Attitude towards Mathematics Subject among Government and Private Secondary School Students of West District in Sikkim

Dr Shanker Luitel

Rhenock Bazar, Development Area, East District, Gangtok, Sikkim, 737133

Abstract: Education, occupation & income are the important factors to determine the socio-economic status of a family. Family climate affects children's cognitive & social development children's self confidence, self reliance, assertiveness, personality characteristics, coping skills, academic motivation & success. The purpose of the study focuses on effect of socio-economic status on the achievement of numerical ability among Students. All the students of government and private secondary schools under the broad of CBSE & ICSE in Gyalshing sub-division, constituted the population of the study. To complete study researcher selected 100 students for the sample. Researcher adopted descriptive survey design and data analysis, descriptive statistics (Mean, Median, Mode, S.D) and under inferential statistics 't' test used. The study revealed that there was no significant different attitude towards mathematics subject in between government and private secondary school. Both girls and boys students having same attitude towards mathematics but, in some cases students thought that mathematics subject is only for smart and rich background pupil rather other.

Keywords: *achievement, numerical ability, cognitive, educational status, self reliance.*

INTRODUCTION

Mathematics helps us understand the world and provide an effective way of building mental discipline. Mathematics encourages logical reasoning, critical thinking, abstract or spatial thinking, problem-solving ability, and even effective communication skills. Mathematical knowledge plays a crucial role in understanding the contents of other school subjects such as science, social studies, and even music and art. The word attitude has no standard definition specifically; in general it refers to a learned predisposition or tendency on the part of an individual to respond positively or negatively to some object, situation, concept or another person. Several studies have shown that positive attitudes are conducive to good performance.

Mathematics serves as the bases for technology this implies that technology cannot stand in isolation without mathematics. Absence of mathematics, there is no technology, and without science and technology, society cannot stand. The skills in mathematics are use by every human being in daily whether realizing it or not. Due to the importance of mathematics, ways of improving the students' performance and attitude become an important issue. When students have adequate knowledge and skills in mathematics it will help to the students in technical skills required in every sector before securing a job. Students' attitude about mathematics reflects on their positive or negative emotional reactions to the topic in terms of how they think feel and perceive it. Students' attitude towards mathematics can have an impact on their overall academic achievement as well as their engagement rate. Students attitude reflect their self confidence, enjoyment, motivation and fear about mathematics.

In the context of Sikkim maximum students are fear from the mathematics subject. Earlier, Teachers are appointed from other states in Sikkim. Gradually stakeholders, teachers, parents and students know about the importance of the mathematics then they are involving in the subject. The shortage of mathematics teacher in Sikkim are the factors that parents are encouraging their children in engineering, medical and other technical field rather to make a mathematics teacher after completing their schooling. It reflects on de-motivating towards school going adolescence students. They feel fear from the beginning and could not enjoy or use of mathematics in their daily life. Through, the various schemes of central and state government and moral boost of aware parents and

stakeholders' students are going to take mathematics subject and product more than earlier situation.

STATEMENT OF THE PROBLEM

The statement of the problem is stated as "*Attitude towards Mathematics Subject among Government and Private Secondary School Students of West District in Sikkim.*"

OBJECTIVES

i. To study the attitude of secondary school students towards mathematics subject in respect of management (government and private schools) of west district in Sikkim.
ii. To study the attitude of secondary school students towards mathematics subject in respect of gender (boys & girls students) of west district in Sikkim.

HYPOTHESES

H_{01}. There is no significant difference in attitude of secondary school students towards mathematics subject in respect of management (government and private schools) of west district in Sikkim.

H_{02}. There is no significant difference in attitude of secondary school students towards mathematics subject in respect of gender (boys & girls students) of west district in Sikkim.

DELIMITATION

➢ The study is delimited to government and private schools of Gyalshing sub-division from west district in Sikkim.
➢ The study is delimited to 100 students particularly class IX – X under the board of CBSE & ICSE were selected for the sample.

