



# **A STUDY ON 'LEARNING MATHEMATICS' AND ITS IMPACT ON SOCIETY ESPECIALLY IN EDUCATION AND SUGGESTED SOLUTIONS**

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## **Abstract**

Mathematics is a branch of science that deals with numbers and operations. In this paper, we have discussed the major issues and difficulties faced by the students in learning mathematics. Finally, we have suggested some solutions to overcome the troubles faced by the students. Some teaching methods have been suggested to make the learning process more attentive and effective. This study gives the reasons for the students having negative attitude towards mathematics.

**Keywords:** Learning issues in mathematics, solutions, methodology, teacher's motivation.

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## **Introduction**

Mathematics plays a vital role in our daily life. Mathematics is surrounded in our lives in many ways like civic, professional, cultural, etc. Mathematics is often a challenging subject for the students to choose it as their degree. Now-a-days, there is a poor performance among the students to choose mathematics as their career. Researchers identified that the difficulties in maths start from elementary school and typically it continues till their masters. The issue is that the students face mathematics as difficult in their elementary school itself and the progress continues in secondary school, so that they find mathematics as difficult to choose it as their degree course. The problem arises due to lack of perceptual skills, language, reasoning, memory, etc.

Despite, to provide quality education in mathematics, there are a greater number of issues in teaching and learning mathematics. The issues are related to classroom management, culture, lack of efficient teachers, lack of teaching supports, lack of references, lack of time management, inequity, etc. Some places do not have proper classroom facilities,

seating arrangement and finally there is a lack of technology for teaching and learning mathematics.

## **Role of Mathematics**

Mathematics provides an effective way of building mental discipline and encourages logical reasoning and mental rigor. In addition, mathematical knowledge plays a crucial role in understanding the contents of other school subjects such as science, social studies, and even music and art. Mathematics plays a unique role in society. Mathematics is all around us. It is included in our daily life from morning to night. eg. Ringing of an alarm, marks in the exam, etc.

## **Students Perception on Mathematics**

Students' belief and attitude towards mathematics teaching and learning plays an important role in mathematics education. Now-a-days, the number of students choosing Mathematics in higher education goes on decreasing. Some students hate maths because they think it is very dull. They don't get excited about numbers, tables or formulas. They always think that maths is difficult to understand and solve. One of the main reasons for students not choosing mathematics is their lack of understanding and having a low content-based knowledge. This makes them have a negative perception about mathematics. Students attitude towards mathematics can be influence by many factors like gender, motivation, emotion, self-confidence, etc.,

## **Objective of the study**

This study is to create awareness

- on the impact of 'Mathematics' on the society at large and Education in particular suggesting solutions
- to get rid of the mind block towards Mathematics
- on the usefulness, power and beauty of Mathematics

## **Importance & Relevance of the study**

- The fear and unwillingness to study Mathematics among the high school students is increasing in an alarming rate.
- This, if not addressed upon might result in a chaotic situation leading to a generation which will be 'Math' illiterates.

- This study would definitely enable the students to think and create awareness on the importance of Mathematics in everyday life.
- This also will bring out the need for studying Mathematics which enhances the logical thinking, leading to creativity and innovation.

## **Research Methodology**

- Primary Data is collected from the respondents within Coimbatore city with the help of a structured questionnaire using Convenience sampling.
- Relevant Statistical tools are used to analyse the data collected regarding the various levels of Fear for Mathematics, the reasons and their effect on the Society and especially Education.
- Data on the impact of Mathematics in Higher Education are also collected and analysed which when implemented will lead to increased creativity and innovative research.

## **Statistical Tools**

Statistics is a branch of Mathematics that deals with Data. Some of the tools of Statistics that are used extensively in research can be listed as Correlation, Regression, Chi-Square Distribution, Analysis of Variance etc. In these days of Big Data and Data analytics, researchers seek the help of Statistical Software like R-Programming, SPSS, SAS and others. The ease with which the data are classified, grouped and analysed with this software is remarkable and they are indeed a boon to the researchers. The use of diagrammatic representation and the Chi Square analysis for testing the relationships are highlighted in this paper.

## **Analysis and Interpretation**

### **Statistical Tools**

The following statistical tools are used for the study:

- Percentage Analysis
- Diagram Analysis
- Chi-square Analysis

## Percentage Analysis

Simple percentage analysis is used by the researcher for the analysis and interpretation of the collected data.

$$\text{Simple Percentage} = \frac{\text{Actual responder}}{\text{Total responder}} * 100$$

## Diagram Analysis

The percentage are expressed in diagrams, since the visualization will give a clear picture about the data and it is also very attractive.

