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Impact of Student-Teacher Relationship on Senior Secondary Students' Performance in Introductory Calculus

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Abstract
This study examined the impact of student-teacher relationship on students' performance in introductory calculus. The study adopted the descriptive survey design with a sample of 385 senior secondary class two students selected by simple random sampling from five out of fifteen public senior secondary schools in Port Harcourt City Local Government Area of Rivers State. Three research questions and two null hypotheses guided the study. Also, two instruments: Mathematics Teacher Student Relationship Questionnaire (MTSRQ) and Performance Test in Introductory Calculus (PTIC) were used for data collection. The instruments were validated by experts in Mathematics Education and their reliabilities of 0.76 and 0.72 obtained by test-retest method revealed high-reliability indices. Data collected were analysed using mean, standard deviation and ANOVA and the findings of the study revealed that, students with a positive relationship with their Mathematics teachers performed significantly better than the students with a negative relationship with their teachers in introductory calculus. The study also showed that the difference in the performance of the male and the female students with a positive and negative relationship with their Mathematics teachers was not significant. Recommendation made among others is that Mathematics teachers should ensure that there is a cordial or positive relationship between them and their students to enhance the teaching and learning of introductory calculus.

Keywords: Impact, student, teacher, relationship, performance, introductory calculus

Introduction

Mathematics as a discipline is very essential and indispensable because of its substantial use in virtually all facets of life. Mathematics has been in existence from time immemorial and has always formed the bedrock or basis of Science and other Science related disciplines. Mathematics has various areas which are broadly grouped into arithmetic, algebra, geometry, trigonometry, analysis. Analysis as a branch of Mathematics has its root in calculus. Calculus, which is the study of change, deals with limits, continuity, the differentiation and integration of functions of one or more variables. Introductory calculus which refers to basic calculus is one of the themes in the senior secondary Mathematics curriculum. It has been discovered with sufficient evidence that all over the world, majority of secondary school students' performance in Mathematics especially introductory calculus, has been repeatedly reported to be generally poor (Zalmon & Wonu, 2017; Zalmon & George, 2018). This general poor performance in Mathematics, specifically introductory Calculus; could be due to many factors in which the student- and-teacher factors are predominant. Interaction between teachers and students is a basic tool to enhance academic achievement and hence foster an inclination for learning.

Interaction is fundamental in establishing a relationship. Relationships form a complex part of our society and affect all areas of life. There are different forms of relationship which influence the decisions and choices made by people; relationships can be between people of different social strata and status with the sole aim of attaining specific goals or objectives. Irrespective of all other forms of relationship, this study is basically concerned with the relationship between teachers and students which is geared towards achieving academic goals. Considering the teacher-student relationship it is imperative that students have every tool they need to be successful – tools that include motivation which is not always intrinsic and therefore the onus of guiding students along the path to their own education might fall on others, that is, the teachers. It is important to note that a child spends five to seven hours of his time each day with his or her teacher and as such the teacher has an enormous influence on their students. The influence or power can significantly impact the learning environment in school.

Research has indicated that relationship between students and teachers is an important predictor of academic engagement and achievement; in fact, the most powerful weapons teachers have when trying to foster a favourable learning climate is a positive relationship with their students (Boynton & Boynton, 2005). The teacher as we know is saddled with the huge responsibility of meeting the needs of his/her students which can be emotional, academic, social, etc. These needs can be effectively met if there is a formidable relationship between students and teachers. The Mathematics teacher is instrumental to the development of the cognitive, psychomotor and affective domain of a child and that is why he should be friendly and approachable, thus creating a supportive and secure environment for better achievement in Mathematics. When students feel a sense of control and security in the classroom, they become more

engaged because they can approach learning with enthusiasm and vigour. This notion is supported by the social development and sociocultural learning theories of Lev Vygotsky. Vygotsky (1978) in Saul (2018) asserted that individual development cannot be understood without reference to the social and cultural context within which it is embedded and that higher mental processes in the individual have their origin in social processes. According to the sociocultural learning theory of Vygotsky, social interactions are fundamental or play an essential role in cognitive development. In the views of Vygotsky, learning has its basis in interacting with other people. Once this interaction has occurred, the information is then integrated on the individual. However, this interaction is strengthened by a positive relationship. The relationship between the student and the teacher is described as the student-teacher relationship. This relationship can be positive or negative. The student-teacher relationship is typically defined with respect to emotional support as perceived by the student and examined with respect to their impact on learning outcome. Therefore, it is important for teachers to recognize the impact they make on their students and should consider strengthening their students' perception of them.