REVIEW

Mohamed and Waheed (2011), studied on secondary school students' attitude towards mathematics in Maldives. The objective of the study was to find out the gender differences attitudes towards mathematics subject. A sample of 200 students was selected from secondary school and self made tools employed for data collection. The study revealed that positive attitude towards mathematics subject is medium and there is no gender difference in their attitudes. *Sarmah & Puri (2014),* studied on attitude towards mathematics subject of diploma in engineering studying students in Sikkim. The objective of the study was gender and locale wise differences in student attitudes towards mathematics. The sample consists of 101 students studying in 1st year diploma, 64 boys and 37 girls were selected. Both boys and girls, 10th grade students of polytechnics institute in Sikkim had similar attitude towards mathematic. It was also found that some rural students were fear in mathematics than the urban students. *Bhawmik & Roy (2016),* conducted on relationship between achievement and attitude in mathematics of secondary school student. Here investigator used descriptive methods to achieve the goal. The samples of 394 secondary students were selected through randomly. The study revealed that there were significant differences on attitude in gender about mathematics but, no significant differences on achievement in mathematics. *Farooq & Shah (2008),* conducted on attitude towards mathematics of high school students in Pakistan. The sample was 685 students, (boys 379 and girls 306) of 10th grade students from private and public schools were selected. The study revealed that gender differentiate of students had no impact on study towards mathematics.

DESIGN

In order to complete the research, investigator adopted exploratory survey method has been used to complete the research work.

POPULATION:
All the students of secondary level (standard- IX and X) under CBSE & ICSE board in Gyalshing sub-division from west district, both private and government schools were constituted the population of the study.

SAMPLE:
The sample includes 100 students of Class IX and X of government and private secondary schools in Gyalshing District in Sikkim using through simple random sampling technique.

TOOLS:

In this research investigator used Standardized tools "Attitude towards Mathematics Subject" constructed and developed by 'Mulkh Raj Tuli' consisted of 20 items in five point likert scale such as: Strongly Agree, Agree, Uncertain, Disagree, Strongly Disagree.

TECHNIQUES:
Here, researcher employed descriptive statistical techniques used for data analysis such as: Frequency,

Mean, Median, Mode, SD, Quartile Deviation, Skewness, Kurtosis, 't' test etc.

DESCRIPTION AND INTERPRETATION:
In this investigation, researcher collected data from school students and tried to organize and interpret according to earlier set of the objectives and hypotheses.

Table: 4.1 Distribution score towards mathematics of private secondary school of girls students

Class (1)	Frequency (f) (2)	Mid value (x) (3)	$d=x-A h=x-695$ $A=69, h=5$(4)	$f \cdot d$ (5)=(2)×(4)	cf (7)
52 - 56	3	54	-3	-9	3
57 - 61	5	59	-2	-10	8
62 - 66	4	64	-1	-4	12
67 - 71	7	69=A	0	0	19
72 - 76	4	74	1	4	23
77 - 81	1	79	2	2	24
82 - 86	1	84	3	3	25
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	n=25	-----	-----	$\sum f \cdot d$=-14	-----

Mean=66.2,   Median=66.8571
Mode=69,   SD=7.9162

Table 4.1 shows that distribution of the attitude towards mathematics scores of all total 25 girls students. The modal value lies in the class interval 67 - 71 which contain the highest frequency f=7 and N =25. The distribution scores of attitude towards mathematics shown that mean (66.2), median (66.8571), mode (69) and SD (7.9162).

