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Influence of Student-Teacher Relationship on the Academic Performance of Junior Secondary School Students in Mathematics in Makurdi Local Government Area of Benue State, Nigeria

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Abstract

This study explored the influence of student-teacher relationship on the academic performance of Junior Secondary Schools students in mathematics in Makurdi Local Government Area of Benue State, Nigeria. A descriptive survey design was used in this study. The sample for this study was 309 Junior Secondary School III students that were drawn from a population of 1364 using simple random sampling. Four research questions

were formulated to guide the study. The instrument for data collection was the Student-Teacher Relationship Questionnaire (STRQ). The research questions were analyzed using mean and standard deviation. The result of this study indicated that consistent communication between students and their teachers, teachers' creating an emotionally open-learning space, teachers' display of true equity and teachers' display of mutual respect has a high influence on the academic performance of Junior Secondary School III students in Mathematics in Makurdi Local Government Area of Benue State, Nigeria. Based on the findings, the study recommended that students across all levels of education should build positive student-teacher relationship with their teachers by engaging actively in classroom activities, showing respect to the mathematics teacher and also try as much as possible to communicate consistently with the mathematics teacher. The study also recommended that mathematics teachers should be encouraged to improve on their personal relationship with their students as this will enhance the academic performance of the students, and they should also bring their wealth of experience in teaching of mathematics to the level of students' aptitude to make personal relationships of students with their teachers more interesting so as to arouse the interest of the students to academic excellence.

Keywords: Student-Teacher Relationship, Mathematics Education, Educational Administration, Consistent Communication, Mutual Respect, Emotionally Open-Learning Space, Basic Education

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, 2005). 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, 2007). 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).

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, 2006). According to Kurumeh (2006), 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.

Mathematics is the science of reasoning and computations. It is the science or study of numbers, quantities or shapes. Kitta (2004) defines mathematics as the language that helps us to describe ideas and relationships drawn from the environment. Mathematics enables one to make the invisible to be visible, thereby solving problems that would be impossible otherwise. Mathematics as a father of all science and as well as an integral part of everyday life, play a vital role in every human. Despite the fact, students themselves see the need for the knowledge of mathematics in almost all the subjects learned in school.

Mathematics is one of the school subjects that any nation needs for industrial and technological advancement, useful for most vocation and higher specialized courses of learning (Odili, 2006; Sidhu, 2006). According to Nwoke and Nnaji (2011), mathematics is the study of quantity, structures, space and change. It developed through the use of abstraction and logical reasoning, from counting, calculation, measurement and the study of the shapes and motion of physical objects. Mathematics is an excellent vehicle for the development and improvement of a person's intellectual competence in logical reasoning, spatial visualization, analysis and abstract thought (Curriculum Planning and Development Division, 2007). Students who study mathematics, therefore, develop numeracy skill, reasoning, thinking skills and problem solving skills through the learning and application of mathematics.

Mathematics has the ability to confuse, frighten, and frustrate learners of all ages. If a child has a negative experience in mathematics, that experience has the ability to affect his/her attitude toward mathematics as an adult. Okereke (2010) stated that mathematics is the science of things that have a pattern of regularity and logical order and finding and exploring the regularity. The importance of mathematics in the world cannot be over-emphasized. There is a general consensus among educators that mathematics is an important and useful subject for development in every country. The use of mathematics has been with man even before the introduction of formal education (Sambo, 2013).

Mathematics is a way of life since it enables us to organize experiences and use them in life. Mathematics education is important since it helps to prepare the student to live a life useful to him or her and the society. It is also a way of communication by use of symbols, numbers and operations. All of us in daily life encounter such communication. Therefore, it is important that students learn and understand how to prepare these numbers and symbols (Kane & Mertz, 2012).

Similarly, mathematics is widely regarded as one of the important subjects for entry into various careers and further training. This is because it shapes the mind and prepares students for pure and social sciences. The students are taught to think logically, creatively and independently. For this reason, it is important that all students have the opportunity and support necessary to learn mathematics in depth and with understanding (Kane & Mertz, (2012).

Mathematics is one of the core subjects in both junior and senior secondary school curricula in Nigeria, which justifies its recognition as being essential in the development of technological advancement in Nigeria. The Federal Government of Nigeria made

mathematics compulsory and one of the core subjects in both primary and secondary schools because of its usefulness (Federal Republic of Nigeria, 2004). Some of the roles of Mathematics according to Nurudeen (2007) includes: its ability to enhance the thinking capabilities of individuals by making them to be more creative, reasonable, and rational as well as imaginative. There is no school curriculum or a national development plan which does not take cognizance of the usefulness and development of mathematics in schools.

Despite the importance of mathematics, there are a number of observable problems associated with its teaching and learning especially at the secondary school level (Jega & Bashir, 2018). These problems include poor method of instruction (Kalijah, 2002). Akuezuilo and Chinweoke (2009) assert that for students to have high academic achievement in mathematics, teachers should be able to skilfully apply relevant instructional materials in order to drastically reduce the abstract and difficult attributes of mathematics.

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, 1989). This therefore means that performance measures the behaviours or an aspect of a feat that can be observed at a specific period. (Adedeji, 1998) 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.

The performance of students in any academic task has always been of special interest to educators, parents and society at large. The primary concern of any educator who is entrusted with the responsibility of selecting students for any advance training programme in a given field is the ability to estimate as accurately and as early as possible, the probability that such candidates will succeed or fail.

Scholars have defined academic performance in many ways. According to Maruff (2012), academic performance is the combined outcome of attitude and interest, though the two variables are positively correlated, a high value of one necessarily means a high value of the other. Academic performance of students is a vital indicator which policy makers, educational planners and other stakeholders in education are interested in.