The student-teacher relationship is one of the most difficult feats to attain but it is necessary in order to achieve a positive learning outcome. Every relationship is centred on effective communication; teaching calculus is made easier if there is proper communication between students and teachers. From my personal observation and experience, the much-needed communication and closeness between students and teachers are lacking and this has resulted in increased phobia for Mathematics especially in calculus, hence causing generally poor performance or achievement in Mathematics.

One of the purest and deeply inspirational relationships is that of a devoted teacher and willing student. Almost everyone has a favourite and those we like less. Human relations are considered the most important factor for a better social order. In the same way, teacher-student relations are considered as most important for a better school order. Teaching is far more than standing up in front of a class and relating facts to students, teaching is also about understanding individuals and groups of students. Teachers need to understand that the quality of their relationship with their students is very important and so should be held at high esteem. Understanding is likely to lead to empathy and, in turn, this will lead to a better student-teacher relationship, better lessons and less need for overt control. All these make for a reduction in the number of opportunities for disruptive conduct to occur.

Most teachers want students to like and respect them and students want the same from their teachers. It is easier to teach when the class is receptive just as it is easier to learn when the teacher is supportive. So, the challenge is to connect mindfully to students in ways that support optimal learning by building relationship characterised by respect and open communication. A good or positive student-teacher relationship has a great impact on student behaviour and academic achievement in the classroom. Terri and Robert (2012) stressed that children who have a good relationship with their teachers are able to interact with their teachers in an effective manner which in turn increases their academic achievement. On the other hand, if a formidable positive student-teacher relationship is lacking it will negatively impact students' behaviour and hence result in poor performance. Students will resist rules, procedures and they will neither trust teachers nor listen to what they have to say if they sense teachers do not value or respect them (Boynton & Boynton, 2005; Meagan, 2017). Negative interaction within the classroom can influence other classroom relationship. It is important, therefore, that a teacher builds a positive relationship with students as it has a profound effect on the student school experiences both within and outside of the classroom.

Creating good/positive teacher-student relationship is one of the attributes of a good teacher. Explaining the concept of positive teacher-student relationship; Josephine and Okai (2014) posits that the relationship between teacher and a student is good or positive when it has; openness or transparency, caring, interdependence (as opposed to dependency), separateness to allow each to grow and to develop his uniqueness, creativity and individuality and mutual needs meeting.

According to Josephine and Okai (2014), while humans never achieve perfection in anything they do, every teacher can improve relationships with young people so that they become more open, more caring, more interdependent, more separate and more satisfying. In a classroom where there is positive student-teacher relationship; teachers show their pleasure and enjoyment of students, they interact in a responsive and respectful manner, teachers offer students help, for example answering questions in a timely manner, teachers help students reflect on their thinking and learning skills, teachers know and demonstrate knowledge about individual students' background, interest, emotional strength and academic tenet and seldom show irritability and aggression towards students.

Teachers are the key implementers of the curriculum. Great teachers have high expectation for their students themselves. Teachers should recognise the importance of connecting with them, emotionally. If teachers must be able to reach and teach more students effectively, they must learn to read and respond to the messages of student diversity. In order to achieve expected educational goals in the classroom, classroom interaction is very crucial. The relationship between students and teachers is one of the major determining factors of the learning outcome due to the adverse effect of a negative relationship between students and teachers. Having a negative relationship is out of place and thus, developing a positive student-teacher relationship is essential for better academic achievement. In developing a positive student-teacher relationship, teachers should promote a healthy learning environment, put on a positive attitude and expectation and give feedback.

A conducive learning environment enhances learning and as such, it is the responsibility of the classroom teacher to ensure that both the physical and psychological environment is suitable for learning. The psychological environment can be improved by respecting children's individuality, being sensitive to their needs, being warm and positive to them, giving a patient hearing whenever children need it, winning their confidence, encouraging them and many more. To create a healthy psychological environment in the school according to Nayak and Rao (2009), teachers should seek to know the names of every individual child in the class and address them by their names, build on children's assets rather than harp on their limitations, and be a role model to the students- do not expect students to do tasks which we

ourselves do not do. Kim (2016) stated that one of the purest and deeply inspirational relationships is that of a devoted teacher and willing students. Almost everyone has a favourite and those we like less totally depend on how the student-teacher relationship was developed, nurtured and given space to evolve.

