



## ACADEMIC ACHIEVEMENT OF HIGH SCHOOL STUDENTS IN MATHEMATICS AND THEIR MATHEMATICAL INTEREST IN RELATION TO CERTAIN SELECTED VARIABLES

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**Paper Received On:** 25 NOV 2022

**Peer Reviewed On:** 30 NOV 2022

**Published On:** 1 DEC 2022

### Abstract

*This paper attempts to study the academic achievement of high school students in mathematics and their mathematical interest in relation to certain selected variables in Himachal Pradesh. The sample included 400 students of Kullu District of Himachal Pradesh by employing random sampling techniques. Data were collected from Sen. Sec. School students by using standardised questionnaire. The tool used for the study was developed by Dr. Uma Tondon and Ashok Pal. The findings of the study reveals that there is no significant difference in the academic achievement in mathematics of High school students, although the males students of high schools possess slightly more interest in mathematics.*



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### Introduction

Education is a powerful weapon. By education be intent to bring desirable changes in the students. Education is a conscious efforts and, as such, it has defined aims and objectives. In the legend of these aims the curriculum is determined and the academic achievement of the students is measured. Education without aim is like a boat without its rudder. Aims give direction to activity. Education is not more schooling or instruction imposed by the elders of the younger once. It is equivalent to the development of character or personality by means of the social life of education institution. This process of acquiring experience is a social process and it is related to and influenced by social factors. Education as does a social process and its function is not only to preserve the social heritage but also do enrich it learning is the result of social interaction and social motivation. Mathematics is one of the oldest organised

disciplines of human knowledge with continuous lines of spanning 5000 years and every major culture. In modern world, mathematics is being increasingly used in science technology social science etc. Do the word is more mathematically inclined majority of students in school feel it as more abstract the importance of mathematics has never be greater than now and for the possible future. Mathematical skills are crucial for a wide array of analytical technology and economic application. Training students to become adept user of mathematics and to appreciate its usefulness is of paramount importance of for the future. If you love doing mathematics and helping others to understand how mathematics can be useful and importance of them mathematics education maybe your calling. Mathematics is a study of quantity structured, space and changes. It is more than the fixed role applied in known ways. Researches in mathematics in forms about new pedagogical or assessment techniques. It can help us to make educational decision and educational policy.

Mathematics plays a crucial role in the economic and social development of the country. It is the queen of all sciences and backbone of the civilization. Mathematics 12th intellectual power like logical thinking and reasoning. The knowledge of mathematics is essential requirement to study the other side. It is compulsory subject at school level. Mathematics is the subject which needs more interest to attain the required achievement. It provides opportunities for the intellectual gymnastics of the mainly inherent powers. Teaching of mathematics essentially helps the students in acquiring essential mathematics knowledge skills interest and attitude it is necessary for the helpful in the realisation of the practical or utilitarian values, disciplinary value and cultural values. Several studies have observed that many of the students at school level find mathematics difficult subject and large number of students fail in the subject. Mathematics is the difficult not because a abstraction as has been generally contemplatives beauty is mathematics and this alone is a sufficient reason for the study of mathematics have created the gap between the scientific community and the rest of the humanity and their by hamper the growth of our society.

### **Reviews of Related Literature**

**Bala (2014)** Examined the study of a comparative study of academic achievement in mathematics of 9th class students in relation to study habits. The objective of the study was to find out the relationship between academic achievement in mathematics and study habits. To study the significant difference in the academic achievement in mathematics of students studying in government and private schools. To study the significant difference between academic achievement in mathematics of male and female students. To study the significant

