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EFFECTS OF TEACHERS - STUDENTS RELATIONSHIP ON STUDENT'S PERFORMANCE AND INTEREST IN LEARNING MATHEMATICS.

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Abstract

The study investigates how the relationship between students and teachers help in stimulating students interest in learning thereby leading to improved students outcomes in mathematics. A descriptive survey research design was adopted, with two hundred students randomly selected from five different schools. Data were analyzed using mean, grand mean. It was established that the teachers have important role in developing, nurturing and maintaining good relationship with their students. Teachers are required to foster positive relationship with their students to create a conducive environment (classroom) for teaching and learning activities and also meet students' developmental, emotional and academic needs. Recommendations include: (i) encouraging mentorship in school so that mentors will know and meets the needs of the students and hence encourage and improve students interest in mathematics,(ii) qualified and sound minded teachers should be employed in order to develop, nurture and maintain good relationship between the teachers and students,(iii) seminar or workshop should be organized at least once or twice in a year for teachers in order to enlighten them more on how to relate, communication and associate with their students.

Keywords: *Mathematics, Relationships, Learning, Interest.*

Introduction

The bright future of every country depends upon the educational system that builds morality and behaviours of its citizens. This future requires attractive investment in education at global scale (Schommer-Aikens, Duell & Hunter, 2021). Education is considered as the optimal instrument that is used for the integration of the individuals with the society for the sake of developing national goals and achieving high levels of progress, promotion of unity, self-actualization and strive for political constancy, social evolution, economic welfare, scientific standards, cultural consciousness and technological progress (Hanushek & Wobmann, 2019). Acquiring such multi-faceted goals require mathematics to be studied as a fundamental component of education

The inclusion of mathematics as a core subject in the Secondary School curriculum is due to the key roles mathematics has to play in the achievement of the objectives of the secondary school education, such as promoting of science and technology, provision of trained manpower in the applied sciences, technology and commerce, and the acquisition of appropriate skills, abilities and competence both mental and physical, as equipment for the individual to live on and contribute to the development of his society (Federal Republic of Nigeria, 2014).

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Mathematics is the foundation of science and technology and the functional role of mathematics to science and technology is multifaceted and multifarious that no area of science, technology and business enterprise escapes its application (Okereke, 2022). According to Kurumeh (2021), Mathematics is one subject that is globally recognized as important because of its relevance to science and technology. It has been described as the backbone of all scientific investigations and all activities of human development.

The importance of mathematics in the development of any Nation cannot be overemphasized. It is in this view that Kyari, Obed and Yalwa (2018) pointed out issues in mathematics education in Nigeria to include: availability and competence of mathematics teachers, issues of stigmatization and gender to mathematics, issues of learner's interest and issues of Funding.

Performance is defined as an observable or measurable behaviour of a person or an animal in a particular situation, usually an experimental situation (Simpson, 2015). This therefore means that performance measures the behaviours or an aspect of a feat that can be observed at a specific period. (Adedeji, 2018) stated that students' performance is very important because it appears to be the major criterion by which the effectiveness and success of any educational institution could be judged.

Students are influenced by perceptions of their teacher's even handedness, competence, caring and support as well the nature of the teacher – student relationship that results. A student wants to feel connected to people and to feel as though he or she deserves to be loved and respected (stipek, 2010). According to Stipek many of the students who are not doing well academically, are the same ones who have a poor relationship with their teachers. Typically, the more the fall behind academically, often, the more this relationship is weakened. If they constantly remains back in class, the environment and the teacher – student relationship begin to hold negative associations. Students who perceived a more nurturing relationship with their teachers tended to have better attitudes towards academics and often did better than their peers who lacked the same support system. Some other researchers supported the idea that a good teacher – student relationship positively influenced learning. The more connected a child feels, the more they are willing to attempt tasks and to seek help when necessary. The student who feels this sense of connectedness may want to maintain it or please the teacher by doing well in class.

Hyman and Snook (2011) defined emotional maltreatment in schools as "any disciplinary or motivational practice that psychologically hurts children". These includes humiliation, rejection, excessive authority, sarcasm, and other disciplinary technique can develop (in the child) a cluster of symptoms, such as neurotic traits, habit disorders, behavior extremes shyness, with drawal (Bhasin , 2017), intimidation, anxiety or impulsive behavior (Chandler, 2015). These manifestations may be temporary or may last the student's entire life. However dysfunctional and poor interactions and relationship of teacher and students may negative influence the students psychologically and academically.

Statement of the Problem

Students who have difficulty forming supportive relationships with teachers are at greater risk of school failure. Poor relationships may be conceptualized as producing concurrent risk, with conflict between a student and teacher that leads to problems in the classroom during that school

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year, or chronic risk, with students developing a pattern of negative relationships with teachers over time. Unfortunately, most of the research on poor student–teacher relationships as a source of risk has focused on elementary school students. This study focus on the students -teachers relationship and academic performance in secondary schools.