Teachers' expectations of student academic levels can also influence student performance adversely or favourably. For instance, a teacher who enthuses about mathematics and causes the students to enjoy the lessons is likely to achieve better performance and conduct in the subject. Hence, teachers also need to communicate high expectations, both academically and behaviour wise, to all students; communicating these expectations helps students to feel a sense of belonging in the classroom and thus improve academic performance.

Feedback given by a teacher is very important to relationships. Students who feel like the teacher is criticizing their person feel negatively towards the teacher and the relationship. With the knowledge of previous performance, teachers can make students believe that future effort could lead to success hence; they are likely to put effort and work toward accomplishing their goals while maintaining a positive and productive relationship with the teachers. In addition, one of the most critical aspects of control is how students interpret mistakes. Mistakes should be treated as learning opportunities and targets for further development. The goal is for students to learn (Skinner & Greene, 2008). Positive feedback and praise will not only encourage students to learn from their mistake; it is also vital to both building and maintaining a strong teacher-student relationship.

According to Deborah and Stephen (2009), academic performance improves when students feel safe and connected; in short when they are supported by a strong relationship with their teachers. Positive teacher-student relationships enable the student to feel safe and secure in their learning environments and provide scaffolding for important social and academic skills. Teachers who support students in the learning environment can positively impact their social and academic outcome which is important for the long-term trajectory of school and eventually employment (Baker, Grants, & Morlock, 2008; O'connor, Dearing, & Collins, 2011). When teachers form a positive bond with students the classroom becomes a supportive space in which students can engage in academically and socially productive ways (Hamre & Pianta, 2001). Students who have positive relationships with the teachers use them as a secure base from which they can explore the classroom and school setting both academically and socially to take on academic challenges and work on social-emotional development (Hamre & Pianta, 2001). Still, according to Hamre and Pianta, socio-emotional includes the relationship with peers, developing self-esteem and self-concept. Through this secure relationship, students learn about socially appropriate behaviours as well as academic expectations and how to achieve these expectations. Studies show that early teacher-student relationship affects early academic and social outcomes as well as future academic outcomes but few researchers have looked at the effects of teacher-student relationships in later years of schooling. Researchers who have investigated teacher-student relationships for older students have found that positive teacher-student relationships are associated with positive academic and social outcomes for high school students (Alexander, Entwisle & Horst, 1997; Cataldi, Kewall & Ramanii, 2009; Erin & Kathleen, 2007).

In addition, many studies focus on the importance of early teacher-student relationships, some studies have found that teacher-student relationships are important in transition years; the years when students transit from elementary to middle school or middle to high school studies of mathematics. Research on Mathematics competence in students transitioning from elementary to middles school has that students who move from having positive relationships with teachers at the end of elementary school to fewer positive relationships with teachers in middle school significantly decreased in mathematics skills. Furthermore, students who went from low teachers' closeness to high teachers' closeness significantly increased in Mathematics skills over the transition year. These studies show that relationships with teachers in the later years of schooling can still significantly impact academic achievement trajectories of students.

Statement of Problem

Over the years, research has shown that senior secondary students repeatedly fail Mathematics especially in external examinations like WAEC, NECO, JAMB, etc. The rate of failure has become so alarming and has, therefore, become an issue of great concern. Series of studies have been done on several areas to improve students' academic achievement but little or nothing has been done to fill in the communication gap between teachers and their students. According to Stipek (2006), relationships matter in teaching and learning. Most students are so distant from their teachers which makes it impossible for them to understand their teachers and vice versa. This poor student-teacher relationship can influence students' performance in Mathematics negatively. Zalmon and George (2018) reported that students and teachers perceived introductory calculus difficult to learn and teach respectively. The study is therefore poised to answer the question: what is the impact of student-teacher relationship on senior secondary students' performance in introductory calculus?

Aim and Objectives of the Study

The study investigated the impact of student-teacher relationship on senior secondary students' performance in introductory calculus. The objectives of this study are to:

1. Determine the type of relationship existing between students and their Mathematics teachers.
2. Find out the difference in the performance of students with positive and those with a negative relationship with their teachers in introductory calculus.
3. Investigate the difference in the performance of the male and the female students with positive and those with a negative relationship with their teachers in introductory calculus.