difference in the students habits of male and female students. The study was conducted on 100 students of 9th class of Patiala district. The tools were used for the study (i) mathematics achievement test by L.N Dubey (2010). (ii) habit inventory by professor M.N Palsane and a Anuradha Sharma (2003). Mean, SD, SED, C- Ratio, Co- efficient of correlation were used to interpret the result. The finding of the study was there exist significant relationship between academic achievement in mathematics and study habit, but there exist no significant difference between Government and private school students regarding academic achievement in mathematics. There exist significant difference between the academic achievements in mathematics of male and female school students. There exist no significant difference between study habits of male and female students. **Ponnusamy (2014)** Study on content knowledge of elementary school teachers in mathematics. The main objective was to study the content knowledge of the elementary school teachers in mathematics. To study the impact of variables gender educational qualification teaching experience and the type of school on the content knowledge of the teacher in mathematics. The sample of the study was taken from 128 elementary school teachers was selected demly from 20th Government and 20th self financing private schools in Coimbatore and Tirupur Distrusts of Tamil Nadu. Them 64 were male and remaining female teachers. The tools were used the investigation prepared the mathematics knowledge test and ministers to the teacher in the sample selected to collect the required data. The tools consisted of 25 items to bring out the induct knowledge of the teachers and the mathematics. The main finding of the study was reviews that the elements school teachers kane good content knowledge in mathematics. **Ahmad Khan (2014)** Examined the study of gender differences in science and mathematics achievement at the primary level – A case study. The objective of the study was to compare the achievement of boys and girls students in science and mathematics at primary level. The study was conducted on 110 students ( 57 boys and 53 girls). Tools were used to the investigator developed achievement test 1 each in science and mathematics. The valuable suggestions were in cooperated. So and this way the content validity of the test was established. The reliability of tools was established by test retest method. The coefficient of liability of science and mathematics achievement test was 0.73 and 0.83 respectively. Me, SD and 't' value is used to analysis the data. Findings of the study was there exist significant difference in achievement of boys and girls in science at the primary level. Their exist significant difference in achievement of boys and girls in mathematics at the primary level. **Sadh (2015)** The study of utilisation of learning from mathematics institution by IX class students in Monday district of

Himachal Pradesh. The objective of the study to find out the differences regarding utilisation of mathematics. To study the utilisation of mathematics among boys and girls on various areas of the test as ratio percentage interest liner equation in menstruation. To determine the utilisation of mathematics of the total sample. To determine the area- wise utilisation of mathematics by total sample. The study was conducted on the sampling was done at two stages. At the first stage for government secondary. Schools and from private schools were taken randomly and at the second stage 304 students of class IX were taken from the sampled eight secondary schools. The tools were used to the present study the two was developed and standardized by the investigators for collecting the required data. The final draft of tool consisted of 30 items for six areas of mathematics and identified by the investigators. All items was multiple choice type with zero marks for wrong answer in one month for right answer. The reliability of tool was established by using Kuder Richardson formula and the reliability coefficient (r)= 0.91 't' test, percentage used to analysis the data. The main finding of the study was utilisation of mathematics in relation to gender the boys and girls were utilising mathematics in their daily lives almost equally. Students studying in government and private schools effort significantly regarding utilisation of mathematics. Rural and urban school students effort significantly with regard of utilisation of mathematics. Highest utilised area by the total sample was statistics where areas the least utilised areas was liner & equation. **Joshua and Krishnan (2015)** Examine the study of the effectiveness of 7E model on achievement in mathematics of secondary school students. The objective of the study to find out to compare given means course of achievement in mathematics using 7E model and activity oriented method with respect to instructional objectives remembering understanding, applying, analyzing, evaluating. To find out the effectiveness of 7E model over activity oriented method on achievement in mathematics. The study was conducted on 140 students of class VIII of M.D.S.H.S.S. Kottayam. The tools were used to for the study lesson transcripts based on 7E model. Lesson transcript based on activity oriented method. Achievement test in mathematics prepared by the investigation mean, median mode, standard deviation 't'- test skewness, kurtosis, ANOVA and ANCOVA used to analysis the data. The main finding of the study was, there was significant difference between gain main scores of achievement in mathematics among secondary school students short throw 7E model with respect to instructional objectives remembering understanding applying, analysing evaluating, geating. This is significant positive effect of 7E model on achievement in mathematics of secondary school.

### **Objectives of the Study.**

1. To study the relationship between academic achievement and mathematical interest scores of high school students.
2. To study the gender-wise difference in academic achievement scores of high school students.

