

Review Article

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Mathematics Anxiety as a Predictor of Academic Achievement in Mathematics among Higher Secondary School Students

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ABSTRACT

The Aim of this study is to find out the relationship between Mathematics Anxiety and Achievement in Mathematics of Higher Secondary School Students. The Sample of the study was selected by using Simple Random Sampling technique which includes 1050 Higher Secondary School Students in Chennai. Normative Survey Method was used to collect data. Mathematics Anxiety was measured using the Mathematics Anxiety Scale. Correlational Analysis was the Statistical Technique used. Study reveals that there exist a Negative Correlation between Mathematics Anxiety and Achievement in Mathematics. Results shows that higher the Mathematics Anxiety, lower the Achievement in Mathematics. Based on the results, it was recommended that, Mathematics Teachers should be trained periodically in order to have ideas of innovative approaches of Teaching Mathematics to avoid Anxiety.

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Received: November 23, 2021; **Accepted:** November 30, 2021; **Published:** December 10, 2021

Keywords: Mathematics Anxiety, Achievement in Mathematics, Correlational Analysis, Higher Secondary Students.

Introduction

The quality of teaching and learning mathematics has been one of the major challenges and concerns of educators. Mathematics is generally considered as the most difficult subject of all subjects. Students find lots of problems and difficulties in this subject in understanding the concepts, remembering the formulas, solving the problems and applying in practical situations. It is seen that students are doing good in all other subjects but fail to do so in Mathematics. If we consider a group of students, a few students are found to be high achievers on the one hand and a few are low achievers on the other, while a sizable number of students always appear as moderate achievers. The question arises why such a difference in achievement appears? Is this difference due to certain factors? Or is there any single factor or host of factors which account for all the differences in mathematics achievement? These questions often appear in the minds of the Educators, Educationists and the Psychologists. There can be many reasons behind this. One of the main reasons is fear and anxiety towards the subject. Students generally develop this anxiety in their school life and carry this anxiety throughout their life.

Math anxiety has been the focus of much psychological and educational research in the past few years. Wrote "To many people 'MATH' is a scary four-letter word; they don't like it or feel that they are good at it". He defines it as "People who feel tension, apprehension and fear of situations involving math are said to have math anxiety". As far as empirical evidence of the relationship between mathematics anxiety and achievement is concerned, correlations have been found to be (higher the anxiety, the lower achievement tends to be) [1]. Mathematics Anxiety becomes a

barrier in achieving students' full potentials in the subject. This problem must be addressed accordingly before it turns into a permanent block. Hence this study was undertaken to find out the Relationship between Mathematics Anxiety and Achievement in Mathematics among Students [2-5].

Operational Definitions of Key Terms

Mathematics anxiety is defined as feeling of anxiety that one cannot perform efficiently in situations that involve the use of mathematics.

Academic Achievement in Mathematics refers to the total Maths marks obtained by the students in the Half-yearly Examination.

Need and Significance of the Study

It is believed that research findings are beneficial for Mathematics Teachers, Students and School Administrators. Mathematics Teachers can be helped in determining the level of Mathematics Anxiety of students. By knowing it, they can design specific teaching methods and strategies to lessen and even eliminate the anxiety of students towards the subject. Students, as well, can be of help. They will be able to realize that the subject is of great importance. So, they should not possess apprehension towards it. School Administrators will be given the idea in designing particular programs that would address the problem.

Objective of the Study

To find out the Relationship between Mathematics Anxiety and Achievement in Mathematics of Higher Secondary School Students.

Hypothesis of the Study

There is no significant relationship between Mathematics Anxiety

and Achievement in Mathematics of Higher Secondary School Students.

Methodology

The present study focuses on the Mathematics Anxiety and Achievement in Mathematics of Higher Secondary School Students. Normative Survey method was used for the present study.

Sample of the Study

1050 Higher Secondary School Students were selected randomly from Government, Government Aided and Private schools in Chennai.

Sampling Technique

Simple Random Sampling technique was adopted to select the sample.

Tool used for the Study

- Personal Data Sheet – developed by the investigator and the supervisor.
- Mathematics Anxiety Scale – developed and validated by the investigator and the supervisor. It is used to measure the level of Mathematics Anxiety of the students. It is a 5-point Likert scale.
- Achievement in Mathematics – Marks achieved in Half-yearly Examination.

Statistical Techniques

Data were collected from higher secondary school students on the following variables.

- Mathematics Anxiety
 - Achievement in Mathematics
- were subjected to statistical analysis. Analysis was categorized under
- Correlational analysis

Data Analysis and Interpretation

Pearson's Product Moment Correlation

The Pearson's product moment correlation was calculated for Mathematics Anxiety and Academic Achievement in Mathematics of Higher Secondary School Students and the same are given in the table

Table 1: Summary of results Inter Correlation between Mathematics Anxiety and Academic Achievement in Mathematics.

From Table 1, it is revealed that r-value was correlated with the Mathematics Anxiety with Academic Achievement in Mathematics differ significantly at 1% level.

Dependent Factor	Independent Factor	Pearson's Correlation	Level of Significance 2 tailed	Correlation
Academic Achievement in Mathematics	Mathematics Anxiety	-0.419	0.00	Negative

There exists a Negative relationship between Mathematics Anxiety and Academic Achievement in Mathematics.

Recommendations

- Mathematics Teachers should be trained periodically in order to have ideas of innovative approaches of teaching

mathematics to avoid anxiety among students.

- Mathematics Classroom should be downsized to a maximum of thirty students per class.
- There should be counseling units in secondary and higher secondary schools to re-direct students thinking about mathematics through letting them know the importance and usefulness of mathematics in their day-to-day activity.
- Parents should assist in following up their children on mathematics.
- Mathematics should be taught in the morning hours of the time table.
- Mathematics curriculum should not be overloaded at the secondary level.
- Students' interest in mathematics should be stimulated by concerned stakeholders.
- There should be good teacher-student relationship to enable teachers to understand their students' problems.

Conclusion

- In the Present Study, Mathematics Anxiety had a Negative influence on Academic Achievement in Mathematics. Results shows that higher the Mathematics Anxiety, lower the Achievement in Mathematics.

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