Wikipedia (2021), defined Academic performance as the outcome of education; it is the extent to which a student, teacher or institution had achieved their educational goals. The academic performance of secondary school students in Nigeria has become a great concern to all education stakeholders in recent times. This is supported by Adeyemi and Adeyemi (2014) who stated that there has been a remarkable record of failure in public examinations, especially in basic subjects such as English and Mathematics

Teachers have been said to play a crucial role in academic performance and educational attainment, because the teacher is ultimately responsible for translating policy into action and principles based on practice during interaction with the students (Afe, 2003). This is true for many reasons; according to Idowu (2015), “they are the main custodians of students, the way and manner they perform this role is important”. Because of this, mathematics teachers are expected to have the acquired knowledge necessary for teaching as well as the ability to disseminate such knowledge appropriately that will result in learning. Mathematics teachers, according to Soer (2009), should be able to communicate the required knowledge in a clear, informative and precise manner to their students. This, unfortunately, according to Okafor and Anaduaka (2013), is not being done by the mathematics teachers. According to both researchers, most teachers are not ready to go the extra length in their teaching.

Student-teacher relationship is one of the most important features in the context of learning. It is also one of the factors affecting student-teacher development, school engagement and academic motivation. Student-teacher relationships form the basis of the social context in which learning takes place (Spilt, Koomen & Thijs, 2011). Student-teacher interactions are not only influenced by a number of aspects including gender, but in turn also influence a student’s academic performance and behaviour (Roorda *et al.*, 2011). Supportive and positive relationships between teacher and students ultimately promote a sense of school belonging and encourage students to participate cooperatively in classroom activities (Hughes & Chen, 2011). One positive aspect about the above perceptions from literature is evidence that good relationships between students and their teachers are essential to the development of all students in school (Hamre & Pianta, 2001). In the report of Hamre and Pianta (2001), they posited that positive student-teacher relationships are a valuable resource for students. A constructive relationship with a teacher enables students to be able to work on their own because they know their teachers are there for them in case problems arise. They also know that such teachers will recognise and respond to the problem promptly. As children enter the formal school setting, relationships with teachers provide the foundation for successful adjustment to the social and academic environment (Hamre & Pianta, 2001).

Roorda *et al.*, (2011) demonstrated that the quality of student-teacher relationships is strongly related to students’ motivation to learn. In the same vein, Nurmin (2012) found that teachers ensure more close relationships with highly engaged students. The association of teacher-student relationships is stronger with student engagement than with learning achievement (Cornelius-White, 2007). Self-determination theory also exemplifies on the importance of good student-teacher relationships. The theory argues that individuals have three basic psychological needs: the need for relatedness, autonomy, and competence (Ryan & Deci, 2000). The need for relatedness, or belonging, refers to a human being’s tendency towards wanting “to feel connected to others; to love and care” (Fosen, 2016). The need for belonging is so strong that individuals seek to develop relationships even in adverse situations. The need to belong is a powerful motivation in itself, and that is why students who feel connected with and supported by their teachers are more likely to feel motivated to learn (Ryan & Patrick, 2001).

Student-teacher relationships are correlated with students' intrinsic motivation (OECD 2013). Fredricks, Blumenfeld and Paris (2004) highlight three types of student-teacher engagement namely; emotional, behavioural, and cognitive engagement. They further said that it is useful for understanding why good relations promote intrinsic motivation. According to Fredricks *et al.*, (2004), emotional engagement refers to students' emotional reactions such as interest. Teacher's warmth and attention to students can motivate students to participate in classroom activities. Such positive emotions drive student motivation (Skinner, Furrer, Marchand & Kindermann, 2008), and can therefore lead to behavioural engagement, i.e. when students cooperate by following rules and participating in learning activities (Fredricks *et al.*, 2004). In line with the above, Furrer and Skinner (2003) believe that students' participation can be externally motivated by wanting to please teachers, which means that students might seek teacher's approval and attention as a reward.

When there is no student-teacher relationship, it is overtly characterized by conflict which may be damaging to students, more damaging than simply a lack of close teacher-student relationships (Murray & Murray, 2004). That is why Spilt, Hughes, Wu and Kwok (2012) argue that conflicting relationships with teachers cause feelings of distress and insecurity in students, thereby restricting their ability to concentrate on learning. Students with more conflictual teacher-student relationships had insufficient down-regulation of cortisol levels, meaning they were constantly more stressed than students with good teacher-student relationships (Murray & Murray, 2004).

Educators' relationships with students are equally beneficial to teachers, with research showing that good teacher-student relationships are positively correlated to teachers' job satisfaction and effectiveness (Day & Gu, 2009; Fosen, 2016). Negative relationships are a common source of teacher stress and burnout (Chang, 2009; Spilt *et al.*, 2011). This is understandable when one considers the emotional labour that is part of teachers' work, especially in relation to dealing with disruptive student behaviour (Chang, 2009).

According to Kim (2021), many qualities define a positive relationship and pave ways on how to create powerful student teacher relationships. These can be seen to include good communication, a safe learning environment and mutual respect, a positive and patient attitude, student equality and timely praise. The teacher who becomes the 'favourite' is one who possesses these in good measure. This study, therefore, will investigate the influence of student-teacher relationship on academic performance of Junior Secondary Schools students in mathematics in Makurdi Local Government Area of Benue State, Nigeria.

Statement of the Problem

Over the years, students' performance in mathematics has prompted educational researchers to continuously make relentless efforts at identifying mitigating factors that might account for the observed poor performance. Some research studies suggest that factors inside and outside the classroom affect students' performance and interest. Among other variables identified are: Students' poor study habits, low self-esteem, teacher factors

(teacher quality), shortage of qualified teachers, inadequate teaching facilities in Schools, home factor, school environmental factors, poor Student-teacher relationship, and many others.

Student-teacher relationships are vital in building the right attitudes towards mathematics and boosting academic performance in the subject. However, this important factor in the learning experience of students is not widely investigated, particularly at the Junior Secondary School level in Makurdi Local Government Area of Benue State, Nigeria. Hence, the core problem of this study is to explore the influence of components of student-teacher relationship such as consistent communication between students and their teachers, teachers' creating an emotionally open-learning space, teachers' display of true equity and teachers' display of mutual respect on academic performance of Junior Secondary Schools students in Mathematics in Makurdi Local Government Area of Benue State, Nigeria.

