

Influence of Attitude Towards Mathematics and Study Habit on the Achievement in Mathematics at the secondary stage

***Dr. Ranjana Choudhury, **Dhiraj kumar Das**

*Rtd. Head of Department of Mathematics. K.K.Handique Girl's College, Guwahati, Assam, Pin-781001

**Department of mathematics, J.N.Cillege, Boko, Assam, Pin-781123

ABSTRACT

The present study aims at studying the influence of areas in relation to the attitude towards mathematics and study habit on the achievement in mathematics to the pupils' at secondary stage. A sample of 500 students of standard IX from secondary school of south kamrup district, Assam, participated in the present study, in which the relationship among the achievement in mathematics was most closely related with attitude towards mathematics and study habit. Analysis of data indicated that there was no significant difference on achievement in mathematics of the students in case of medium and sex. The regression equation thus obtained shows that attitude towards mathematics; study habit contributes 15.2%, and 29% respectively to the Achievement in mathematics.

Keywords: Attitude towards Mathematics, Study habit, Achievement in Mathematics, Medium, Sex.

I. INTRODUCTION

Mathematics is the oldest of all sciences that have developed through the ages having a direct impact on the quality of human life on our planet. It is unanimously agreed that mathematics is the language of science and technology and also in some other disciplines like art and culture, holding the key to development and progress of the country as well as humanity as whole. The mathematics is a backbone of students to achieve and develop the skill in reasoning and thinking level. In elementary stage the base on mathematics should be imposed to develop mental observation and creativity or innovativeness. Due to the lack of proper knowledge on mathematics the student suffer in all spheres of life. There is a general consensus among educators that mathematics is an important and useful subject for development in every country. It is the key to technology. Despite its importance and influence, it is a subject most feared by students of the primary school (Evans)[1] and secondary school levels (Eduward).So from the grass root level the teaching of mathematics should be effective and scientific.

Education in India stands at the cross roads today, neither normal linear expansion nor the existing place and nature of improvement can meet the needs of the situation. The national policy of

Education (NPE)[2] described education as a unique investment in the present and future. The NPE laid special emphasis on the removal of disparities and equalizing educational opportunities by attending to the specific needs of those who have been denied equally so far. In this regards special emphasis has to be laid on the education of women, scheduled casts, scheduled tribes, minorities and physically handicapped persons in order to ensure their equalization with the general population at all stages and levels of education. The Education Commission (1964-66) recommended mathematics as a compulsory subject for students at school level.

In the present study the investigator wants to investigate some of the problems in better achievement in mathematics at the secondary stage in relation to

- (i) Pupils' Attitude towards mathematics (ATM)
- (ii) Pupils Study Habit(SH)
- (iii) Sex.
- (iv) Medium of Study.

In the present day competitive world, success and knowledge go neck to neck. Krishnamurthy[3] while discussing the importance of mathematics says that the mathematical form of today has more and more new applications for day today life and rapid growth of desired application helps to develop more and more new fields of mathematics. Today in the modern world there are more applications of mathematics and new field of research has been developed that a pupil can generate their knowledge. For this attitude towards mathematics refer to general tendency of an individual to act in a certain way under certain condition and to determine whether the student likes mathematics. According to Allport "an attitude is a mental and neutral state of readiness organized through experience, exerting a directive or dynamic influence upon the individual response to all subjects and situation with which it is related. N.K.Dutt[4] says "Attitude underlie many of the significant dramatic instances of man's behavior" Habit is defined as a conformed way of doing things. Study habits are a well planned and way of studying and preparing lessons to achieve and to attained a form of consistency in the academic improvements and passing.

An overview of the related literature has shown that attitude towards mathematics, study habit of mathematics play an important role in the achievement in mathematics. The investigator makes a proper investigation on the mathematics achievement and found that the academic excellence in the subject mathematics is shown by the students who have high attitude towards mathematics and study habit of mathematics.

II. Review of Related literature

Al ken (1976)[5] noted that the relationship between attitude towards mathematics and achievement in mathematic is positive at elementary level and secondary school level but may not always reach statistically significance.

Sakaadvik, Einar Rankin and Richard (1994) [6]studied on gender differences in mathematics achievement , self concept and motivation. The study concluded that there were no Gender differences in mathematics achievement, but boys had higher self concepts, self perceived skills and motivation.

