacher Instructional Methods and Student Attitudes towards Mathematics. *International Electronic Journal of Mathematics Education*, 3(1), 60-73.
2. Ellington, A. J. (2003). A meta-analysis of the effects of calculators on students' achievement and attitude levels in precollege mathematics

classes. *Journal for Research in Mathematics Education*, 34(5), 433–463. <https://doi.org/10.2307/30034795>

3. Enu, J., Agyman, O. K., & Nkum, D. (2015). Factors influencing students' mathematics performance in some selected colleges of education in Ghana. *International Journal of Education Learning and Development*, 3(3), 68-74.
4. Karnan, P., & Devisri, P., (2021), Construction and Standardization Of Awareness Towards Disaster Management For Teacher Trainees, *Journal of Language and Linguistic Studies*, 17(4), 3426-3429; 2021.
5. Lipnevich, A. A., MacCann, C., Krumm, S., Burrus, J., & Roberts, R. D. (2011). Mathematics attitudes and mathematics outcomes of US and Belarusian middle school students. *Journal of Educational Psychology*, 103 (1), 105.
6. Moscardini, L. (2002). Using cognitively guided instruction with pupils with moderate learning difficulties. *British Journal of Special Education*, 29(1), 19–24.
7. Stevens, T., Olivárez, A., & Hamman, D. (2004). The role of mathematics self-efficacy and motivation in mathematics performance across ethnicity. *Journal of Educational Research*, 97(5), 208–222.
8. Venkatarathanam, B. (2021). A study on problem-solving ability of higher secondary school students in relation to their academic achievement. *International Journal of Educational Research*, 2(1), 32-44.
9. Yang, X. (2013). Senior Secondary Students' Perceptions of Mathematics Classroom Learning Environments in China and Their Attitudes towards Mathematics. *The Mathematics Educator*, 15(1), 66-80.
10. Yunus, A. S., & Ali, W. Z. (2009). Motivation in the Learning of Mathematics. *European Journal of Social Sciences*, 7(4), 93-101.
11. Zakaria, E., & Nordin, N. M. (2008). The Effects of Mathematics Anxiety on Matriculation Students as Related to Motivation and Achievement. *Eurasia Journal of Mathematics, Science & Technology Education*, 4(1), 27-30.

Dr. K. Devisri

Assistant Professor

Department of Curriculum Planning and Evaluation

Tamil Nadu Teachers Education University
Chennai