1.3 Research Objectives

The primary purpose of this study is to investigate the effect of teacher-student relationships on students' Performance and interest in learning mathematics. By examining the quality and nature of teacher-student relationships and their influence on student interest,

Research Questions

The following questions were formulated to guide the study;

1. What is the effect of teacher-student relationships to student's performance in Mathematics in secondary school Abeokuta South L.G.A?
2. To what extent does the quality of teachers-students relationship affect the performance of students performance in mathematics
3. Is there any correlation between positive teacher-students relationship and students motivation to learn?
4. To what extent do positive teachers-students relationship affect student's interest in learning mathematics?

Hypothesis

The following hypotheses will be tested to guide this study:

1: There is no significant effect of interaction between teacher and students on academic achievement in mathematics in secondary schools in Abeokuta South L.G.A.

2: There is no significant effect of non-cordial relationship between the teachers and students on students' interest in learning mathematics in Abeokuta South L.G.A.

Methodology

Research Design

A descriptive survey research design was adopted for the study, since the opinions of respondents were collected from the field.

Population of the Study

The population for this study consists of two thousand three hundred and fifty-six (2,356) students from eighteen (18) secondary schools in Abeokuta South Local Government Area.

Sample and Sampling Technique

The sample used for this research was two hundred (200) students from five selected secondary schools in Abeokuta South Local Government Area. The sampling technique used in this study was simple random sampling technique.

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Instrument for Data Collection

The questionnaire is the instrument for data collection. It is structured based on the research questions that guide the study. A four-point scale of very large extent [VLE] large extent [LE] small extent [SE] and very small extent [VSE] were used.

Validation and Reliability of Instrument

The test instruments was administered to students of a public secondary school in a pilot study to determine the validity and reliability of the test items. Degree of difficulty was calculated to identify items that needed to be removed or re-framed. The Instrument were finally validated through Principle Component Analysis. Internal consistency of the instruments was calculated using coefficient alpha to assess the internal consistency of the item.

Method of Data Analysis

The data were analyzed using mean and grand mean in other to determine the extent of accepted and rejected in each of the statement in the questionnaire item. Normal values were assigned to different scaling items as follows:

Very Large Extent	(VLE)	=	4
Large Extent	(LE)	=	3
Small Extent	(SE)	=	2
Very Small Extent	(VSE)	=	1
Total		=	10

A cut off was determined by finding the mean of the nominal values assigned to the option in each questionnaire items, using the formula

$$\overline{X} = \frac{EFX}{EF}$$

Where X = mean
EFX = sum of the score
N = number of the item

Thus $\overline{X} = \frac{4+3+2+1}{4} = \frac{10}{4} = 2.5$

Decision Rule

Hence any of the response that have mean score of 2.4 and above were regarded as accepted while any value below 2.5 was regarded as rejected.

RESULTS AND DISCUSSION

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Table 1: Effect of Teacher-Student Relationships to students' academic performance and interest in Mathematics

Effect of Teacher-Student Relationships to students' academic performance and interest in Mathematics		**Students**		**Teachers**	
		F	**%**	**F**	**%**
Helps students feel a strong connection to the teachers		-	-	50	87.7
It help students to feel cared for by their teachers in the learning contexts		-	-	48	84.2
It builds trust and responsibility among teachers and students from day one of being in schools		36	54.5	-	-
It help students to have freedom of expression in the classroom		-	-		
It causes students to feel ownerships in the classroom		30	45.4	-	-
It allow teachers and students to be an integral part of the classroom as they participate actively		46	69.9	-	-

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Table 1 reveals that 87.7% of the respondents agree that teacher –student'srelationships help students feel a strong connection to the teacher in the classroom, 84.2% indicate that teacher – students relationships help students to feel cared aboutby their teachers in the learning contexts, 94.7% say that teacher – student's relationships help students to feel ownership in the classroom. Interestingly, 54.5% indicate that teacher - students' relationships build trust and responsibility among teachers and students from day one of being in the school environment, 45.4% indicate that the teacher - students relationships make students feel ownership in the classroom, while 69.9% indicate that teacher – students relationships allow teacher and students to be an integral part of the classroom. This conforms with Myers and Pianta (2021) who said teacher – students relationships are fundamental to healthy development of students in school especially to the students' self-esteem.

Table 2: To what extent do positive teacher-student relationship stimulates students interest in learning mathematics?