Literature Review

Theoretical Frame Work

Self-determination Theory (Deci & Ryan, 1985)

Self-determination grew out of the work of psychologists Edward Deci and Richard Ryan, who first introduced their ideas in their 1985 book "Self-determination and intrinsic Motivation in Human Behaviour". The term self-determination refers to a person's own ability to manage themselves, to make confident choices, and to think on their own (Deci, 1971). Self-determination theory is a theory of human motivation and personality which suggests that people are able to become self-determined when their needs for competence, relatedness, and autonomy are fulfilled. Self-determination theory posits that people are driven by three innate and universal psychological needs, and that personal well-being is a direct function of the satisfaction of these basic psychological needs (Deci & Ryan, 1991; Ryan, 1995). These needs are further explained by Lopez-Garrido (2021) namely;

Competence (need to be effective in dealing with the environment) is a term utilized to describe someone who has sufficient qualities to perform a given task or to describe the state of having sufficient intellect, judgment, skill, or strength. When an individual feels competent they feel able to interact effectively within their environment, and they have the skills needed for success to ensure that their goals are achieved. A competent person feels a sense of mastery over their environment. If tasks are too challenging or a person receives negative feedback, feelings of competence can decrease. Alternatively, feelings of competence are enhanced when the demands of a task are optimally matched to a person's skills, or positive feedback is received.

Relatedness (need to have close, affectionate relationships) is the ability to feel a sense of both attachment to other people and a sense of belonging amongst other people. Relatedness involves feelings of closeness and belonging to a social group. Without connections, self-determination is harder to achieve because the individual would lack access to both help and support. Feelings of relatedness are enhanced when individuals are respected and cared for by others, and are part of an inclusive environment. Alternatively,

feelings of relatedness are undermined by competition with others, cliques, and criticism from others.

Autonomy (need to feel self-governing and independent) is the ability to feel in control of one's behaviour and destiny, and involves self-initiation and self-regulation of one's own behaviour. Autonomy involves being able to make your own decisions and is associated with feelings of independence. Feelings of autonomy are enhanced when individuals are given choice and are able to govern their own behaviour, and when other people acknowledge their feelings. Alternatively, the individual lacks autonomy if they feel controlled or threatened by others, or have to operate according to deadlines.

In connection with student-teacher relationships, the self-determination theory concept of relatedness is significant. When students feel safe and have a positive relationship with their teacher it can act as a source of motivation, enhancing engagement and achievement. Because teachers and students spend so much time together, teachers wield a considerable amount of power over their students. Teachers should use this power to better themselves, the classroom environment, and their students. Therefore, improving relationships in schools between teachers and students will have positive implications for all involved. Research suggests that relationships with students are the most important source of motivation for teachers. When teachers are motivated and sincerely care for their students, they are more likely to think about their practice and employ strategies that create a welcoming and enjoyable learning environment. The research also suggests that students who feel a sense of control and belonging achieve higher academically. Therefore, teachers have a responsibility to foster a welcoming and motivating learning environment for their students. The best way to accomplish this is by having constructive interactions with students and building and maintaining relationships. Positive relationships result in better experiences for the child, a more productive learning environment, and higher academic achievement in all round subject most especially Mathematics.

The Self-determination Theory underpins how teachers can fulfil these needs by building and maintaining relationships with their students. Relatedness is characterized by a state of loving and caring for others, with the reciprocal being true, love and care is also experienced by the individual and is important for us to flourish (Deci & Ryan, 2000). In a school environment, teachers can be sympathetic, warm and affectionate with their students when they dedicate psychological resources such as attention, energy and affection to students (Reeve, Deci, & Ryan, 2004). This way, teachers can nurture in their students' relatedness and self-determined motivation. Relatedness in the classroom maybe conceptualized as interpersonal involvement of teachers by creating opportunities for students to feel related and belonging.

Conceptual Framework

Perception of Relationship

Student perception plays an important role in incentive. In fact, research suggests that the most powerful predictor of a child's motivation is the child's perception of control. Perceived control is the belief that one can determine one's behaviour, influence one's environment, and bring about desired outcomes. Because students already have a history

of experiences with whether adults are attuned to their needs, teachers build on these experiences (Skinner & Greene, 2008). Therefore, a student's perception of the teacher's behaviour impacts the relationship. Students who feel their teacher is not supportive towards them have less interest in learning and are less engaged in the classroom (Rimm-Kaufman & Sandilos, 2012).

Moreover, students and teachers influence each other. When a student perceives that he is welcomed and wanted in the classroom, he is more likely to be engaged and motivated. Thus, the role the teacher plays in the classroom affects the perception the student has on the relationship and the classroom environment, which ultimately contributes to achievement. Students who perceive that their teachers are more supportive have better achievement outcomes on standardized Math tests and English grades (Gehlbach *et al.*, 2012).

In the early years of school, students' perceptions of their relationships with teachers and teachers' perceptions of those same relationships are very similar. Yet as students develop and age, the gap between students' perceptions of teachers and teachers' perceptions of students grows and widens (Rimm-Kaufman & Sandilos, 2012). Therefore, it is essential for teachers to reflect on their relationships as well as their practice. Teacher perception is just as powerful as student perception when constructing relationships. In order for teachers to build and improve upon their practice, teachers need to reflect and think about their teaching. Teacher thinking results in teacher-learning (Kennedy, 2008). Reflection is imperative for the classroom environment each lesson should be tailored to the needs of the students who are currently present in the classroom. When the classroom environment is structured to meet the students' needs, teachers are also able to fulfil the three universal, innate psychological needs of the students; autonomy, belongingness, and competence.