Table: 4.2 Distribution score towards mathematics of private secondary school boys students

Class (1)	Frequency (f) (2)	Mid value (x) (3)	$d=x-A h=x-675$ $A=67, h=5$(4)	$f \cdot d$ (5)=(2)×(4)	$f \cdot d2$ (6)=(5)×(4)	cf (7)
35 - 39	1	37	-6	-6	36	1
40 - 44	1	42	-5	-5	25	2
45 - 49	3	47	-4	-12	48	5
50 - 54	1	52	-3	-3	9	6
55 - 59	1	57	-2	-2	4	7
60 - 64	4	62	-1	-4	4	11
65 - 69	4	67=A	0	0	0	15
70 - 74	3	72	1	3	3	18
75 - 79	4	77	2	8	16	22
80 - 84	1	82	3	3	9	23
85 - 89	1	87	4	4	16	24
90 - 94	1	92	5	5	25	25
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	n=25	-----	-----	$\sum f \cdot d$=-9	$\sum f \cdot d2$=195	-----

Mean=66.2,   Median=66.375
Mode=68.725,   SD=14.1333

Table 4.2 shows that distribution of the attitude towards mathematics scores of all total 25 boys students. The modal value lies in the class interval 65 – 69.which contain the highest frequency f=4 and N =25. The distribution scores of attitude towards mathematics shown that mean (66.2), median (66.375), mode (68.725) and SD (14.1333).
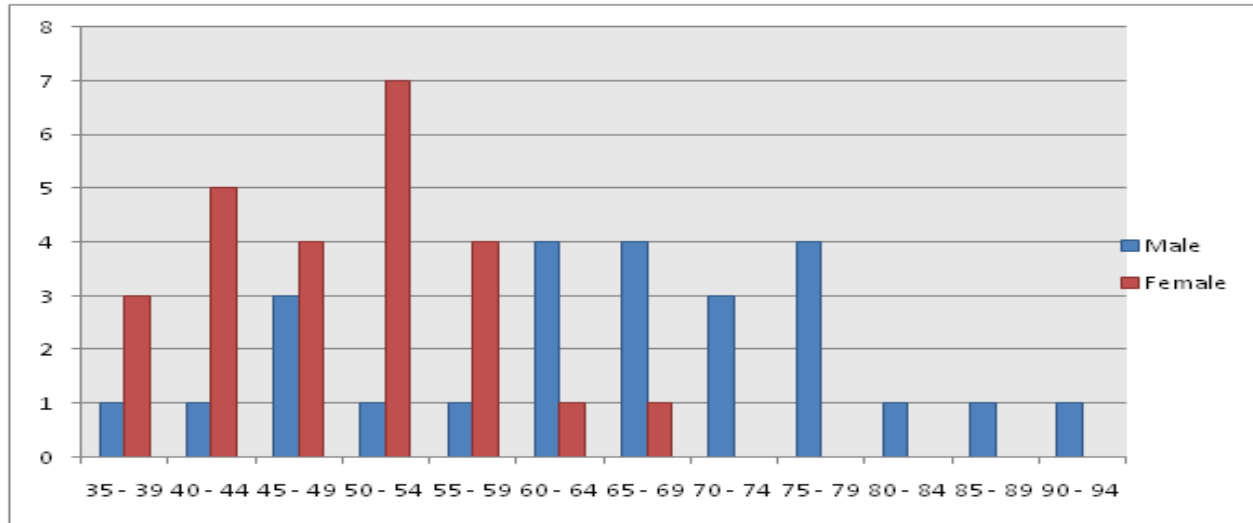
Figure No 4.1

Table No. 4.3.

Measures of "t" value between Boys and girls students of Private Secondary School

Variables	Number	Mean	S.D	M1~M2	S.E.D
Male	25	65.2	14.1333	0.0050	199.7563
Female	25	66.2	7.9162		

Table No. 4.3 shows that the obtained 't' value is less than the critical value respectively. We can conclude that there is no significant difference between boys and girls attitude towards mathematics of private secondary school students. They had more or less same study habits.

