A Survey on Self-efficacy in Mathematics of Class XI Students in West Bengal

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Abstract

The emergent role of self-efficacy in the learning of mathematics has attracted the attention of mathematics educators for a very long time. Students' self-efficacy in mathematics has been a generator that is known to influence their performance in mathematics. This study has attempted to find out students' self-efficacy in mathematics and further investigate any disparity in self-efficacy between students in different streams of study. The population for the study was Class XI students in the southern districts of West Bengal. The sample consisted of 784 students, both boys and girls from randomly selected 24 schools. The tool used is titled Mathematics Self-efficacy Questionnaire. The results show that self-efficacy in mathematics of students with different streams of study is significantly different. In particular, science students have the highest self-efficacy while that of Arts students, and there is significant gender wise difference in self-efficacy in favour of boys.
Keywords: *Self-efficacy, Streams, Performance, Mathematics Southern districts, West Bengal*

INTRODUCTION

Self-efficacy has been shown to be a forecaster of academic achievement (Fast et al., 2010; Pajaris, 2005). Thus, high self-efficacy implies confidence about academic skills, allowing the student to hone good skills, to expect good results in the examinations and to work objectively for it. Conversely, low self-efficacy relegates the student to expect failure even before attempting

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the task and subsequently low self esteem as per academics.

Self-efficacy is an individual's faith about one's power to carry out a task or perform certain behaviours successfully. Bandura, Barbaranelli, Caprara and Pastorelli (1996) contend that self-efficacy can influence a person's life in diverse ways (p. 1206).

Research has shown that self-efficacy influences various traits in the personalities of people. Bandura et al., (1996) have argued that qualities such as motivation, perseverance and resilience, and the power to think analytically are indications of positive self-efficacy (p. 1206). Thus, just praising the ability of the student will not necessarily induce one's self-efficacy. Rather, the accent should be on praising students' effort and persistence. This is particularly pertinent to the mathematics class. Even if succeeding in mathematics appears to be an uphill task, perseverance in the venture may yield success. Thus, the tenacity of the student in the pursuit of learning mathematics has to be lauded, over and above one's actual level of acquisition of learning.

Self-efficacy leads to less anxiety and greater confidence in tackling problems. Obviously, self-efficacy may lead to success in examinations. Conversely, students with low self-efficacy anticipate failure even before sitting for examinations, and thus, may not be very successful. This is all too relevant for mathematics examinations, where students may be expected to solve problems.

Geometry is a part of mathematics that requires the student to reflect on perceptions of spatial constructs. Cultivating a consciousness of visual spatial characteristics of children's environments and circumstances has the potential for enhancing their self-efficacy regarding geometric objects. This may make geometric ideas more intimate and within the control of the student.

Self-efficacy has been shown to power students' mathematical performance (Bandura et al., 1996; Fast et al., 2010; Pajares, 2005). Hodge (1999) found that mathematics self-efficacy is positively correlated with scores in mathematics examinations. Hendel (1980) contended that self-efficacy in mathematics, mathematics anxiety, and mathematics achievements were highly correlated. Moreover, Fast et al., (2010) found that students with low self-efficacy give up easily when confronted with difficult mathematical problems. Research shows that enhanced self-efficacy can improve geometry learning and this can even be achieved by interventions like creative activities (Canturk-Gunhan and Baser, 2007; Saracaloglu and Yenice, 2009; Usher, 2009; Yenilmez and Uygan, 2010).

Need and Significance

Self-efficacy is one of the important factors of effective mathematics teaching. It is a product of one's confidence and fluidity of the

situations one encounters. Thus, self-efficacy has the power to boost achievement in mathematics. Change in learning mathematics can focus on changing the mindset of students, so that they can develop a positive attitude towards the subject. This, in turn, can increase their self-efficacy and give them confidence in tackling mathematics related problems in academia and in everyday life.

OBJECTIVES

1. To measure the self-efficacy in mathematics among students of Class XI
2. To compare the self-efficacy in mathematics among Class XI students in different streams of study

METHODOLOGY

Sample

Population: The population of the study consisted of higher secondary students in southern districts of West Bengal.