Research Questions

The following research questions guided the study:

1. What type of relationship exists between the students and their Mathematics teachers?
2. What is the difference in the performance of students with positive and those with negative relationship with their teachers in introductory calculus?
3. What is the difference in the performance of the male and the female students with positive and those with

negative relationship with their teachers in introductory calculus?

Hypotheses

The following hypotheses are formulated to guide the study:

1. There is no significant difference between the performance of students with positive and those with negative relationship with their teachers in introductory calculus.
2. There is no significant difference in the performance of the male and the female students with positive and those with negative relationship with their teachers in introductory calculus.

Methodology

Research Design

The study adopted the descriptive survey research design.

Population of the Study

The population of the study comprised 16,076 senior secondary students from the 15 public senior secondary schools in Port Harcourt City Local Government Area of Rivers State.

Sample and Sampling Techniques

A sample of 385 students, determined from the population using Taro Yamane formula was selected by simple random technique and used for the study. Five co-educational public schools in the area were selected using purposive sampling and used for the study.

Instrument for Data Collection

A modified instrument consisting of 30 items questionnaire tagged Mathematics Teacher-Student Relationship Questionnaire (MTSRQ) alongside a student Performance Test in Introductory Calculus (PTIC) containing 20 multiple-choice items were used to collect data in order to measure the relationship existing between students, their Mathematics teachers and their academic performance in introductory calculus.

Validity of the Instrument

Three Mathematics Educators validated MTSRQ and PTIC.

Reliability of Instrument

The reliabilities of MTSRQ and PTIC were established by the test-retest method using 20 students who were not part of the study. After correlating the test and re-test scores for each instrument using the Pearson Product moment correlation, 0.76 and 0.72 correlation coefficients were obtained for MTSRQ and PTIC respectively. The correlation coefficients of 0.76 and 0.72 showed that the instruments were reliable.

Method of Data Collection

MTSRQ and PTIC were administered to the students by the researcher with the help of the Mathematics teachers in the respective schools. The instruments were retrieved the same day they were administered.

Method of Data Analysis

Mean and standard deviation was used to answer the three research questions while Analysis of Variance (ANOVA) was used to test the two hypotheses at 0.05 significant level.

Results

Research Question One: What type of relationship exists between the students and their Mathematics teachers?

Table 1: Summary of mean and standard deviation on the relationship between the students and the Mathematics Teacher.

S/N	ITEM	HP	P	N	HN	MEAN	STD	REMARK
1.	Mathematics teacher's support for all students to learn Mathematics	216	115	47	7	**3.40**	0.77	Positive
2.	Mathematics teacher's attitude towards students	129	192	54	10	3.14	0.75	Positive
3.	Mathematics teacher's care for student academic and social well being	134	172	72	7	3.12	0.77	Positive
4.	Teachers' sensitivity towards students need	129	179	72	5	3.12	0.75	Positive
5.	Teachers' response to students' questions	145	185	48	7	**3.22**	0.73	Positive
6.	Teachers' view of students' personality	124	189	65	7	3.12	0.74	Positive
7.	My admiration for my teacher	133	162	73	17	3.07	0.84	Positive
8.	Mathematics teacher's use of various cultural activities in the lessons like mathematics practical	113	129	106	37	2.83	0.96	Positive
9.	Teachers attitude in guide students	133	181	57	14	3.12	0.79	Positive
10.	Encouraging students through feedback	130	169	70	16	3.07	0.83	Positive
11.	Acknowledging effort through recognition and praise	127	163	76	19	3.03	0.85	Positive
12.	Mathematics teacher elicits student's opinion in the decision-making process	112	157	92	24	2.93	0.88	Positive
13.	Teachers expectation for students' academic achievement	132	170	63	20	3.08	0.84	Positive
14.	Teacher allows students take risk without fear of embarrassment	110	177	72	26	2.96	0.86	Positive
15.	Teachers' attitude in assisting students	121	185	64	15	3.07	0.80	Positive
16.	Motivation for students through inspiring teaching	128	178	70	9	3.10	0.77	Positive
17.	Presentation of information for student understanding	121	178	63	23	3.03	0.85	Positive
18.	Teachers personality	136	171	65	13	3.12	0.80	Positive
19.	Acceptance for all students	140	146	81	19	3.06	0.87	Positive
20.	Teachers comments on student's ability to learn	136	163	74	12	3.10	0.81	Positive
21.	Teachers conduct	145	174	53	13	3.17	0.79	Positive
22.	Teacher tolerance of student disruptive behaviour	110	144	73	58	2.79	1.02	Positive
	Grand Mean					**3.08**	**0.82**	**Positive**