Among some of the learner factors that are important for high achievement, study habit is one. The studies conducted by Patel (1997)[7] and Panchalingappa (1995)[8] clearly indicate that study habit study habit and academic achievement are directly related. Patel (1997) studied and compared students who different on different problems they have covering areas viz. health, monetary, personal, social, religious cum sex, and educational

An overview of the related literature has shown that attitude towards mathematics; study habit of mathematics plays an important role in the achievement in mathematics. The investigator makes a proper investigation on the mathematics achievement and found that the academic excellence in the subject mathematics is shown by the students who have high attitude towards mathematics and study habit of mathematics.

The National Council of Supervisors of Mathematics (1977) [9] asserted that "learning to solve problems is the principal reason for studying mathematics" (p.2).

Hence the present study entitled "Influence of attitude towards mathematics and study habit on achievement in mathematics at the secondary stage."

III. Objective of the study:

The present study was taken up with the following objectives:

- i. To enquire about the pupils' attitude towards mathematics.
- ii. To enquire about the pupils study habit.

- iii. To find the achievement of the pupil in school examination from IX standard.

IV. Samples

The normative survey method on stratified random technique was used for the present study. For this purpose 250 boys and 250 girls of standard IX from secondary school of south kamrup district of Assam were selected at random.

Tools

Following tools were used to collect the data for the study-

- i. A standardized inventory to measure the pupil's attitude towards mathematics.
- ii. A questionnaire constructed by the investigator to asses the pupil's study habit.

To asses the Achievement in Mathematics, the marks attained by the pupil on mathematics in annual examination from IX standard was collected. Data collection

The investigator collected data by visiting the schools. Three tools were used for analysis of data.

V. Data analysis

Correlation, t-test and multiple regressions were used to study the variables in the present study.

VI. Hypothesis testing

The investigator formulate the following hypothesis-

- i. There is no significant relationship between attitude towards mathematics, Study habit and Mathematics achievement.
- ii. There is no significant relationship between Sex and Mathematics achievement.
- iii. There is no significant relationship between Medium and Mathematics achievement

Table-1:

r-value of Achievement in Mathematics to the attitude towards mathematics and study habit .

Sl.No.	Variable	N	df	r	p
1.	Achievement in mathematics	500	498	0.509	<0.05
2.	Attitude Towards Mathematics				
3.	Achievement in mathematics	500	498	0.616	<0.05
4.	Study Habit				

Table-2:

't' value for Achievement in Mathematics with attitude towards mathematics and study habit of boys and girls students studying in IX standard

Achievement in mathematics				
Gender	N	Mean	S.D	t value
Boys	250	43.00	26.43	5.09
Girls	250	33.06	15.96	
Attitude Towards Mathematics				
Gender	N	Mean	S.D	t value
Boys	250	22.01	6.57	3.98
Girls	250	19.88	5.39	
Study Habit				
Gender	N	Mean	S.D	t value
Boys	250	63.20	21.62	1.29
Girls	250	60.71	21.31	

Table-3:

't' value for mathematics achievement with attitude towards mathematics and study habit of English and Assamese medium students studying in IX standard.

Achievement in mathematics				
Medium	N	Mean	S.D	t value
English	250	39.48	23.01	2.65
Assamese	250	36.58	21.65	
Attitude Towards Mathematics				
Medium	N	Mean	S.D	t value
English	250	21.55	5.87	2.24
Assamese	250	20.34	6.27	
Study Habit				
Medium	N	Mean	S.D	t value
English	250	62.78	20.70	0.86
Assamese	250	61.13	22.24	

Multiple Regression Analysis

Table-4:

The relative contribution of the attitude towards mathematics and study habit to the Achievement in mathematics

Variables	Constant	Regression Coefficient	B-Coefficient	r value	% of contribution
Attitude Towards Mathematics	-24.657	1.096	0.299	0.509	15.219
Study Habit		0.490	0.471	0.616	29.014

Analysis and remarks:

- (i) In table-I it may be observed that the r-value of attitude towards mathematics, study habit to achievement in mathematics are 0.509 & 0.616 respectively. All these values are much closed to one. So attitude towards mathematics, study habit to achievement in mathematics are significantly related. So it may be concluded that the student who has the high attitude towards mathematics and better study habit imply the high achievement in mathematics.
- (ii) In table-2 we observed that the t values of achievement in mathematics and attitude towards mathematics are 5.09 and 3.98 respectively in case of boys and girls. So it may be concluded that the null hypothesis is rejected for achievement in mathematics and attitude towards mathematics. Boys are high on achievement in mathematics and attitude towards mathematics when compared with girl's students.
- (iii) In table-3 we observed that the t values of achievement in mathematics and attitude towards mathematics are 2.65 and 2.24 respectively in case of English and medium students. So it may be conclude that the null hypothesis is rejected for the achievement in mathematics and attitude towards mathematics. English medium students are high on achievement in mathematics and attitude towards mathematics when compared with Assamese medium students.
- (iv) From table- 4 it is observed that-
- (a) The achievement in mathematics by the independent variable attitude towards mathematics of IX standard students to the extent of 15.219%.
- (b) The achievement in mathematics by the independent variable study habit of IX standard students to the extent of 29.014%.