	ITEMS	VLE	LE	SE	VSE	TOTAL	$\overline{X}$	DECISION
1.	My teacher makes me feel respected, and this increases my interest in learning.	50 200	55 165	70 140	25 25	200 530	2.65	Accepted
2.	When my teacher shows support and encouragement, I become more motivated to participate in class.	40 160	65 195	40 80	55 55	200 490	2.45	Rejected
3.	A friendly and approachable teacher makes me more interested in the subject being taught.	58 32	55 165	46 98	38 38	200 533	2.67	Accepted
4.	I am more willing to learn when my teacher listens to my concerns and responds positively.	60 240	80 240	25 50	35 35	200 565	2.83	Accepted

Total mean = 10.4

$\frac{10.4}{4} = 2.6$

From the computed mean in table 1; it was found that item (1, 3, 4) where above the cut of point of 2.5 and therefore accepted. While item (2) where below 2.5 and therefore rejected to what extent do teachers reinforce the students in their class

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Table 3: Is there any correlation between positive teacher student relationship and students motivation to learn?

	ITEMS	VLE	LE	SE	VSE	TOTAL	$\overline{X}$	DECISION
1.	When my teacher treats me with respect and understanding, I feel more motivated to learn.	53 212	67 201	30 60	30 50	200 523	2.6	Accepted
2.	A positive and supportive relationship with my teacher encourages me to put more effort into my studies.	35 140	56 168	40 88	65 65	200 461	2.3	Rejected
3.	I am more willing to participate in class activities when I have a good relationship with my teacher.	45 180	50 100	40 70	65 65	200 425	2.1	Rejected

Total mean = 7

$\frac{7}{4}$ = 1.75

= 2.0

From the computed mean in table II it was found that item (1) were above the cutoff point of 2.5 and therefore accepted While item (2, 3) were below 2.5 and therefore rejected.

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Research Question 4:

Table 4: To what extent do positive teacher-student relationship affect students' interest in learning mathematics ?

	ITEMS	VLE	LE	SE	VSE	TOTAL	$\overline{X}$	DECISION
1.	My Mathematics teacher's friendliness and approachability make me more interested in learning mathematics.	55 220	51 153	40 80	54 45	200 510	2.5	Accepted
2.	When my Mathematics teacher shows support and encouragement, I become more motivated to study Mathematics.	34 130	63 180	55 110	51 51	200 477	2.3	Rejected
3.	A respectful relationship with my Mathematics teacher increases my willingness to participate in Mathematics lessons.	60 240	40 120	30 60	70 70	200 490	2.4	Rejected
4.	I find Mathematics more enjoyable when my teacher listens to me and addresses my learning challenges.	61 244	58 174	41 82	40 40	200 540	2.7	Accepted
5.	A positive teacher –student relationship makes me more confident and interested in solving Mathematics problems.	30 120	55 165	45 90	70 70	200 445	2.2	Rejected

Total mean = 12.2

$\frac{12.2}{4} = 3.05$

$= 3.0$

From the computed mean in table III it was found that item (1,4) were above the cut off point of 2.5 and therefore accepted on to what extent do teachers use leisure time to engage the students in a friendly chat? While item (2,3,5) were below 2.5 and therefore rejected to what extent do teachers use leisure time to engage the students in a friendly chat.

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Discussion of Findings

The study revealed that teacher–student relationships (interactions) exert a strong, positive, and statistically significant influence on students' performance in Mathematics. This underscores the pivotal role of interpersonal dynamics within the classroom in shaping learners' cognitive and academic outcomes. Positive teacher–student relationships—demonstrated through respect, encouragement, constructive feedback, and effective communication—were shown to contribute significantly to enhanced learning experiences and improved academic achievement.

These findings align with those of Zhang et al. (2020), who reported that teacher–student interactions strongly and positively influence academic performance. Their study emphasized that learners are more motivated, attentive, and academically engaged when teachers establish supportive classroom relationships.

Although effective interactions were observed in several schools, some gaps were identified. These include limited opportunities for students to independently identify learning challenges or engage in brainstorming activities that stimulate critical and creative thinking. Additionally, teachers tended to prioritize instructional delivery over the modeling of social and emotional learning (SEL) competencies such as empathy, collaboration, and emotional regulation.

These gaps may hinder students' holistic development and reduce their interest in learning. The findings are consistent with Wei (2021), who argued that meaningful teacher–student interactions foster inquiry, reflection, dialogue, and collaborative engagement in the classroom.

This aligns with Myers and Pianta (2021), highlighting the critical role of teacher-student relationships in students' healthy development and self-esteem.

Conclusion

The study concludes that teacher–student relationships are fundamental determinants of students' academic performance in Mathematics. Positive interactional practices significantly enhance academic outcomes, while gaps in instructional and interpersonal practices may reduce students' motivation and performance.

Recommendation

Based on the findings and conclusions reached, the following recommendations were made:

1. Mentorship should be encouraged in schools to foster and improve the relationship between the teachers and students.

2. Qualified and sound minded teachers should be employed, so that the will be able, willing and disposed to develop, nurture and maintain good relationship between them and their students.

3. Seminar or workshop should be organized at least once or twice in a year for teachers in order to enlighten them more on how to relate, communicate, associate and meets the needs of their students.

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