

Attitudes of Teachers' and Students' in the Teaching and Learning of Mathematics in Junior High Schools in the Akuapem-North Municipality of Ghana

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Abstract:- The study aimed to investigate the attitudes of Junior High School students and teachers toward mathematics achievements in the Akuapem-North municipality of Ghana. The research design involved qualitative methods to gather a comprehensive understanding of students' and teachers' attitudes in the learning and teaching of Mathematics. In-depth questionnaires were used for both students and teachers to gather rich descriptions of their experiences, Data was analyzed was qualitatively. The study was conducted at Basic schools 2021-2022. The study's results revealed that students and teachers' attitudes affects students achievement in mathematics. They also found it challenging to ask questions, seek help, and participate in class discussions in face-to-face classes. Additionally, they reported feeling less motivated and engaged in face-to-face classes. The findings of this study will provide valuable insights for instructors and education policymakers in developing effective strategies to support learners and teachers build good attitudes for math learning.

Keywords:- Factors, Affecting, Students, Performance, Mathematics.

I. INTRODUCTION

➤ Background to the Study

Since the inception of modern education, student outcomes in schools have been a major concern. Several countries have come to the understanding that the student is the center of the educational process and that any educational innovation will fail in the absence of successful outcomes. All school curriculum include mathematics, which is also a required coursework for pre-university students. A child's future success depends greatly on having a solid foundation in mathematics. It is thought that learners who score poorly may develop unfavorable attitudes and even a fear of mathematics. According to Lance, (2023), who defines mathematics anxiety as "an irrational fear or anxiety that prevents people from learning," low academic performance can lead to mathematics phobia and appreciate it all.

In many nations, including Ghana, this has brought about a widespread discontent with the way academic achievement in mathematics is currently being handled. This underwhelming performance of learners in the mathematics at the Basic Education Certificate Examination (BECE) suggests that there is unquestionably a problem with the way mathematics is taught and learned at the pre-tertiary level. Ghana's performance at the junior high school level was among the worst in Africa and the entire world, according to trends in mathematics and science (Mereku, 2023). The Akuapem-North Municipality is no exception. This downward trend in students' performance in mathematics at has been of grave concern to chiefs and people, teachers and all stakeholders of education as most of the students cannot gain entry to the Senior High School level as a result of low grades they obtained in mathematics. For instance, Over the past ten years observations made indicates that candidates in the Municipality who sat for the Basic Education Certificate Examination obtained grades between six (6) and nine (9) representing 53%. In the BECE six (6) represent credit, seven (7) and eight (8) represent pass and nine (9) represent fail. 2019, to thousand six hundred and forty-one (2,641) candidates in the Akuapem-North Municipality took part in the BECE whiles one thousand four hundred and seven (1,407) in 2010, one thousand nine hundred and eighty-three (1,983) candidates in the Municipality were present during. Out of this, one thousand and twenty-four (1,024) students obtained grades six (6) to nine (9) representing 52%. Again, in 2021, two thousand forty-nine (2,049) candidates were presented during the Basic Education Certificate Examination. Out of this, one thousand four hundred and eighteen (1,418) students obtained grades six (6) to nine (9) representing 69%. This poor overall performance in the Municipality is a worry to everybody.

Again, the percentage of students who obtained grades six (6) to nine (9) in Mathematics in 2011 is 69. In 2022 one thousand nine hundred and eighty three (1,983) students took part in the Basic Education Certificate Examination and 52% obtain grades six (6) to nine (9). In 2009, 53% representing students who had grades six (6) to nine (9). Also in 2008, two thousand one hundred and sixty eight (1,168) took part in the Basic Education Certificate Examination 54% of the students obtain grades six (6) to nine (9). This poor performance in Mathematics as a core

subject in the Junior High Schools in the Akuapem-North Municipality presupposes that something ought to be done about it in order to allow students to gain entry into the Senior High School. Townsend, Reupert, and Berger (2023), asserts that families must foster a positive atmosphere for learning to take place. They noticed that a student's home environment had a significant impact on their academic progress. These variables include the parents' educational attainment, marital status, attitudes toward learners' education, and the learners' perceptions of the caliber of students accepted into the school. The outcomes of learning theory differ from person to person for a variety of reasons, according to Dron, (2023). According to Townsend, Reupert, and Berger (2023), a student's level of accomplishment and aspiration is influenced by their parents' marital status, family income, and educational background. He explains that learning needs to be adequately guided for it to take place effectively.