### **Hypotheses of the Study**

1. There will be no relationship between Academic Achievement and Mathematical Interest of high school students in mathematics.
2. Male and female high school students do not differ significantly in their academic achievement in mathematics.

### **Research Method**

In this research paper descriptive survey method is used. The descriptive research method is most important in educational investigation. It tells us about ‘ what exists at present by determining the nature and degree of existed conditions.

### **Sampling**

In this research paper Survey data was collected from every unit of population or from a representative data. In this research paper investigator took a representative sample of 400 students studying in class 10<sup>th</sup> was drawn from nine government and private high schools and senior secondary schools situated in district Kullu.

### **Research Tools Used**

In this research method Mathematical Interest Scale was used to find out the relationship between Academic Achievement and Mathematical Interest of High School Students in Mathematics. The tool was developed by Dr. Uma Tandon and Ashok Pal. The final Form of the scale is comprises of 24 statements; in which 12 items are positive and 12 items are negative.

### **Statistical Treatment**

Descriptive statistics like mean, median, mode standard deviation, QD, skewness and kurtosis was used. For testing the significance of difference in interest in mathematics of high school students in relation to their academic achievement statistical technique of t-test was applied.

## Analysis and Interpretation of Data

### Academic Achievement and Mathematical Interest Among High School Students

In order to study the correlation between the academic achievement and mathematical interest of high school students in maths statistical technique of product movement coefficient of correlation was applied. The detailed analysis is given below under table-1 :

**Means, Standard Deviations and Coefficient of Correlation between Academic Achievement and Mathematical Interest: Table-1**

Sr.No	Variables	No of Students (N)	Df	‘r’ value
1	Academic Achievement	400	398	.59
2	Mathematical interest Scores	400		

Table-1 depicts that the calculated coefficient of correlation came out to be 0.59, which states that the academic achievement and mathematical interest of high school students towards mathematics was found to be positively correlated. Hence the hypothesis number 1 that there will be no relationship between academic achievement and mathematical interest of high school students in mathematics was rejected.

It may be interpreted that the students having higher means scores in mathematical interest have high scores of academic achievement and the students having lower mathematical interest scores in mathematics have lower scores of academic achievement.

### Gender-Wise Comparison In Academic Achievement Of High School Students

In order to study the difference in the academic achievement of male and female High school students in mathematics 't'-test was used on means of academic achievement scale scores. The detailed analysis is given in the Table given below:

Means, Standard Deviations and 't'- value showing the Gender- wise Difference in the Academic Achievement of High School Students.(N=400)

Sr. No.	Gender	Mean	S.D	df	‘t’-Value
1	Male	51.95	10.1	398	1.17 NS
2	Female	50.85	6.2		

Table indicates that the calculated value of 't' for finding out the significance of difference in the means of academic achievement scores of male and female high school students for df=398, came out to be 1.17, which is lower than the Table value (1.97) even at 0.05 level of significance. Hence, the hypothesis No.2 that "male and female high school

students do not differ significantly in their academic achievement in mathematics" was accepted. However it may be seen from the table that male and female students have slightly different academic achievement in mathematics, as the mean scores were 51.95 (male) and 50.85 (female), but this difference is not significant statistically.

### **Findings**

Mathematics interest scores were found that 26.5% high school students have low mathematical interest and 25% possess high level of mathematical interest whereas 48.51% high school students moderate level of mathematical interest. It may be concluded that maximum high school students have average level of mathematical interest.

The academic achievement and mathematical interest in mathematics were found to have a moderate positive correlation. It means that students having higher mean mathematical interest score in mathematics have high score of academic achievement and the students having lower mean mathematical interest score in mathematics have lower scores of academic achievement.

The male and female students do not differ significantly in their academic achievement in mathematics. Although males were found to possess a little bit higher mean achievement scores than girls. Therefore, reasons should be detected for the lower academic achievement of girls and efforts should be made for developing positive academic achievement in them towards mathematics.

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