## Chi-square Analysis

Chi-square analysis is used to test whether the two characteristics are independent or not. In other words, the chi-square test is used to test whether one of the factors has significant influence over the other factor. It is expressed as

$$\chi^2 = \sum \left[ \frac{(o_i - e_i)^2}{e_i} \right] \sim \chi^2_{(r-1)(c-1)d.f}$$

Where

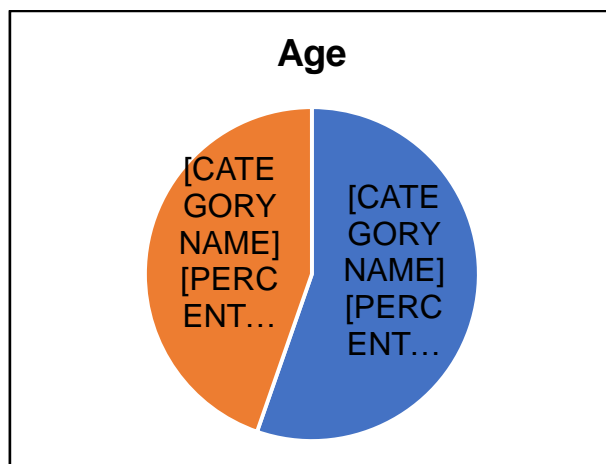
$o_i$  is the observed frequency

$e_i$  is the expected frequency

## Diagram Analysis

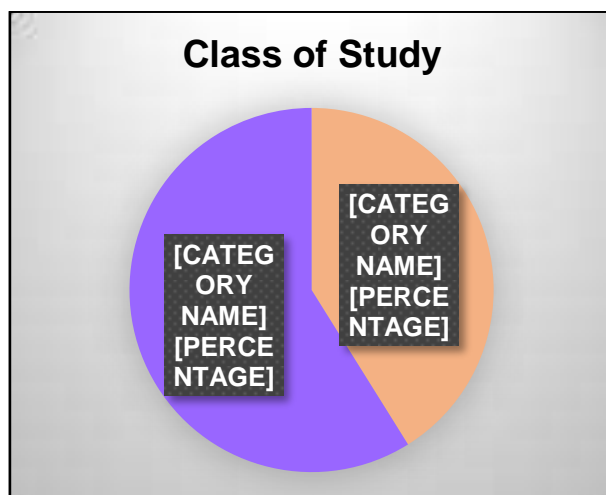
### 1. Distribution of people based on Age

Age Group	No. of Respondents	Percentage
13-15	109	55.33
16-18	88	44.67
<b>Grand Total</b>	197	100



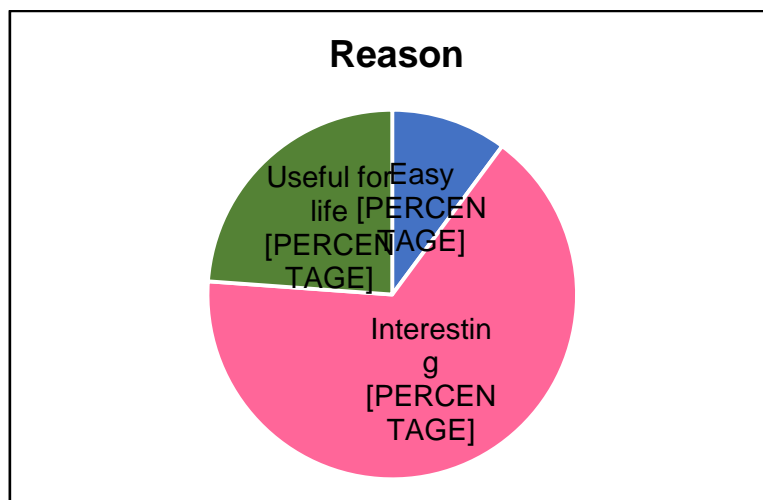
## 2. Class of Study

Class	No. of Respondents	Percentage
11th std -12th std	81	41.12
9th std - 10th std	116	58.88
<b>Grand Total</b>	<b>197</b>	<b>100</b>