Table No. 4.4Distribution score on attitude towards mathematics of Government secondary school students

Class (1)	Frequency (f) (2)	Mid value (x) (3)	$d=x-A h=x$-635 A=63,h=5 (4)	$f \cdot d$ (5)=(2)×(4)	$f \cdot d2$ (6)=(5)×(4)	cf (7)
46 - 50	3	48	-3	-9	27	3
51 - 55	2	53	-2	-4	8	5
56 - 60	4	58	-1	-4	4	9
61 - 65	3	63=A	0	0	0	12
66 - 70	5	68	1	5	5	17
71 - 75	5	73	2	10	20	22
76 - 80	3	78	3	9	27	25
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	n=25	-----	-----	$\sum f \cdot d$=7	$\sum f \cdot d2$=91	-----

Mean=64.4   Median=66

Mode=69.2   SD=9.630

Table No. 4.4 shows that distribution of the attitude towards mathematics scores of all total 25 girl students. The modal value lies in the class interval 61 - 65 which contain the highest frequency f=3 and N =25. The distribution scores of attitude towards mathematics shown that mean (64.4), median (66), mode (69.2) and SD (9.6307).
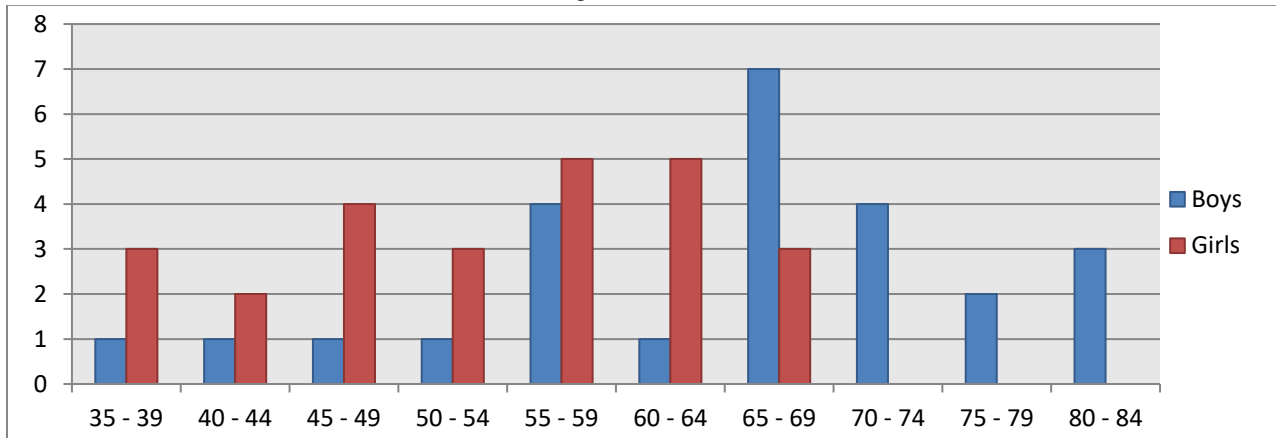
Table No. 4.5 Distribution score on attitude towards mathematics of Government secondary school students

Class (1)	Frequency (f) (2)	Mid value (x) (3)	d=x-Ah=x-625 A=62,h=5 (4)	f·d (5)=(2)×(4)	f·d2 (6)=(5)×(4)	cf (7)
35 - 39	1	37	-5	-5	25	1
40 - 44	1	42	-4	-4	16	2
45 - 49	1	47	-3	-3	9	3
50 - 54	1	52	-2	-2	4	4
55 - 59	4	57	-1	-4	4	8
60 - 64	1	62=A	0	0	0	9
65 - 69	7	67	1	7	7	16
70 - 74	4	72	2	8	16	20
75 - 79	2	77	3	6	18	22
80 - 84	3	82	4	12	48	25
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	n=25	-----	-----	∑f·d=15	∑f·d2=147	-----

Mean=65,   Median=67,

Mode=67.8333,   SD=11.9896

Table No. 4.5 shows that distribution of the attitude towards mathematics scores of all total 25 boy students. The modal value lies in the class interval 60 – 64, which contain the highest frequency f=1 and N =25. The distribution scores of attitude towards mathematics shown that mean (65), median (67), mode (67.8333) and SD (11.9896).