For Quantitative Analysis

The population of this study comprised the boy and girl students studying in Class XI in West Bengal Council of Higher Secondary schools of Bankura and South 24 Parganas districts. Two sub-divisions from each of the districts were randomly selected. Two blocks from each of the sub-division were randomly selected. Three schools were randomly selected from each block. Thus, multi-stage sampling was adopted to select the sample for the present study. The sample consisted of 784 Class XI learners from 24 schools. Formal approval from the school Head Teachers were obtained in order to conduct this research. The sample design is given in the Tables 1 and 2.

Table 1
Method of Drawing the Sample

Sample State	Sample Districts/ Cluster	Sample Sub–divisions	Name of Blocks	No. of Sample Schools	Number of Students
West Bengal	Bankura	Bankura	Bankura I	3	95
			Bankura II	3	93
		Bishnupur	Bishnupur	3	85
			Katulpur	3	81
	South 24 Parganas	Baruipur	Baruipur	3	125
			Sonarpur	3	119
		Diamond Harbour	Mandir Bazar	3	95
			Magrahat II	3	91
			Total	**24**	**784**

Table 2
Stream-wise and Gender-wise Distribution of Students Participated

Gender	Streams			Total
	Science	***Arts***	***Commerce***	
Boys	188	124	95	407
Girls	159	181	37	377
Total	347	305	132	784

Source: School data obtained during field visit in 2014

Delimitation of the Study

Sample was collected from schools affiliated to West Bengal Council of Higher Secondary Education, in only Southern districts of West Bengal.

Tools Employed

1. The Personal Data Sheet

It consisted of particular information about the participants that is, name, age, gender, stream, name of school, marks obtained in Mathematics in Madhyamik examination, parents' educational qualifications, medium of instruction of school.

2. Mathematics self-efficacy Questionnaire (MSEQ)

Several scales related to self-efficacy were examined (Dutton, 1954; Dutton and Blum, 1968; Betz and Hackett, 1983; Pajares and Miller 1995). From among these, the Mathematics Self-efficacy and Anxiety Questionnaire by Diana K. May (2009) (also used in Rosly et al., 2017) was particularly appropriate for use in the present study. This consisted of two parts: items related to mathematics self-efficacy and those related to mathematics anxiety. The items were Likert type and the responses were Usually, Often, Sometimes, Seldom, Never and No Responses.

The items were positive in nature.

Adaption

The 14 items of the above test related to mathematics self efficacy were selected and translated into Bengali with nuances suitable for Bengali culture and language. This adapted questionnaire was named Mathematics Self-efficacy Questionnaire (MSEQ).

Standardisation

The questionnaire was subjected to validation by five experts for language as well as for semantics, and feedback thereon, was incorporated.

The questionnaire was further subjected to a pilot study on 152 participants to ensure suitability of language of the items and instruction. The feedback from the pilot study was incorporated.

The questionnaire was administered to 190 participants twice with a gap of three weeks. The test-retest correlation of the scores was 0.97 which was significant, thus

ensuring reliability of the adapted questionnaire.

The norms of the scale were established from the sample for standardisation (Anastasi, 1998; Anastasi and Urbana, 2005 p. 62).

Table 3
Self-efficacy Statistics Norms of the scale

		Self-efficacy
N	Valid	430
Mean		49.14
Median		51.00
Std. Deviation		12.443
Percentiles	25	40.50
	50	51.00
	75	58.00

Hypotheses

H_{0SG}: There is no significant difference in self-efficacy between the gender groups.

H_{0SS}: There is no significant difference in self-efficacy among three streams of study.

H_{0SBS}: There is no significant difference in self-efficacy among three streams of study among boys.

H_{0SGS}: There is no significant difference in self-efficacy among three streams of study among girls.

Data Analyses and Findings

Mathematics Self-efficacy Questionnaire (MSEQ) was administered to the sample and the responses were scored and tabulated, and subjected to descriptive and inferential statistics.

Objective (i): To Measure Self-efficacy in Mathematics among Students of Class XI

The self-efficacy scores were tabulated and analysed with reference to:

- The whole sample
- Gender wise analysis

The whole sample

The descriptive statistics of self-efficacy pertaining to the whole sample are shown below.

Table 4
Self-efficacy: Descriptive Statistics for Whole Sample

		Self-efficacy
N		784
Mean		50.94
Std. Error of Mean		.437
Median		54.00
Mode		57
Std. Deviation		12.239
Skewness		-.632
Std. Error of Skewness		.087
Kurtosis		-.341
Std. Error of Kurtosis		.175
Minimum		12
Maximum		70
Percentiles	25	42
	50	54
	75	61

Table 4 shows that the distribution of self-efficacy scores is negatively skewed, meaning that the participants show generally good self-efficacy as regards mathematics.