Table 1 shows the relationship between the students and Mathematics teachers. The table shows that there is positive relationship existing between students and teachers. That is, Mathematics teachers support all students to learn

Mathematics (M= 3.40); teachers' respond to students questions (M= 3.22); teachers conduct (M= 3.17); Mathematics teacher's attitude towards students (M= 3.14); Mathematics teacher's care for student academic and social wellbeing (M= 3.12); teachers' sensitivity towards students need (M= 3.12); teachers' view of students personality (M= 3.12); teachers attitude in guide students (M= 3.12); teachers personality (M=3.12) are major positive relationship existing between students and teachers.

Research question two: What is the difference in the performance of students with positive and those with negative relationship with their teachers in introductory calculus?

Table 2: Mean and standard deviation of the performance mean scores introductory calculus of students with positive and negative relationship with their teachers

	n	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
POSITIVE	311	81.6720	13.84016	.78480	80.1278	83.2162
NEGATIVE	74	71.0135	14.28621	1.66074	67.7037	74.3234
Total	385	79.6234	14.53000	.74052	78.1674	81.0794

Table 2 shows the mean and standard deviation of the performance mean scores in introductory calculus of students with positive and negative relationships with their teachers. The table further showed that students who have positive relationship with their teachers have higher performance mean score in introductory calculus (M= 81.67, Std.= 13.84) than their counterparts who have negative relationship with their teachers (M= 71.01, Std.= 14.29).

Research question three: What is the difference in the performance of the male and the female students with positive and those with negative relationship with their teachers in introductory calculus?

Table 3: Mean and standard deviation of the performance mean scores of the male and the female students with positive and negative relationship with their teachers in introductory calculus

GENDER	RELATIONSHIP	Mean	Std	n
MALE	POSITIVE	78.0882	16.63395	136
	NEGATIVE	69.0000	12.53231	35
	Total	76.2281	16.26836	171
FEMALE	POSITIVE	84.4571	10.42858	175
	NEGATIVE	72.8205	15.63544	39
	Total	82.3364	12.35845	214
Total	POSITIVE	81.6720	13.84016	311
	NEGATIVE	71.0135	14.28621	74
	Total	79.6234	14.53000	385

Table 3 shows the mean and standard deviation of the performance mean scores of male and female students with positive and negative relationship with their teachers in introductory calculus. The table further showed that female students with positive relationship have higher performance mean score in introductory calculus (M= 84.48, Std.= 10.42) than their male counterpart with positive relationship with their teachers (M= 78.09, Std.= 16.63). Also, female students with negative relationship have higher performance mean score in introductory calculus (M= 72.82, Std.= 15.63) than their male counterparts with negative relationship with their teachers (M= 69.00, Std.= 12.53). Hence, female students (M= 82.33, Std.= 12.36) perform better than their male counterpart (M= 76.22, Std.= 16.26).

Testing of Hypotheses

HO1: There is no significant difference between the performance of students with positive and those with negative relationship with their teachers in introductory calculus.

Table 4: Summary of one-way analysis of variance on the performance mean scores of students with positive and negative relationship with their teachers in introductory calculus

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6790.857	1	6790.857	35.015	.000
Within Groups	74279.533	383	193.941		
Total	81070.390	384			

Table 4 shows the summary of one-way analysis of variance on the performance mean scores of students with positive and negative relationship with their teachers in introductory calculus. The column labelled F (35.02) rejected the null hypothesis that states that; "there is no significant difference between the performance mean scores of students with positive and negative relationship with their teachers in introductory calculus", and retained the alternative hypothesis at 0.05 level of significance of F(1, 383) degree of freedoms. Since, F (1, 383) = 35.02, $p<0.05$.

HO2: There is no significant difference in the performance of the male and the female students with positive and those with negative relationship with their teachers in introductory calculus.