Figure No. 4.2

Measures of "t" value between boys and girls students of Government Secondary School.

Table No. 4.6.Measures of "t" value between boys and girls students of Government Secondary School

Variables	Number	Mean	S.D	M1~M2	S.E.D
Male	25	65	9.6307	-1950	3.0757
Female	25	64.4	11.9896		

*Table No 4.7*Attitude towards Mathematics of both Govt. & Pvt. School (girls)

Class (1)	Frequency (f) (2)	Mid value (x) (3)	d=x-Ah=x-685 A=68,h=5 (4)	f·d (5)=(2)×(4)	f·d2 (6)=(5)×(4)	cf (7)
46 - 50	3	48	-4	-12	48	3
51 - 55	5	53	-3	-15	45	8
56 - 60	8	58	-2	-16	32	16
61 - 65	6	63	-1	-6	6	22
66 - 70	13	68=A	0	0	0	35

| 71 - 75 | 8 | 73 | 1 | 8 | 8 | 43 |
| 76 - 80 | 6 | 78 | 2 | 12 | 24 | 49 |
81 - 85	1	83	3	3	9	50
	n=50	-----	-----	∑f·d=-26	∑f·d2=172	-----

Mean=65.4   Median:66.6538

Mode=68.4167   SD=8.9921

Table No. 4.7 shows that distribution of the attitude towards mathematics scores of all total 50 girl students. The modal value lies in the class interval 66 – 70, which contain the highest frequency f=13 and N =50. The distribution scores of attitude towards mathematics shown that mean (65.4), median (66.6538), mode (68.4167) and SD (8.9921).

Table No. 4.8Attitude towards Mathematics of both Govt. & Pvt. School (boys)

Class (1)	Frequency (f) (2)	Mid value (x) (3)	d=x-Ah=x-675 A=67,h=5(4)	f·d (5)=(2)×(4)	f·d2 (6)=(5)×(4)	cf (7)
35 - 39	2	37	-6	-12	72	2
40 - 44	2	42	-5	-10	50	4
45 - 49	4	47	-4	-16	64	8
50 - 54	2	52	-3	-6	18	10
55 - 59	5	57	-2	-10	20	15
60 - 64	5	62	-1	-5	5	20
65 - 69	11	67=A	0	0	0	31
70 - 74	7	72	1	7	7	38
75 - 79	6	77	2	12	24	44
80 - 84	3	82	3	9	27	47
85 - 89	2	87	4	8	32	49
90 - 94	1	92	5	5	25	50
	n=50	-----	-----	∑f·d=-18	∑f·d2=344	-----

Mean=65.2,   Median=66.7727,

Mode=67.5,   SD=13.1227

Table No. 4.8 shows that distribution of the attitude towards mathematics scores of all total 50 boy students. The modal value lies in the class interval 65 – 69, which contain the highest frequency f=11 and N =50. The distribution scores of attitude towards mathematics shown that mean (65.2), median (66.7727), mode (67.5) and SD (13.1227).

Figure No. 4.3
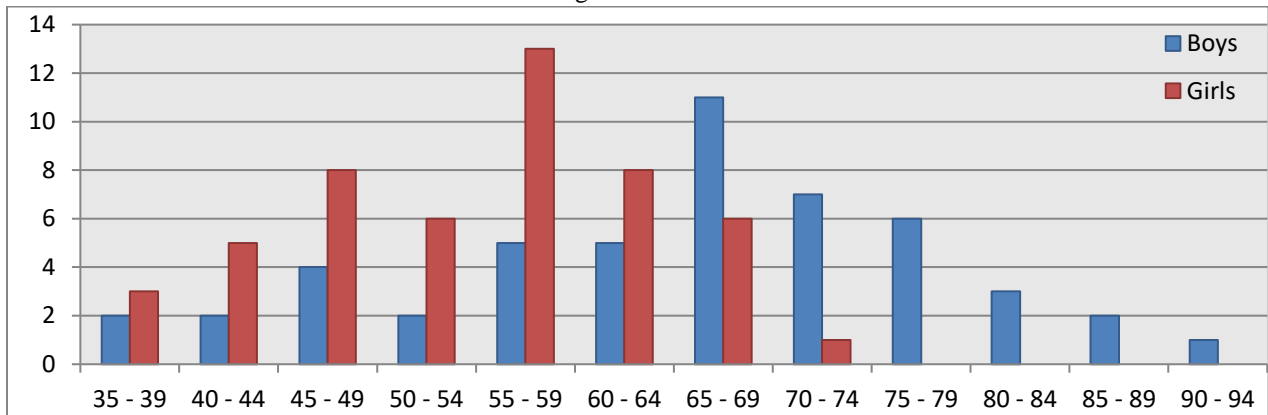
Measures of "t" value between boy and girl students of Government and Private Secondary school