The mean self-efficacy scores of all students taken together is slightly higher than the local norm mean score.

The distribution of self-efficacy was tested for normality by the Kolmogorov-Smirnov Test and found to be not normal.

Gender-wise analysis

The descriptive statistics of self-efficacy scores pertaining to each gender is shown below.

Table 5
Gender-wise Descriptive Statistics of Self-efficacy

	Self-efficacy	
	Boys	***Girls***
N	407	377
Mean	51.93	49.87
Std. Error of Mean	.581	.655
Median	55.00	52.00
Mode	55	57
Std. Deviation	11.702	12.722
Skewness	-.841	-.429
Std. Error of Skewness	.121	.126
Kurtosis	.189	-.706
Std. Error of Kurtosis	.242	.251
Minimum	12	16
Maximum	70	69
Percentiles 25	45.00	40.50
50	55.00	52.00
75	61.00	60.00

From Table 5, it can be seen that the distribution of self-efficacy is not normal and is negatively skewed, both for boys and girls. The mean scores for boys and girls are slightly higher than the mean pertaining to the established norms of the sample for standardisation.

Gender-wise comparison of self-efficacy

Since the distribution of self-efficacy is not normal, the Mann Whitney U test was carried out to compare self-efficacy scores of boys and girls. The null hypothesis is—

H_{0SG}: There is no significant difference in self-efficacy between the two gender groups.

The result of the Mann Whitney U test is given under Tables 6 and 7.

Table 6
Mann Whitney U test of Self-efficacy and Gender

Gender	**N**	**Mean Rank**	**Sum of Ranks**
Self Efficacy 1	406	408.88	166004.50
2	377	373.82	140931.50
Total	783		

Table 7
Mann Whitney U test Value

	Self-efficacy
Mann-Whitney U	69678.500
Wilcoxon W	140931.500
z	-2.168
Asymp. Sig. (2-tailed)	.030

The Mann Whitney U test shows that the difference between the gender groups is significant at 5 per cent level. Thus, H_{0SG} is to be rejected, and there is a significant difference in self-efficacy between boys and girls. Table 6 shows

that boys show higher self-efficacy than girls.

Hence, it can be concluded that, there exists a significant gender wise difference in self-efficacy in favour of boys.

Objective (ii): To Compare the Self-efficacy in Mathematics between Students of Class XI in Different Streams of Study

A comparison has been carried out in the following steps with respect to self-efficacy.

- Stream-wise: whole sample
- Stream-wise within each gender
  - Boys: Stream-wise
  - Girls: Stream-wise
- Gender within each stream
  - Science: Gender-wise
  - Arts: Gender-wise
  - Commerce: Gender-wise

Stream-wise: The whole sample

The descriptive statistics of self-efficacy scores pertaining to each stream are shown below.

Table 8
Stream-wise Descriptive Statistics of Self-efficacy

	Self-efficacy		
	Science	***Arts***	***Commerce***
N	347	305	132
Mean	57.27	43.68	51.11
Std. Error of Mean	.495	.685	.916
Median	59.00	44.00	53.00
Mode	67	37	55
Std. Deviation	9.204	11.958	10.524
Skewness	-1.183	-.090	-.857
Std. Error of Skewness	.131	.140	.211
Kurtosis	1.450	-.622	.524
Std. Error of Kurtosis	.261	.278	.419
Minimum	21	12	17
Maximum	70	68	69
Percentiles 25 50 75	53.00	35.00	43.25
	59.00	44.00	53.00
	64.00	54.00	58.00

The mean self-efficacy score of science students is highest followed by that of commerce students, and with means that are higher than the mean self-efficacy score of the sample for standardisation of the self-efficacy scale. The mean self-efficacy score of arts students is least and is less than mean of the sample for standardisation.

The standard deviation of the scores for science students is the lowest, while that of arts students is the highest. This shows that the scores of science students are more homogeneous, while that of arts students is more dispersed.

The magnitude of skewness for science students is appreciably higher than that of commerce and arts students, showing that a greater proportion of science students have high self-efficacy.