Because teachers play important roles in children's lives, teacher well-being, at least indirectly, has significant effects on children's socio-emotional adjustment and academic performance (Spilt *et al.*, 2011). Yet, teacher well-being is affected when teachers feel unprepared to handle a diverse group of students, especially when there are discipline concerns. These concerns, as well as a lack of classroom management skills, can hinder teachers from helping their students succeed academically (Price, 2008). When teachers experience negative relationships or negative interactions with their students, teachers feel stress and internalize these feelings. Teachers also feel negative effects when their relationships are characterized as disrespectful or distant (Spilt *et al.*, 2011). An internalization of negative interactions can then lead to a negative teacher perception; thus, the relationships do not improve and the classroom environment is not fulfilling for either the teacher or the students.

Student-Teacher Relationship

On average, students spend six and a half hours at school each day for 180 days throughout the year. Therefore, it comes as no surprise that teachers have an enormous amount of influence on their students. This influence, or power, can significantly impact the learning environment, which, in turn, affects a student's achievement in school. The

most powerful weapon teachers have, when trying to foster a favourable learning climate, is a positive relationship with their students (Boynton & Boynton, 2005).

A student-teacher relationship is one of the most important features in the context of learning. It is also one of the factors affecting student-teacher development, school engagement and academic motivation. Student-teacher relationships form the basis of the social context in which learning takes place (Spilt *et al.*, 2011). Student-teacher interactions are not only influenced by a number of aspects including gender, but in turn also influence a student's academic performance and behaviour (Roorda, *et al.*, 2011). Supportive and positive relationships between teacher and students ultimately promote a sense of school belonging and encourage students to participate cooperatively in classroom activities (Hughes & Chen, 2011). One positive aspect about the above perceptions from literature is evidence that good relationships between students and their teachers are essential to the development of all students in school (Hamre & Pianta, 2001).

Components of Student-Teacher Relationship

Kim (2021) listed out four components of student-teacher relationship which are as follows;

- i. Consistent communication
- ii. Creating an emotionally open learning space
- iii. True equity
- iv. Mutual respect

Consistent communication is the most vital element as it seems to create a connection between the teacher and the student. A teacher who understands the problem of his/her students and then shapes his/her teaching style in order to interact better with the student can see success but this takes not simply observation but communication.

Creating an open-learning environment where different opinions are equally respected and where there is no fear of ridicule from either one's peer or teacher is crucial for building good student-teacher relationship. Students need to feel safe when asking questions, safe in the belief that they would not be ridiculed, taunted or criticized and that their questions or comments will be answered with patience and respect.

Disparity in learning is a barrier to academic performance. this extends to the relationship between those leading learning environment (teachers) and those being led (Students). Creating favourites and focusing on those individuals can create resentment among others who feel marginalized and left out. Focusing on all students in class will no doubt lead to a powerful student-teacher relationship.

Mutual respect and trust are the foundation of any lasting relationship. Student-teacher interaction that is based merely on academic progress or behaviour management creates inhibitions within a student and stifles true relationship building. Those teachers that shows respect towards their students and keenness to help through their difficulties becomes the object of respect themselves and trigger a drive among students to learn and make their teachers proud.

Effect of Student-Teacher Relationship

Good teacher-student relationships can positively impact student behaviour in the classroom. The learning environment plays a significant role in developing a student's motivation to learn, and positive relationships can help maintain student interest and active engagement in learning (Maulana *et al.*, 2013). On the other hand, if the foundation for a good relationship is lacking, it will negatively impact student behaviour. Students will resist rules and 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). To reiterate self-determination theory, students need to experience an emotional involvement from their teachers. Furthermore, students who have positive relationships with teachers are less likely to avoid school (Rimm-Kaufman & Sandilos, 2012). Experiencing a sense of belonging greatly contributes to developing positive relationships and positive behaviours.

The nature of teacher and student interactions shape the quality of the relationships; teachers tend to have more negative interactions with students who are peer rejected or less academically and behaviourally competent. Unfortunately, this interaction not only impacts the relationship that the teacher has with the student, but it also affects the way the student's peers view him; this negative interaction can influence other classroom relationships (Jerome & Pianta, 2008). In order to correct this, teachers need to be more cognizant of their interactions and the influence they have on students. Teachers should be aware that positive relationships predict school adjustment and may serve as a defensive factor for children at high risk of poor school and development outcomes (Lander, 2009). Taking time to build positive relationships with students can have profound effects on that child's school experiences both within and outside of the classroom.

Creating Success in the Classroom

Student-teacher relationships have shown to us to be an important factor in students' success in the classroom. Pianta (2010) attests that teacher-student relationships are influential on students' success in school, and Lee (2007) found that the trust developed between the student and the teacher can contribute to students' academic performance. However, Noddings (2008; 2009) shared that students make learning a higher priority and thus work harder for teachers whom they care about and perceive as also valuing their learning. Hence, numerous successful outcomes, as well as behaviours paralleling that the student-teacher relationship can influence students' future paths toward academic success and was positively linked with children's academic performance. Lastly, Miller (2000) found that student-teacher relationships play an important role in helping to reduce the chances of future bad outcomes, i.e. dropping out of school. With this in mind, it should be of no surprise for us that caring, supportive teachers are often found in schools of high achievement. Silins and Murray-Harvey (2015) reported students who indicated high feelings of adequacy in their interactions with their teachers in academically successful schools. In this Ethos & Hughes, (2016) found "teachers who identify and address individual student needs" in a high achieving, rural schools. Hence, outcomes from strong student-teacher relationships are not only limited to the realm of academics. Additionally, Pianta (2009) reported that the quality of teacher-child relationships is a stronger predictor of behavioural than academic outcomes. Moreover, student-teacher relationships influence

students' relationships with peers in their classrooms relationships matter (and) may reduce the risk of negative behavioural outcomes.