Table No 4.9 *Measures of "t" value between Boys and Girls students of Govt. & Private Secondary school*

Variables	Number	Mean	S.D	M1~M2	S.E.D
Boys	50	65.2	13.1227	0.0889	2.2497
Girls	50	65.4	8.9921		

Table No. 4.10 Percentage wise of Govt. & Pvt. school boys and girls attitude towards Mathematics

Item No.	Sa	A	Na/Nd	D	Sd	Total
1	44%	13%	7%	20%	16%	100%
2	39%	27%	9%	10%	15%	100%
3	21%	25%	22%	19%	18%	100%
4	24%	50%	2%	11%	13%	100%

Table No. 4.11 Score of girls on Scale Unite

SL. NO.	SA	A	NA/ND	D	SD	TOTAL
1	44%	13%	7%	20%	16%	100%
2	39%	27%	9%	10%	15%	100%

Figure No. 4.4
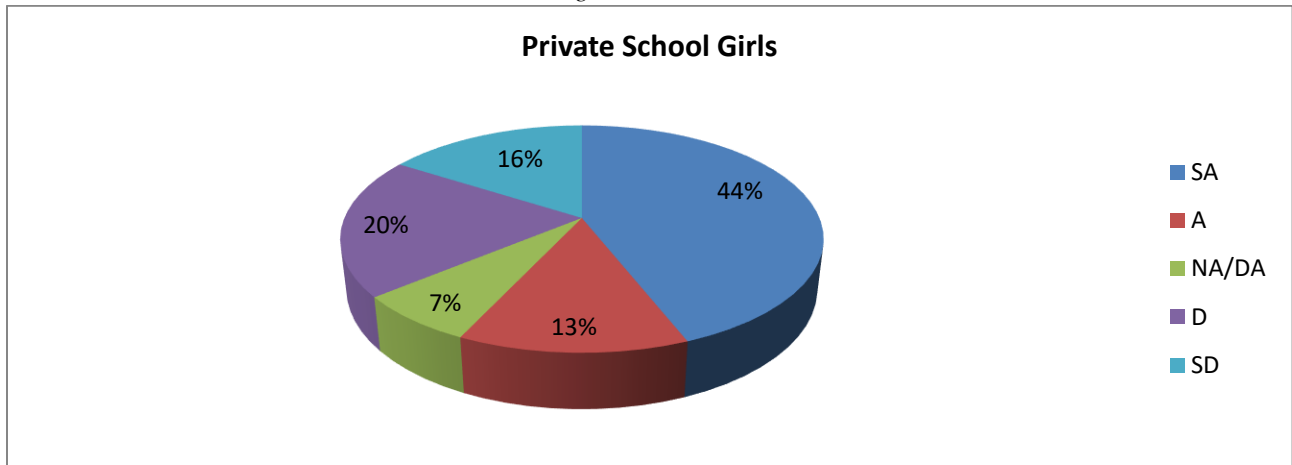
Figure No. 4.4: Pie diagram showing the percentage of response.