Findings of the study

- I. Findings of coefficient of analysis**
- . Attitude towards mathematics and achievement in mathematics are significantly related.

. Study habit of mathematics and achievement in mathematics are significantly related.

II. Findings of t-test analysis

. Boys have better achievement in mathematics than girls.
. English medium students have better performance in mathematics than assamese medium students.

III. Findings of Multiple Regression analysis

. Attitude towards mathematics as an independent variable depends on the achievement in mathematics of IX standard students to the extent of 15.219%.

. Study habit of mathematics as an independent variable depends on achievement in mathematics of IX standard students to the extent of 15.219%.of IX standard students to the extent of 29.014%.

. The regression equation developed for total sample (N=500) to predict achievement in mathematics of IX standard students on the basis of attitude towards mathematics and study habit is:

$$AIM = -24.657 + 1.096 * ATM + 0.490 * SH$$

Where AIM= Achievement in mathematics, ATM= Attitude towards Mathematics and SH= Study habit.

Conclusion

From the above study we may conclude that the student's attitude towards mathematics affect in the achievement in mathematics. Moreover the achievement of the subject mathematics mostly depends on concept and practice. So it is beyond imagination for most of the parents and teacher's that study habit influence pupil's achievement in mathematics. They promised to give importance of their student's study habit for better performance in mathematics. Attitude towards mathematics depend mainly the home environment and parent's attitude towards mathematics.

REFERENCES:

1. Evans, R.F. (1972). A study of the reliability of dour arithmetic attitude scales and an investigation of component mathematics attitudes. Doctoral Dissertation.
2. National policy of Education. (1986) Government of India Document. New Delhi, Ministry Of Human Resource Development
3. Krishnamurthy V. (1990) Larger issues involved in mathematics teaching. The Hindu. 17th April.
4. Dutt, N.K. (1978) Psychological foundations of education .New Delhi: Doaba house
5. Alken . I.R.(1976): Update on attitude and other affective variable in learning mathematics “ Review of Education research 46,pp 293-311
6. Sakaadvik, Einar.M,Richard.J (1994): “ Gender difference in mathematics and verbal achievement, self perception and motivation”. British journal of educational psychology,64, pp 419-428
7. Patel.R.S. 1997. An investigation into the causes of Grade VIII pupils having high numerical ability.Experiments in Education. XXV (12) 238-243
8. Panchalingappa. S.N. 1995. An investigation into the causes of under achievement in secondary school mathematics. Ph.D Edu. Karnataka University
9. National Council of Supervisors of Mathematics (1977). Position paper on basic mathematical skills. Washington: National Institute of Education
10. Mishra, B.B.: (1997): “Correlates of academic achievement of high school student in India.”Vol. CIII-No2, Page (21-25). The Educational Review.
11. Oyedeji,O.A.: “ Perseverance, Study habit and self concept as predictors of students’ performance in secondary school mathematics in Nigeria.”
12. Pal, A. 1989. “A critical study of some affective outcomes of the students as predictors of their mathematical ability.” Ph. D. Thesis, Edu. Univ. of kalyani. Fifth survey of Research in Education. Buch.M.V. 1287-1288.
13. Sirohi, V.: “A study of underachievement in relation to study habits and attitude.”
14. Subudhi, B. (1990) “Study habit of high school students in relation to intelligence, anxiety, sex, resident and grade.” Vol. C-VII No-1, Page (5-7).
15. Kline,M. et al. (1967) The liberal education values of science. Readings in science education for the elementary school. NewYork: The Macmillan and company.
16. Noorjehan N. Ganihar, Wajiha A.H. (2009) “Factors affecting academic achievement of IX standard students in mathematics” Vol. 8 No. 7, Page (25-33). Edutracks.
17. Kothary, C.R.: “Research Methodology-Methods & Techniques.”, Second Edition; New Age International Publishers.
18. Sixth Survey of Educational Research 1993-2000 Volume II, NCERT