The importance of the teacher-student relationship for us also has been studied with regard to specific populations and cultures. To start with, different societies put different degrees of significance on the student-teacher relationships. Hence, individuals from different cultural traditions value different elements of the student-teacher relationship, and also act within the relationship differently based upon their perceived-level of satisfaction. Lastly, we found several studies looking specifically at mentor-mentee relationships in educational settings with high-risk youth as well as gifted youth. We found that positive relationships have similar benefits for students. The benefits incorporated an enlargement in self-esteem and confidence, as well as upgrading in studying skills and in the ability to use classroom knowledge.

Educational Outcome

Intrinsic motivation tends to deteriorate over time. Because learning environments play such a significant role in determining motivation, students must feel a sense of belonging, which is a predictor of motivational outcomes and engagement. When a teacher creates a welcoming environment and considers the needs of the students, learning outcomes will be ideal-students will effectively perform tasks they find personally important or interesting (Maulana *et al.*, 2013). Creating a climate of warmth and caring as well as supporting autonomy and self-determination will help students feel a sense of control (Skinner & Greene, 2008). All students should have a respectful, caring, and positive learning environment that enhances the joy of learning. The nature of the classroom environment has a powerful influence on how well students achieve educational outcomes (Asiyai, 2014). When teachers have positive relationships with their students, they improve the classroom and environment, which results in more motivation.

Research suggests that good teacher-student relationships are important for maintaining adolescents' interests and academic engagement in learning (Maulana *et al.*, 2013). As previously stated, students who have more positive relationships with their teachers have better achievement outcomes on standardized Math tests and English grades. The inverse is also true-negative teacher-student relationships correspond to worse student outcomes. One study found that teacher-student conflict was consistently related to lower grades in Math and English (Gehlbach *et al.*, 2012). Therefore, it is essential that teachers consider the nature of the work itself. When academic activities are interesting, challenging, fun, and relevant to the lives of students, students will want to put forth more effort and engage in these activities. Student choice also allows students to tailor activities to their own interests-project-based learning is significantly more effective in increasing intrinsic motivation than drills and worksheets (Skinner & Greene, 2008).

Students' motivation to learn and receive an education drives their thoughts and actions. This motivation plays an important role in their efforts to learn, perform, and behave. It is no surprise then that students' educational expectations and perceptions of experiences are important influences on their decision to drop out. With more than 16,000 students in their study, Fan and Wolters (2014) found that student perceptions and expectations greatly influenced dropout rates with a strong correlation between perceived

ability and actual performance in Mathematics and English. Therefore, student beliefs and perceptions of their abilities play a key role in their intrinsic value and decision-making. Positive teacher-student relationships are fundamental. Self-determination theory emphasizes competence; feeling capable to produce desired outcomes and effectively copes with challenges. Thus, teachers should ensure that every child feels capable and can meet expectations set forth in the classroom.

Purpose of the Study

The purpose of this study is to determine how student-teacher relationship influences the academic performance of Junior Secondary Schools students in Mathematics in Makurdi Local Government Area of Benue State, Nigeria. Specifically, this study seems to find:

- i. Find out the extent to which consistent communication between students and their teachers influences Students' academic performance in Mathematics in Junior Secondary Schools in Makurdi Local Government Area of Benue State, Nigeria.
- ii. Find out the extent to which teachers' creating of emotionally open learning space influences Students' academic performance in Mathematics in Junior Secondary Schools in Makurdi Local Government Area of Benue State, Nigeria.
- iii. Find out the extent to which teachers' display of true equity influences Students' academic performance in Mathematics in Junior Secondary Schools in Makurdi Local Government Area of Benue State, Nigeria.
- iv. Find out the extent to which teachers' display of mutual trust influences Students' academic performance in Mathematics in Junior Secondary Schools in Makurdi Local Government Area of Benue State, Nigeria.

Research Questions

The following research questions guided the study:

- i. To what extent does consistent communication between students and teachers influences Students' academic performance in Mathematics in Junior Secondary Schools in Makurdi Local Government Area of Benue State, Nigeria?
- ii. To what extent does teachers' creating of emotionally open learning space influences Students' academic performance in Mathematics in Junior Secondary Schools in Makurdi Local Government Area of Benue State, Nigeria?
- iii. To what extent does teachers' display of true equity influences Students' academic performance in Mathematics in Junior Secondary Schools in Makurdi Local Government Area of Benue State, Nigeria?
- iv. To what extent does teachers' display of mutual trust influences Students' academic performance in Mathematics in Junior Secondary Schools in Makurdi Local Government Area of Benue State, Nigeria?

Methodology

Design of the Study

The design adopted for this study was a descriptive research design. A descriptive research aims to accurately and systematically describe a population, situation or phenomenon (McCombes, 2019). Also, Davis (2021) stated that descriptive research involves identification of attributes of a particular phenomenon based on an observational basis or the exploration of correlation between two or more phenomena. The study used this method because it is aimed at describing the influence of student-teacher relationship on academic performance of Junior Secondary Schools Students in Mathematics in Makurdi Local Government Area of Benue State, Nigeria.

Area of the Study

The area of the study is Makurdi Local Government Area of Benue State. Makurdi as the state capital also serves as the Local Government Area headquarters of Makurdi Local Government Area. It was created in 1927 and it is situated in the central part of the state. In 1976, the town became the capital of Benue state. Makurdi Local Government Area is bounded in the north by Guma Local Government Area, in the west by Gwer-West Local Government Area and in the east by Tarka Local Government Area. Makurdi Local Government Area is located between latitude $7^{\circ} 38' N$, and longitude $8^{\circ} 24' E$ (Abah, 2013). The total land mass of Makurdi Local Government is 3993.3km^2 with a population of 297,393 people (Itavyar *et al.*, 2011; NPC, 2006). It is predominately occupied by people who are “Tiv” by tribe. Makurdi Local Government Area has eleven council wards. The people engage in economic activities like: farming, fishing and trading. Christianity is the main religion in the area while Islam and traditional religion is also practiced. Makurdi metropolis is divided by the River Benue into the north and the south banks which are connected by two bridges: the railway bridge which was built in 1932 and the new dual carriage bridge commissioned in 1978. There are many primary and secondary schools in Makurdi Local Government Area which are either private or mission owned schools.

