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The Effect of Medium and Gender on Mathematics Achievement among Secondary Level School Students

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Abstract: India is a Multilanguage country and students pursue their education in different language. Medium and gender are the key factors of education. This paper explores the influences that medium and gender may play vital role on the mathematics achievement of students. The data for this survey are collected from 8th to 10th grade students of Guwahati city of Assam, India. It investigates the mathematics achievement of the students divided on basis of medium and gender. Analysis of data indicated that there were no significant differences in mathematics achievement of the students based on medium and gender.

Keywords: **Mathematics Achievement; Medium; Gender;**

1. INTRODUCTION

Mathematics is a very interesting and important subject and it is necessary to all for daily life. Teaching and learning of mathematics at school level is an important part of the school curriculum. Also, School environment and home environment is a part of the student to get the achievement in mathematics. In past many researchers have studied this area to find out the relation and attitude among the different factors. Aikan, in the year 1970 [1] studied the role of attitude and anxiety towards mathematics predicting achievement in mathematics of boys and girls. The results of the investigations suggested that the measures of attitude and anxiety might be better predictors of achievement of females than that of males. He suggested that the prediction involving measures of ATM operated analysis by sex should be conducted.

Callahan, in the year 1973, [5] studied about relation between attitude in mathematics (ATM) & achievement in mathematics (AIM). It is observed that co-education between AIM and ATM varies not only with gender but also with grade levels.

Burak, in the year 1975,[4] studied about the relation between ATM & AIM and observed that casual predominance of both the factors is significant. But the direction of predominance was not considered in his study.

Al Ken, in the year 1976,[2] noted that the ATM-AIM relationship is usually positive and meaningful at an elementary level and secondary level, but may not always reach statistical significance. He confirmed the co-relation between ATM-AIM varies with grade level which supports the Cox boards study.

He also reiterated that girls' scores in mathematics are more predictable from their attitude than boys' marks in mathematics, because the ATM-AIM co-relation is ' generally somewhat higher for girls'. He concluded the prediction studies involving a measure of ATM separate analysis by sex should always be conducted. He also observed that these exits within ethnic groups, culturally unique intellectual style of learning. He also found that ATM-AIM relationship is similar among ethnic groups, [2,5,6,7,8].

2. THE METHOD

There were 20 schools, both English and Assamese medium covered under my study. Every school 50 students were taken both boys and girls. Questionnaires were distributed among the students and their parents.

2.1 Tools to be used in the collection of data

To measure the variables undertaken and to collect the data for the study, the researcher intends to use the following tools. Attitude scale towards mathematics to measure the attitude towards mathematics of the pupil in respect of sex b. Attitude scale towards mathematics to measure the attitude towards mathematics of the pupil in respect of medium of instruction.

3. STASTICAL ANALYSIS:

The data were entered into a SPSS spreadsheet and were analyzed accordingly. The mean and standard deviation of students were calculated according their attitude. ANOVA and t-test have been used to test the variance the mean of the students based on gender and medium.

3.1 Analysis and Remarks

(i)In Table 1-A, mean and standard deviation for boys in English medium schools are respectively 37.44 and 6.19 for positive attitude , and for Assamese medium schools are 36.56 and 7.74 ; while those for girls in English medium schools are respectively 39.32 and 6.85 and in Assamese medium schools are respectively 35.52 and 6.001 . Moreover, the calculated t- values are 3.32 and 1.09 for English and Assamese medium schools . Although there are slight differences, all these values have indicated that there is no significant difference on achievement in mathematics due to gender and medium of instruction .

(ii)In Table 1-B , mean and standard deviation for boys in English medium schools are respectively 35.92 and 6.44 for negative attitude , and for Assamese medium schools are 34.28 and 7.74 ; while those for girls in English medium

Table 1–A: Mean and Standard Deviation of students in case of Positive attitude

Medium of School	Gender							t
		Boys			Girls			
English	Mean+SD	37.44	±	6.19	39.32	±	6.85	3.32
	N	25			25			
Assamese	Mean+SD	36.56	±	7.74	35.52	±	6.00	1.09
	N	25			25			

Table 1–B: Mean and Standard Deviation of students in case of Negative attitude

Medium of School	Gender							t
		Boys			Girls			
English	Mean+SD	35.92	±	6.44	37.28	±	8.35	-1.26
	N	25			25			
Assamese	Mean+SD	34.28	±	7.74	31.08	±	8.28	2.01
	N	25			25			

schools are respectively 37.28 and 8.35 and in Assamese medium schools are respectively 31.08 and 8.28. Moreover, the calculated t- values are -1.26 and 2.01 for English and Assamese medium schools . In case of negative attitude, the negative t- values indicates that achievement in mathematics for English medium schools is higher than that in Assamese medium schools .

(iii)In Table-2 A, the correlation coefficient of boys with positive attitude in English medium schools is 1, while that for girls is 0.911. And those for boys and girls in Assamese medium schools are respectively 1 and 0.787. Moreover, in Table-2 B negative attitude, the correlation coefficients for boys and girls in English medium schools are respectively 1 and 0.763 ; and in Assamese medium schools are 1 and 0.508 respectively .All the values are nearer to 1 and so we can conclude that basically there is no significant difference on achievement in mathematics in case of gender and medium of instruction.

Table 2-A: Correlation among the male & female and English & Assamese medium in case of positive attitude

Correlations			
		Boys	**Girls**
Assamese Medium	**Pearson Correlation**	1	.787(**)
	Sig. (2-tailed		000
	N	25	25
English Medium	**Pearson Correlation**	1	.911(**)
	Sig. (2-tailed)		.000
	N	25	25
** Correlation is significant at the 0.01 level (2-tailed).			

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Table 2-B: Correlation among the male & female and English & Assamese medium in case of negative attitude

Correlations			
		Boys	**Girls**
Assamese Medium	**Pearson Correlation**	1	.508(**)
	Sig. (2-tailed)		.009
	N	25	25
English Medium	**Pearson Correlation**	1	.763(***)
	Sig. (2-tailed)		.000
	N	25	25
** Correlation is significant at the 0.01 level (2-tailed).			