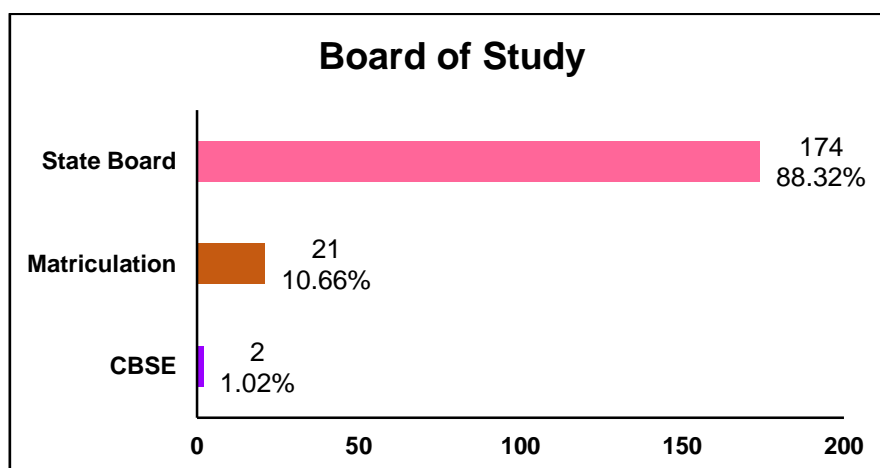
## 3. Reason for choosing Mathematics

Reason	No. of Respondents	Percentage
Easy	20	10.15
Interesting	130	65.99
Useful for life	47	23.86
<b>Grand Total</b>	<b>197</b>	<b>100</b>



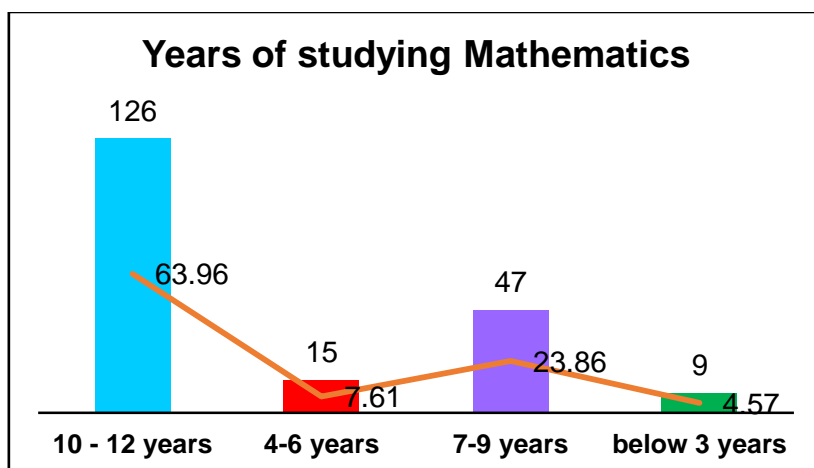
#### 4. Board of Study

Board of Study	No. of Respondents	Percentage
CBSE	2	1.02
Matriculation	21	10.66
State Board	174	88.32
<b>Grand Total</b>	197	100



#### 5. Years of Studying Mathematics

Years	No. of Respondents	Percentage
10 - 12 years	126	63.96
4-6 years	15	7.61
7-9 years	47	23.86
Below 3 years	9	4.57
<b>Grand Total</b>	197	100



### Percentage Analysis

#### 1. Difficulty in Mathematics

Difficulty	No. of Responses	Percentage
Can't mug up and reproduce	10	5.07
Each Problem is Different	58	29.44
More time needed to study	29	14.72
Need to Practice	57	28.93
Understanding the logic	43	21.82
<b>Grand Total</b>	<b>197</b>	<b>100</b>

From the above table, we observe that the majority of the students feel that each problem is different in Mathematics.

#### 2. Suggestions for making Mathematics Easy

Suggestions	No. of Responses	Percentage
Connect it with Real Life	98	49.74
Encourage students	21	10.65
Give Individual Attention	30	15.22
Reduce Syllabus	37	18.78
Others	11	5.58
<b>Grand Total</b>	<b>197</b>	<b>100</b>

From the above table, we observe that the majority of the students suggest that Mathematics should be connected with real life to make it easy.

### Chi-Square Analysis

Based on Chi-square analysis, the following findings are made:

1. There is an association between choosing favourite subject and board of studying.

2. There is no association between board of study and choosing Mathematics in 11<sup>th</sup> standard.
3. There is an association between years of studying Mathematics and not liking Mathematics.
4. There is no association between board of study and not getting good marks in Mathematics.
5. There is an association between years of studying Mathematics and suggestions for making Mathematics easy.

## Conclusion

Mathematics has an essential part in our life. Mathematics develops in critical and logical thinking. In recent days, the students started disliking Mathematics in their secondary level or higher secondary level. Some students feel that teaching and learning process are now-a-days getting worsen and this is the main cause of less interest in Mathematics. To overcome this situation, Teachers need to be creative through a various combination of integrated technology where it creates a positive atmosphere for the students to learn. Students suggest that if Mathematics is taught by connecting it with real life, the subject will be very easy. The enrolment in Mathematics can be increased by creating some innovative ideas and new teaching technology. The issues can be resolved through adequate use of technology.

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