The choice of Makurdi Local Government as the area of study is based on the fact that literature reviewed that not much has been carried out on the topic under the study in the area.

Population of the Study

The population of the study is 1364 Junior Secondary School III students from 21 secondary schools registered with the Benue State Teaching Service Board (Benue State Teaching Service Board, 2021).

Sample and Sampling Technique

The sample comprises of 309 Junior Secondary School III students in Makurdi Local Government Area of Benue State, Nigeria. The sample size was arrived by applying Taro Yamane Formula.

Simple random sampling was used for the study. Out of the 21 schools in the sample frame, one-third of the schools were selected at random by using “lottery method”.

In the lottery method, the schools were numbered one(1) to twenty-one(21) and was selected randomly by “drawing from a hat” in order to choose samples from the 21 schools.

Instruments for Data Collection

The instrument for data collection in the study was the Student-Teacher Relationship Questionnaire (STRQ). The STRQ is a researcher-developed student-teacher relationship questionnaire.

Section A of the STRQ is tagged Background Information and comprises information on respondents’ school and sex. Section B seeks to measure the extent of student-teacher relationship on students’ academic performance in Mathematics in terms of “Consistent communication with their Mathematics teacher”, “Mathematics teacher creating an emotionally open-learning space”, “Mathematics teachers showing true equity”, and “Mathematics teachers showing mutual respect”. The items of section B are structured on a four-point scale of Very High Extent (4), High Extent (3), Low Extent(2), and Very Low Extent(1).

Validation of the Instrument

The validation of the instrument for this study was done by two experts in Mathematics Education, one expert in Measurement and Evaluation and two Secondary Schools’ Mathematics teachers. The experts in Mathematics Education and Measurement and evaluation are from Joseph Sarwuan Tarka University Makurdi, Benue State, Nigeria. The experts were requested to vet the instrument based on face validity, content validity, simplicity of language and appropriateness of the constructed items with respect to the selected objectives of the study. Based on the recommendations of the experts, necessary modifications were made to the instrument. The validation yielded a total of 32 items out of the 40 items that were subjected to thorough perusal. For instance items that are similar in meaning to others were expressed differently or dropped completely. Items that were loaded were broken down and split.

Reliability of the Instrument

To ensure reliability, the STRQ was trial tested on thirty (30) Junior Secondary school III students in a school that was not part of the sampling frame. Results obtained from the trial testing was subjected to reliability analysis yielding a Cronbach’s Alpha coefficient of 0.85 for the entire STRQ as shown in Appendix G (P.63), indicating a high level of internal consistency of the STRQ because the items were structured on a four-point scale that has a response in continuum and not a “Yes” or “No”. The reliability analysis was executed on Microsoft Excel.

Method of Data Collection

Permission was sought from principals of the selected secondary schools in order to administer the questionnaire. Upon approval from the secondary schools in the sample, a research assistant was used to aid the researcher to administer the questionnaire. The researcher and the research assistant collected the treated information from the respondents after 30 minutes to ensure that none of the administered instrument got

missing and was answered individually and independently. This was also made possible with the help of the each school's mathematics teacher present.

Method of Data Analysis

The analysis of data collected was done using descriptive statistics of mean and standard deviation. Subsequently, the benchmark was obtained by calculating the mean of the values attached to the scales. The value of the benchmark obtained was 2.50 which served as a basis for acceptance or rejection of the items in the STRQ. As a result, any item with a mean that is less than 2.50 is low and any item with a mean that is greater than or equal to 2.50 is high.

Results

The results of this study are presented according to the research questions.

Research Question One

To what extent does consistent communication between students and teacher influences students' academic performance in Mathematics in Junior Secondary Schools in Makurdi Local Government Area of Benue State, Nigeria?

Table 1: Mean scores of Junior Secondary School III students rating of the extent to which consistent communication influences students' academic performance in mathematics

| S/N | ITEMS | MEAN | SD | REMARK |
|---------------------|---|------|------|--------|
| 1 | My mathematics teacher asked me to introduce myself on our first encounter | 3.25 | 0.88 | High |
| 2 | My mathematics teacher uses gestures to emphasize his/her words | 3.03 | 1.02 | High |
| 3 | My mathematics teacher smiles to encourage me when I am participating in class | 3.58 | 0.78 | High |
| 4 | My mathematics teacher nods to encourage me when I am participating in class | 3.17 | 0.97 | High |
| 5 | My mathematics teacher thumbs up to encourage me when I am participating in class | 2.81 | 1.08 | High |
| 6 | My mathematics teacher jokes and gives light-hearted personal examples in the classroom | 3.54 | 0.74 | High |
| 7 | My mathematics teacher always listens to me whenever I have something to say | 3.67 | 0.65 | High |
| 8 | My mathematics teacher always asks questions in the classroom | 3.54 | 0.81 | High |
| Cluster Mean | | 3.32 | | High |

The result shown in Table 1 indicates a cluster mean of 3.32 which is higher than the benchmark of 2.50. This implies that Junior Secondary School III students in Makurdi Local Government Area of Benue State, Nigeria rated high the extent to which consistent communication between students and teacher influences their academic performance in Mathematics.

Research Question Two

To what extent does teachers’ creating an emotionally open-learning space influences students’ academic performance in Mathematics in Junior Secondary Schools in Makurdi Local Government Area of Benue State, Nigeria?