From the above figure, it is revealed that 44% of total students Strongly Agree, while 13% Agree, 7% Neither agree nor disagree, 20% Disagree and 16% Strongly disagree. Hence, it is found that maximum number of private school girls student strongly agree with mathematic subject.
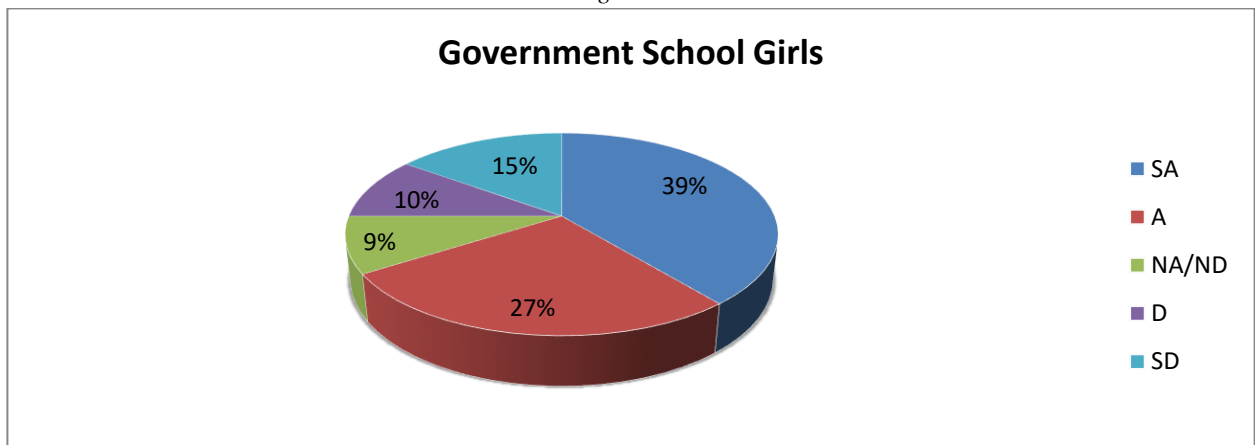
Figure 4.5

Figure No. 4.5 Pie diagram showing the percentage of response.

The above shows that 39% of total students Strongly Agree, while 27% Agree, 9% neither agree nor disagree, 10% Disagree and 15% strongly disagree. So, from the above response, it is observed that maximum girls student of Government school Agree with Mathematics Subject.

Table No 4.12 Score of boys on scale unite

Item No.	SA	A	NA/ND	D	SD	Total
1	21	25%	22%	14%	18%	100%
2	24%	50%	2%	11%	13%	100%