To find out if there is a significant difference in self-efficacy between science, arts and commerce students, the Kruskal Wallis Test has been carried out (as the distributions are not normal). The null hypothesis for this purpose is—

H_{0SS}: There is no significant difference in self-efficacy among three streams of study.

Table 9
Kruskal Wallis Test
Self-efficacy and Streams

Streams	N	Mean Rank
Self-efficacy Sc.	347	513.23
Arts	305	257.84
Com.	132	384.21
Total	784	

	Self-efficacy
Chi-square	207.035
Df	2
Asymp. Sig.	.000

The Kruskal Wallis Test shows that the difference in self-efficacy between the streams is significant. Therefore, H_{0SS} is to be rejected, and this is a significance difference in self-efficacy between science, arts and commerce students.

To find out where this difference lies, the Mann Whitney U Tests were done between science and arts, arts and commerce and science and commerce streams. These tests show that the differences in self-efficacy between students of science and arts, arts and commerce and science and commerce streams are significant.

A summary of the tests is as follows from Table 10.

Table 10
Stream-wise Comparisons (Self-efficacy)

Science and Arts	Arts and Commerce	Science and Commerce
Sc.>Arts**	Com.>Arts**	Sc.> Com.**

***Note: significant at 0.01 level of significance*

This shows that science students have better self-efficacy than commerce and arts students. Also, commerce students have better self-efficacy than arts students.

Thus, the above analysis shows that participants in the science stream display significantly higher self-efficacy than those in other streams. Participants in the arts stream display significantly least self-efficacy than those in other streams.

Stream-wise analyses within each gender

The self-efficacy in mathematics on a stream-wise basis was compared among boys and girls separately.

Boys: Stream wise

The descriptive statistics of self-efficacy scores of boys pertaining to each stream is shown in Table 11.

Table 11
Boys: Stream-wise Descriptive Statistics of Self-efficacy in Mathematics

	Self-efficacy		
	Science	***Arts***	***Commerce***
N	188	124	95
Mean	56.41	45.19	51.93
Std. Error of Mean	.698	1.134	1.031
Median	58.00	47.00	54.00
Mode	54	37	55
Std. Deviation	9.551	12.628	10.048
Skewness	-1.195	-.336	-.850
Std. Error of Skewness	.178	.217	.247
Kurtosis	1.524	-.687	.861
Std. Error of Kurtosis	.354	.431	.490
Minimum	21	12	17
Maximum	70	68	69
Percentiles 25	52.00	35.25	46.00
50	58.00	47.00	54.00
75	63.00	55.75	59.00

To find out if there is a significant difference in self-efficacy between science, arts and commerce boys, the Kruskal Wallis Test has been carried out (as the distributions are not normal). The null hypothesis for this purpose is—

H_{0SBS}: There is no significant difference in self-efficacy among three streams of study among boys.

Table 12
Boys: Kruskal Wallis Test Attitude and Streams

Streams	N	Mean Rank
Self-efficacy Sc.	187	249.77
Arts	124	139.23
Com.	95	196.31
Total	406	

	Self-efficacy
Chi-Square	66.688
Df	2
Asymp. Sig.	.000

The Kruskal Wallis Test shows that the difference in self-efficacy between the streams is significant. Therefore, H_{0SBS} is to be rejected, and this is a significant difference in self-efficacy between science, arts and commerce boys.

To find out where this difference lies, the Mann Whitney U Tests were done between science and arts, arts and commerce and science and commerce streams. These tests show that the differences in self-efficacy between the boys of science and arts, arts and commerce and science and commerce streams are significant.

This is summarised as follows from Table 10.

Boys: Stream-wise comparison summary

Table 13
Summary of Stream-wise comparisons for boys

	Self-efficacy
Boys Science and Arts	Sc.> Arts**
Boys Arts and Commerce	Com.> Arts**
Boys Commerce and Science	Sc.> Com.**

***Note: significant at 0.01 level of significance*

This shows that Science stream boy have better self-efficacy than Commerce and Arts stream boys. Also, Commerce boys have better self-efficacy than Arts boys.

Girls: Stream-wise

The descriptive statistics of self-efficacy scores of girls pertaining to each stream is shown below.