Table 2: Mean scores of Junior Secondary School III students rating of the extent to which teachers’ creating an emotionally open-learning space influences students’ academic performance in Mathematics

| S/N | ITEMS | MEAN | SD | REMARK |
|---------------------|--|------|------|--------|
| 1 | My mathematics teacher always answers my question in the classroom | 3.65 | 0.67 | High |
| 2 | My mathematics teacher always ask how I feel each time he/she comes to the classroom | 2.73 | 1.06 | High |
| 3 | My mathematics teacher shows positive attitude on a daily basis | 3.37 | 0.93 | High |
| 4 | My mathematics teacher presents topic in way that is easy to understand | 3.67 | 0.68 | High |
| 5 | I am also confident in asking and answering question in the classroom | 3.40 | 0.79 | High |
| 6 | My mathematics teacher does not laugh or make jest of me if I am unable to answer any question | 2.98 | 1.18 | High |
| 7 | My mathematics teacher is always firm and does not take ridicule from other students | 3.19 | 0.99 | High |
| 8 | My opinions are respected in the classroom by my teacher | 3.32 | 0.82 | High |
| Cluster Mean | | 3.29 | | High |

The result shown in Table 2 indicates a Cluster mean of 3.29 which is higher than the benchmark of 2.50. This implies that Junior Secondary School III students in Makurdi Local Government Area of Benue State, Nigeria rated high the extent to which teachers’ creating an emotionally open-learning space influences their academic performance in Mathematics.

Research Question Three

To what extent does teachers’ display of true equity influence students’ academic performance in Mathematics in Junior Secondary Schools in Makurdi Local Government Area of Benue State, Nigeria?

Table 3: Mean scores of Junior Secondary School III students rating of the Extent to which teachers’ display of true equity influences students’ academic performance in Mathematics.

| S/N | ITEMS | MEAN | SD | REMARK |
|-----|---|------|------|--------|
| 1 | My Mathematics teacher cares about the well-being of all students | 3.44 | 0.89 | High |

| | | | | |
|---|--|------|------|------|
| 2 | My Mathematics teacher views all students as important part of the classroom | 3.38 | 0.83 | High |
| 3 | My Mathematics teacher is sensitive to all students' need | 3.26 | 0.91 | High |
| 4 | My Mathematics teacher takes time to assist all students whenever they need help | 3.44 | 0.88 | High |
| 5 | My Mathematics teacher answers all students question patiently | 3.60 | 0.66 | High |
| 6 | When need be, my Mathematics teacher is ready to provide extra help in our studies | 3.34 | 0.80 | High |
| 7 | My Mathematics teacher makes sure all students participate actively in the classroom | 3.56 | 0.72 | High |
| 8 | My Mathematics teacher carries all students along in the classroom | 3.48 | 0.84 | High |
| | Cluster Mean | 3.44 | | High |

The result shown in Table 3 indicates a cluster mean of 3.44 which is higher than the benchmark of 2.50. This implies that Junior Secondary School III students in Makurdi Local Government Area of Benue State, Nigeria rated high the extent to which teachers' display of true equity influences their academic performance in Mathematics.

Research Question Four

To what extent does teachers' display of mutual respect influence students' academic performance in Mathematics in Junior Secondary Schools in Makurdi Local Government Area of Benue State, Nigeria?

Table 4: Mean scores of Junior Secondary School III students rating of the extent to which teachers' display of mutual respect influences students' academic performance in Mathematics.

| S/N | ITEMS | MEAN | SD | REMARK |
|-----|---|------|------|--------|
| 1 | My mathematics teacher does not ignore me | 3.43 | 0.85 | High |
| 2 | My mathematics teacher apologizes and admits his mistakes | 3.32 | 0.94 | High |
| 3 | My mathematics teacher admires my effort | 3.39 | 0.74 | High |
| 4 | My mathematics teacher addresses me separately from the classroom whenever I commit serious offence | 2.91 | 1.10 | High |
| 5 | My Mathematics teacher treats me with consideration | 3.30 | 0.83 | High |
| 6 | My mathematics teacher has a positive attitude on a daily basis | 3.41 | 0.83 | High |
| 7 | My mathematics teacher acknowledges my effort through recognition and appraisal | 3.27 | 0.85 | High |
| 8 | Whenever I encounter difficulty my Mathematics | 3.57 | 0.77 | High |

| | | |
|------------------------------------|------|------|
| teacher is always eager to help me | | |
| Cluster Mean | 3.33 | High |

In Table 4, the result shows that Junior Secondary School III students in Makurdi Local Government Area of Benue State, Nigeria rated high the extent to which teachers’ display of mutual respect influences their academic performance in Mathematics considering a high mean of 3.33 which is above the benchmark of 2.50.

Summary of Findings

The following are the summary of the findings of this study

- i. Consistent communication between teachers and students of Junior Secondary School III in Makurdi Local Government Area of Benue State has a high level of influence on students’ academic performance in Mathematics.
- ii. Teachers’ creating an emotionally open-learning space in the classroom in Junior Secondary School III in Makurdi Local Government Area of Benue State has a high level of influence on students’ academic performance in Mathematics.
- iii. Teachers’ display of true equity in the classroom in Junior Secondary School III in Makurdi Local Government Area of Benue State has a high level of influence on students’ academic performance in Mathematics.
- iv. Teachers’ display of mutual respect in the classroom in Junior Secondary School III in Makurdi Local Government Area of Benue State has a high level of influence on students’ academic performance in Mathematics.

Discussion of Findings

Consistent communication between students and their teachers and how it influences student-teacher relationship and students’ performance in Mathematics in Junior Secondary Schools in Makurdi Local Government Area of Benue State, Nigeria was rated as being high as shown in Table 1. Teachers cannot understand every problem of every child but a general idea from the troubles point and insight into behaviour can go a long way in shaping a good two way communication. The more the teacher communicates well, the higher is the chance of fast and effective learning at students’ end. From item 3 in Table 1, respondents indicated that the way their Mathematics teacher smiles, encourages them to a high extent in participating in the classroom. This finding disagrees with that of Hilah (2018) which concluded that smile is a mitigating strategy used by the teacher. This is due to his independent literature, which showed that smiling invokes positive effect and also that it is beneficial for learning. This finding is also in agreement with the findings of Anderson (1979), Wilt & Wheelless (2001), Wilt, Wheelless & Allen (2004) which concluded that smiling is beneficial for learning. Also from item 6 in Table 1, respondents indicated that the extent to which their Mathematics teacher jokes and gives light-hearted personal examples in the classroom has a high influence on their academic performance. This is in agreement with the findings of Ahmad *et al.*, (2018) who stated that the use of joke element can make students to feel more at ease with the teacher when speaking or interacting. Therefore, their findings concluded that the application of joke element is

commendable inside the classroom however; the joke frequency needs to be controlled as it can disrupt the students focus on learning. In general, the findings of this study agree with that of Alamgir *et al.*, (2017) which concluded that teacher communication skills have significant role in the academic achievement of the students.