Figure 4.6

Government School Boys
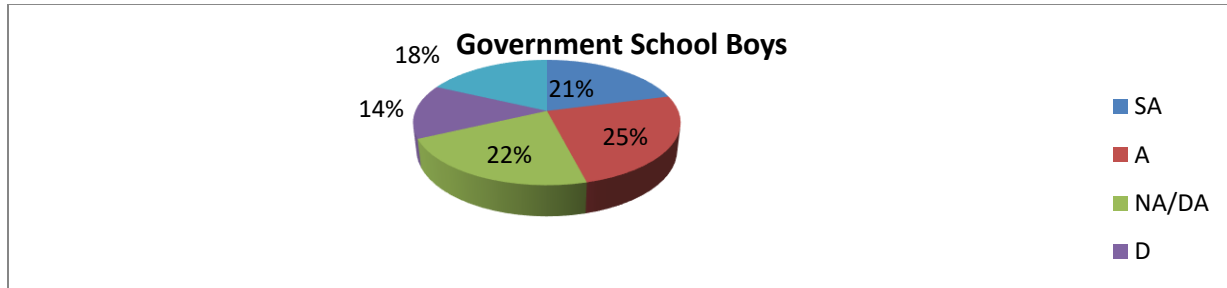
Figure No. 4.6 pie diagram showing the percentage of response shown that the percentage of government school students attitude towards mathematics subject. It revealed that 21% of total students strongly agree, while 25% agree, 22% neither agree nor disagree, 14% disagree and 18% strongly disagree with the statement. Therefore more students agree with mathematics subject.
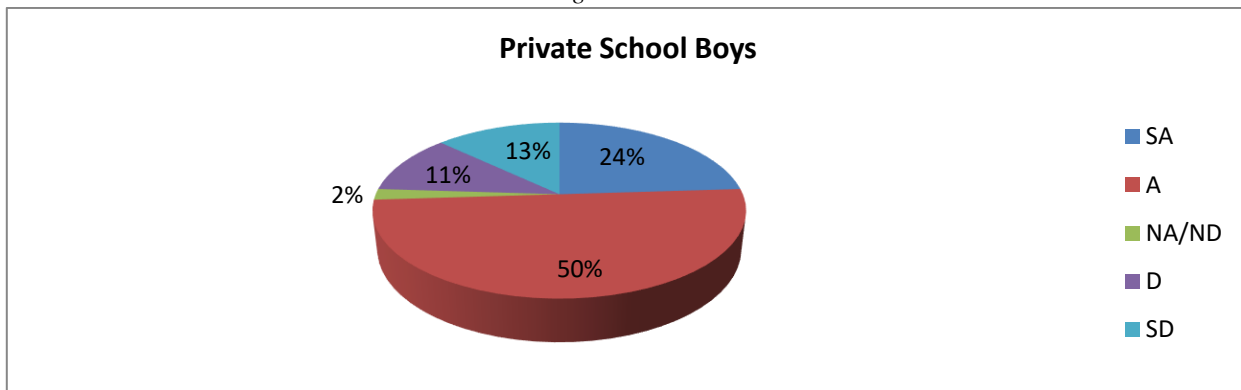
Figure No. 4.7

Private School Boys

Figure No. 4.7 Pie diagram showing the percentage of response.

Shown that the percentage of private school boy towards Attitude towards Mathematics subject. It revealed that 24% of total students Strongly Agree, while 50% agree, 2% neither agree nor disagree, 11% Disagree and 13% strongly disagree. So, from the above response, it is observed that maximum number of private school students male agree with mathematics subject.

FINDINGS

The major findings of the study are:

a. There is a no significant difference in attitude towards mathematics subject of Government and Private Secondary School students.
b. There is a no significant difference in attitude towards mathematics subject of boys and girls School students.
c. The majority of the girls' student considers that mathematics subject should be a compulsory subject at schools. They are also focuses on mathematics equally of other subjects.
d. The boys' students consider that mathematics is a hard subject but, it is very useful in life.

e. It is also revealed that majority of Private students feels that life without mathematics is incomplete.

f. Maximum number of students considers that mathematics is a subject for the smart pupil.

RECOMMENDATIONS

a. Motivation and encouragement should be given to the students regarding importance of mathematics Subject.

b. Teachers should contribute and create positive classroom environment by encouraging appropriate interaction that makes the students feel secure in the classroom.

c. Regular guidance and counseling should be provided to the required students.

SUGGESTIONS FOR FURTHER STUDY

- In order to have a better understanding on Mathematics subject, especially orientation subject.
- Female can give more attention on mathematics subject.
- The education department of every school they have to focus on Mathematics subject so student can attract more towards mathematics.
- More train teachers should be available in government schools.
- To organize Seminar, workshop so students can attract towards mathematics subject.
- Mathematics teachers should give reward to students so they can be interest in mathematics subject.

CONCLUSION

Mathematics Subject is regarded as the mother of all sciences. It helps to develop self-confidence, logical and critical thinking, self-reliance, sense of appreciation, scientific attitude, problem solving etc. It enables the students to discriminate between essential and non-essential. So every mathematics subject teachers should develop positive for children to express their thinking in order to create opportunities for learning and so that their existing constructions could be investigated by the teacher. It

can be generalized that average number of students possess favorable attitude towards mathematics however, female students have high percentage level in attitude than male students towards mathematics Subject.

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