Table 14
Stream-wise Descriptive Statistics of Self-efficacy in Mathematics

	Self-efficacy		
	Science	***Arts***	***Commerce***
N	159	181	37
Mean	58.29	42.65	49.00
Std. Error of Mean	.690	.847	1.896
Median	60.00	42.00	52.00

Mode	67	42	57
Std. Deviation	8.699	11.397	11.535
Skewness	-1.142	.072	-.811
Std. Error of Skewness	.192	.181	.388
Kurtosis	1.195	-.423	-.126
Std. Error of Kurtosis	.383	.359	.759
Minimum	26	16	21
Maximum	69	68	65
Percentiles 25	53.00	34.00	42.00
50	60.00	42.00	52.00
75	65.00	51.00	57.00

To find out if there is a significant difference in self-efficacy between Science, Arts and Commerce girls the Kruskal Wallis Test has been carried out (as the distribution are not normal). The null hypothesis for this purpose is—

H_{0SGS}: There is no significant difference in self-efficacy among the three Streams of study among girls.

Table 15
Girls: Kruskal Wallis test Self-efficacy and Streams

Streams	N	Mean rank
Self-efficacy 1 Sc.	159	263.53
2 Arts	181	125.67
3 Com.	37	178.53
Total	377	

	Self-efficacy
Chi-square	135.973
Df	2
Asymp. Sig.	.000

The Kruskal Wallis test shows that the difference in self-efficacy between the streams is significant. Therefore, H_{0SGS} is to be rejected, and this is a significant difference in self-efficacy between Science, Arts and Commerce girls

To find out where this difference lies, the Mann Whitney Tests were done between Science and Arts, Arts and Commerce and Science and Commerce streams. These tests show that the differences in self-efficacy between Girls of Science and Arts, Arts and Commerce and Science and Commerce streams are significant.

This is summarised as follows from Table 13.

Table 16
Summary of Stream-wise Comparison for Girls

	Self-efficacy
Girls Science and Arts	Sc.> Arts**
Girls Arts and Commerce	Com.>Arts**
Girls Commerce and Science	Sc.> Com.**

***Note: Significant at 0.01 level of significance*

This shows that Science streams girls have better self-efficacy than

Commerce and Arts streams girls. Also, Commerce girls have better self-efficacy than arts girls.

Gender-wise analysis within each stream

To find out if there is significant difference in self-efficacy between Boys and Girls in different streams suitable null hypotheses were formulated and tested by Mann Whitney U tests between Boys and Girls of the streams Science, Arts and Commerce respectively. These tests show that the differences in self-efficacy between Boys and Girls of the streams Science, Arts and Commerce are significant.

This is summarised as follows from tables 10 and 13.

Table 17
Summary of Gender wise analysis within each stream

	Self-efficacy
Science	Girls > Boys*
Arts	Boys > Girls*
Commerce	NS

**Note: significant 0.05% level of significance*

Observation

The self-efficacy of girls in Science stream is better than that of boys and self-efficacy of boys in Arts stream is better than that of girls.

Thus the above analysis shows that participants in the Science streams display significantly higher self-efficacy than in other streams. Participants in the Arts streams display significantly least self- efficacy than those in other streams.

Discussion and Conclusion

The sample, taken as a whole, displays a mean self-efficacy score higher than that of the sample for standardisation of the self-efficacy scale. However, when the three streams are observed apart, the mean scores of science and commerce students are higher than the norm set by the standardisation sample, while that of arts students is less. This indicates that arts students lack in self-efficacy.

Self-efficacy for mathematics assists in the confidence with which people can approach problems involving use of mathematics (Reyes, 1984). As science students use mathematics to a large extent, this familiarity with its utility is more profound. Arts students may not be as familiar with mathematical usages and so lack self-efficacy in Mathematics. Bandura's (1994; 1982) work on self-efficacy indicates that familiarity of usage can be a factor in enhanced self-efficacy. In fact, the generally intimidating image of mathematics may lead arts students to develop neurosis or even phobia regarding the subject, resulting in diminished self-efficacy (Belbase, 2013).

Another cause for enhanced self-efficacy among Science students is the nature of their studies as a whole as compared to students in other streams. Students of science require being alert and attentive to facts and having the need, and consequently, tenacity to carry out mathematical tasks. In fact, the process of carrying out scientific reasoning

and mathematical logic requires self validation at every stage (NCERT, 2006). This builds qualities like determination, perseverance and fortitude, and thus strengthens the roots of independent thinking, leading to self efficacy (Pajares, 2002; Griffin et al., 2010).