Teachers' creating an emotionally open-learning space in the classroom and how it influences students' performance in Junior Secondary Schools in Makurdi Local Government Area of Benue State, Nigeria was rated as being high in Table 2. Students need to feel safe when asking questions, safe in the belief that they would not be ridiculed, taunted or criticized and that their questions would be answered with patience and respect. For instance, item 6 and 7 in Table 2 indicated that the extent to which their mathematics teacher does not laugh or make jest of them and also tolerate ridicule from other students has a high influence on their academic performance in mathematics. This agrees with the findings of Remy (2020) and Al-Raqqad *et al.*, (2017) which concluded that bullying which exist in the form of ridicule, jest, etc. has a negative influence on students' behaviour and academic performance. Generally, the findings of this study is in agreement with the statement of Kim (2021) which says that creating an open-learning environment where different opinions are equally respected and where there is no fear of ridicule from either one's peer or teacher is crucial for building good student-teacher relationship.

In Table 3, teachers' display of true equity in the classroom and how it influences student-teacher relationship and students' performance in Mathematics in Junior Secondary School III in Makurdi Local Government Area of Benue State, Nigeria was rated as being high. Disparity in learning is a barrier to academic performance. This extends to the relationship between students and their teachers. Focusing on a particular individual or considering them favourite can be a setback to a healthy classroom atmosphere. For instance, from item 7 in Table 3, respondents indicated that the extent to which their mathematics teacher makes sure all students participates actively in the classroom was rated as being high which is in agreement with the findings of Bjorn (2010) that students participation seems to have a beneficial effect on students' academic and social development. In schools with a higher level of students' participation, the grades were higher. Also, the findings of this study is in agreement with that of Kim (2021) which stated that focusing on all students equally with a positive attitude can make a good difference in the way relationship between students and teacher prosper.

Mutual respect between students and their teachers and how it influences student-teacher relationship and students' performance in Mathematics in Junior Secondary School III in Makurdi Local Government Area of Benue State, Nigeria was rated as being high as shown in Table 4. Mutual respect is the basis of a good student-teacher relationship. When teachers show respect and willingness to help students in their difficult times, they get triggered to learn better and give their best to make their teachers proud. It is the foundation of any lasting relationships. For instance item 1 in Table 4 indicated that the respondents rated high extent to which their Mathematics teacher does not ignore them. Ignoring a student is a very bad attitude that a teacher should portray (Anyagh, Honmane & Abah, 2018). This agrees with the findings of Mucella *et al.*, (2011) which concluded that teachers' positive attitude have positive effects on students' performance and personality

development of students. Also, the findings of this study agrees with that of Aurora (2017) which stated that mutual respect is very important when it comes to the relationship between students and teachers. The study further stated that it is important that both students and teachers work hard to help each other. The teacher helps the students to understand and the student can help the teacher by giving feedback.

Conclusion

Based on the findings from the study, it can be concluded that consistent communication, teachers' creating an emotionally open-learning space, teachers' showing true equity and teachers showing mutual respect with students which forms the components of student-teacher relationship are indices that can be used to measure the student-teacher relationship. Therefore, consistent communication, teachers' creating an emotionally open-learning space, teachers' display of true equity in the classroom, and teachers' display of mutual respect in the classroom has high influence on students' academic performance in mathematics in Junior Secondary School III in Makurdi Local Government Area of Benue State, Nigeria.

From the Attachment Theory and the findings from this study, it can be stated that student-teacher relationship is as important as the teaching and learning component itself. Based on this conclusion, it is evidenced that when there is a decent connection between students and their teacher this will empower students to communicate with their students without dread. Students with a positive engagement with their teacher will experience positive motivational convictions about school and classroom commitment and this would positively correlate with their academic performance in Mathematics.

The outcome of this study has demonstrated that student-teacher relationship has a high influence on the academic performance of students in Junior Secondary Schools in Mathematics in Makurdi Local Government Area of Benue State, Nigeria

Recommendations

Based on the findings of this study, the following recommendations were made:

- i. Students across all levels of education should build positive student-teacher relationship with their teachers by engaging actively in classroom activities, showing respect to the Mathematics teacher and also try as much as possible to communicate consistently with the Mathematics teacher.
- ii. Mathematics teachers should be equipped through various development programmes such as workshops, capacity building, training and retraining sessions to enable them develop various motivational strategies that could be used to motivate students' interest, and develop them to learn for better academic performance and overall achievement. Mathematics teachers should be encouraged to improve on their personal relationship with their students for this will enhance the academic performance of the students. They should also bring their wealth of experience in teaching of Mathematics to the level of students' aptitude to make personal relationships of students with their teachers more interesting so as to arouse the interest of the students to academic excellence.

- iii. Curriculum planners should try to include activities in the curriculum that would help in improving existing relationships between students and teachers. This can be achieved by inculcating relationship building activities such as; Non-Academic Turn and Walk, Just Like Me Game, Round Robin Share, Get to Know You Board Game, etc., into the curriculum.
- iv. Educational authorities such as the Ministry of Education at both state and federal levels and Federal and State Teaching Service Commissions should constantly ensure that teachers are trained and equipped with classroom engagement skills that will enable teachers to effectively communicate feelings, ideas and thoughts. This will enable students to develop a sense of belonging and enhance their readiness to learn for better academic performance through healthy relationship.

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