Table 5: Summary of two-way analysis of variance on the performance mean scores of male and female students with positive and negative relationship with their teachers in introductory calculus

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	10164.276[a]	3	3388.092	18.205	.000
Intercept	1376917.876	1	1376917.876	7398.596	.000
GENDER	1543.174	1	1543.174	8.292	.004
RELATIONSHIP	6384.097	1	6384.097	34.304	.000
GENDER * RELATIONSHIP	96.527	1	96.527	.519	.472
Error	70906.113	381	186.105		
Total	2521925.000	385			
Corrected Total	81070.390	384			

a. R Squared = .125 (Adjusted R Squared = .118)

Table 5 shows the summary of two-way analysis of variance on the performance mean scores of the male and the female students with positive and negative relationship with their teachers in introductory calculus. The table showed that gender is significant (F1, 381 = 8.29, $p<0.05$); student-teacher relationship is also significant (F1, 381 = 34.30, $p<0.05$). However, the interactive effect of gender and student-teacher relationship is not significant (F1, 381 =

0.52, p<0.05). Therefore, the null hypothesis that states that there is no significant difference in the performance means scores of the male and female students with positive and negative relationship with their teachers in introductory calculus is retained and the alternative hypothesis is rejected at 0.05 level of significance.

Discussion of Findings

Result shows that there is a positive relationship existing between students and their Mathematics teacher as shown by the grand mean of 3.08>2.50. Result also shows that students who have positive relationship with their teachers have the higher performance mean score in introductory calculus (m = 81.67, std = 13.84) than their counterpart who have negative relationship with their teachers (m = 71.01, std = 14.29). This difference in performance was statistically significant. That is, there is a significant difference in the performance mean scores of students with positive and those with negative relationship with their teachers. This unveils the fact that student performs better in Mathematics especially introductory calculus when they have a positive relationship with their teachers. Further findings revealed that female students with positive relationship have higher performance mean scores in introductory calculus (m = 84.48, std = 10.42) than male counterparts, also female students with negative relationship have higher performance mean score in introductory calculus (m = 72.82, std = 15.63) than the males. Statistically, gender is significant (F1 381 = 8.29, ρ<0.05), student-teacher relationship is also significant (F1, 381 = 34.30, ρ<0.05) but the interactive effect of gender and student-teacher relationship is not significant (F1, 381 = 0.52 ρ<0.05).

The present study relates to the following studies in one way or the other. Strained teacher-student relationships characterize many schools (Murray & Murray, 2005). Bohat (2017), studied the impact of the student-teacher relationship on academic performance of students of Punjab University and revealed that there is no significant difference between the performance mean scores of a student who have a positive and negative relationship with their teachers. Patricia (2014) studied the effect of student-teacher relationships on student learning. The study was conducted in a large public elementary school in a quiet neighbourhood setting in East Bay, Rhode Island. The target population using a single case study design was 775 (700 students and 75 teachers). She adopted the social constructivist theory in her theoretical framework and reported that a positive student-teacher relationship enhances the performance of pupils. Meagan (2017) studied the effect of the teacher-student relationship on the academic engagement of students. The study was a pre-experimental research design similar to a one group pre-test, post-test design. The study found out that students are more engaged in learning when there is a good teacher-student relationship. Tisome (2009) studied the impact of teacher-student interaction on student motivation and achievement and discovered that good or positive teacher-student interaction boost students' motivation and improve their performance.

Conclusion

The study revealed that there is a positive relationship existing between the Mathematics teacher and students. Also, there is a significant difference between the performance mean scores of students with positive and those with negative relationship with their teachers in introductory calculus. There is a significant difference in the performance mean scores of the male and the female students with positive and negative relationship with their teachers in introductory calculus in favour of female students with positive relationship with their teachers. However, the interactive effect of gender and student-teacher relationship is not significant. In conclusion, the alarming failure rate in Mathematics is an indication of a great wall of partition between the Mathematics teacher and his/her students which have led to parallel interest and constant conflict between the teacher and their students. This can be consolidated by bridging the gap through a positive relationship between teachers and their students; as a result, both male and female students are affected positively; hence, enhancing meaningful learning and effective performance in Mathematics.

Recommendations

Based on the findings, the following recommendations are made:

1. Mathematics teachers should ensure that they have a positive or good relationship with their students.
2. In order to overcome the difference in students' performance in Mathematics, the teacher should ensure that he/she builds a good relationship with the male as well as the female students.

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