When the three streams of study are not considered separately, boys appear to display greater self efficacy in Mathematics than girls. This is the expected result that stems from cultural mores whereby boys are expected to be more adept at tackling mathematical problems than girls (Billington et al., 2007).

However, the results show an interesting variance when the sample is considered according to the different streams of study. In the science stream, girls show better self efficacy in Mathematics than boys. This is possibly an outcome of the perception of girls that being in the science stream is indeed a privilege. These girls therefore work towards achieving success, and acquire self confidence in doing mathematics in the process (Mata et al., 2012).

The phenomenon of girls showing better self efficacy than boys self-efficacy in Mathematics in the Science stream may also be the result of the divergent goals in the lives of boys. In our society, boys are on the lookout for opportunities to acquire lucrative vocations, or at least, jobs to earn money. Thus their focus on studies is often less than that of girls. Boys often do not give enough time and attention to the problem solving genre of Mathematics learning, and eventually lack in self-efficacy in the subject.

The finding indicates that the self-efficacy of Science students in Mathematics is higher than that of other students. This self-evident fact shows that students getting entry to the science stream in Indian schools have usually shown better performance in their Class X examination. In other words, the self-efficacy of science students comes from their motivation and determination towards achieving high personal goals. Thus, mathematics teacher should find ways of enhancing mathematics self-efficacy in students and should place emphasis on student's confidence to succeed mathematics achievement. Bandura and Locke (2003) in their study have shown that workers with high self-efficacy are more confident and that they can learn performance specific tasks. On the other hand, workers with low self-efficacy put less effort in learning and performing complex tasks because they cannot be sure they will succeed. The same logic may account for science students having greater self-efficacy.

The result generally showed that the self-efficacy of boys is greater than that of girls. This result has been corroborated in the case of self-efficacy in Mathematics by Belz and Hackett (1983) and Pajares and Miller (1994) They have shown that boys have greater self-efficacy than girls. Kvedere (2014) in Lativia has shown that among grade students, boys shows greater self-efficacy than girls.

Other researchers have shown that there is no gender difference in Mathematics self-efficacy (Cooper and Robinson, 1991; Goodwin, Ostrom and Scott, 2009). Lent et al., (1991) in fact showed that the gender difference decreases when male and female students are subjected to similar prior course work in Mathematics.

Mathematics is often seen to be a male domain (Brandell, 2007; Forgasz et al., 1999), in our society, and educational opportunity often favours boys. This may be a reason for the demonstration of better self-efficacy by boys. Boys are also pressurised to perform well in Mathematics for obtaining vocational opportunities. This pressure may be lacking among girls, many of whom may aspire to be home makers. 'This phenomenon further compounded in Africa where sex-stereotyping is so pervasive that from birth, society fixes gender roles and conditions males to play and act within the confines of intellectually and physically more challenging task like construction, moulding, football, palm-wine tapping, climbing, agriculture, fishing and the like. Women on the other hand, are 'sentenced' to the kitchen and related domestic chores, including child rearing' (Amao and Gbadamosi, 2015; Ezeameyi, 2002). By extension girls usually choose subject like Home economics, Biological science, Nutrition whereas boys select subjects like Chemistry, Physics, Agricultural science, Engineering, Mathematics and further mathematics (Graham, 2001). In school one hears girls students saying that science subjects are for the boys and this low motivation may further widen the gender gap in science achievement (Mutemeri and Mygweni, 2005). Thus self-efficacy is more evident among boys than girls.

Contribution of the study: When three streams are observed apart it shows Science and Commerce students have higher self-efficacy than Arts students.

Arts students may not be as familiar with mathematical usages and so lack of self-efficacy in mathematics.

May be another cause for enhanced self-efficacy among Science students is the nature of their studies as a whole as compared to students in other streams. Students of Science require being alert and attentive to facts and having the need, and consequently, tenacity to carry out mathematical tasks.

When the three streams of study are not considered separately, boys appear to display greater self-efficacy in Mathematics than girls.

When the sample is considered according to the different streams of study it shows an interesting variance. In the Science stream, girls show better self-efficacy in Mathematics than boys. This is possibly an outcome of the perception of girls that being in the Science stream is indeed a privilege.

Thus self-efficacy is more evident among boys than girls.

If mathematics teachers can enhance self-efficacy in mathematic among students, the students will be more motivated and determine towards success.

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