Academic achievement, according to Ee (2023), refers to the standard of knowledge, skills, techniques, and positive attitudes, behavior, and philosophical attainment by learners. This is assessed using the scores and grades that students receive on a test or examination that is given at the conclusion of the subject, academic year, or educational cycle. The results quantify the level of accomplishment. The standard of academic achievement in a class or institution is determined by the grade's quality and the proportion of applicants who pass in each grade. Alghamdi, & Rahman (2023) state unequivocally that the economies of the world today that have taken the culture of mathematics and science seriously are leading, as opposed to the economies in which these disciplines are not taken seriously.

Ghana must make sure that its youth are equipped with stronger mathematics abilities, including problem-solving at the pre tertiary level, if it is to accomplish Sustainable Development Goal 4 and move beyond to acquire the status of a prosperous knowledge-based economy (Odamé, & Ameyaw, 2023). This is the foundation on which the researcher attempts to assess student performance in their study of mathematics in junior secondary schools in the Akuapem-North Municipality of Ghana based on attitudes of students and teachers.

➤ *Statement of the Problem*

The purpose of Junior High School education is to develop quality life of the learners so that they can properly serve the society according to their roles and responsibilities as good citizens (NaCCA, 2019). The Akuapem-North Municipality has designed structures for provision of education such as supervision of teaching and learning, monitoring of the utilization of school plant, periodic in-service education and training (INSET) for both teachers' and school administrators. In spite of these administrative arrangements, one observes at the Basic level low and disappointing learning outcome in mathematics from the results of the Basic Education Certificate Examination. However, the persistence of the problem means that there is the need for empirical research to find out the attitudes

affecting student's poor performance in mathematics in the Municipality in order to find remedial measures.

➤ *Research Purpose and Objectives*

The overall purpose of the study was to evaluate the attitudes affecting JHS students' performance in Mathematics in the Akuapem-North Municipality of Ghana. Specifically, the study sought to:

- To find out the attitudes of students towards teaching and learning of Mathematics in the Akuapem-North Municipality.
- To find out the attitudes of teachers towards teaching and learning of Mathematics in the Akuapem-North Municipality.

➤ *Research Questions*

The following research questions guided the study

- What is the attitude of students to teaching and learning of Mathematics in the classroom at the Akuapem-North Municipality?
- What is the attitude of teachers to teaching and learning of Mathematics in the classroom at the Akuapem-North Municipality?

➤ *Research Hypothesis*

- H_0 : There is no relationship between attitude of students and teaching and learning of Mathematics.
- H_1 : There is a relationship between attitude of students and teaching and learning of Mathematics.
- H_0 : Teachers attitude affect teaching and learning of Mathematics.
- H_1 : Teachers attitude do not affect teaching and learning of Mathematics

➤ *Significance of the Study*

This research will provide a good basis for teachers, administrators, governments, educational policy makers, parents and students to take a more active approach to ensure that students and teachers JHS staff in Akuapem-Nord do well in mathematics. It is hoped that the findings and recommendations of this study will be of great help in generating much needed information that will be used by various educational stakeholders to improve the quality of mathematics teaching and learning, while helping students reflect on their own learning and redirect their efforts where necessary and in the appropriate direction of need. The study will also provide policymakers, the Department of Education and politicians with information on the impact of student attitudes on student achievement, thereby giving them space to develop better policies on the role of students in the education system. It will also add to the existing body of knowledge and serve as a springboard for further researchers in similar studies.

II. REVIEW OF RELATED LITERATURE

Various authors and researchers have made various presentations to the topic of the essay under study. This section presents a review of the existing literature on the subject and under the following thematic areas; what is education? The theoretical framework of the study, School-based factors. Home-based factors.

➤ *Education and its Importance*

Malik (2023) defines education as the process by which a person learns to become an integral part of society. In other words, education must give students the skills necessary for success in a world that is constantly changing. Technical proficiency is insufficient in such an environment. Education that equips kids for life must go beyond the basics and encourage imagination, intellectual curiosity, and sincere inquiry. These components are necessary for both individual and societal growth and development. The capacity to think creatively about a problem and present a solution is the source of innovation and advancement.

Education, according to Raximova, Chun, Chinen, and Matsumoto (2023), is the process of learning and obtaining knowledge. There are two main categories of education: formal learning obtained through an establishment like a school and self-taught learning, which is frequently referred to as life experience. In general, education is important for learning both fundamental life skills and more complex skills that can increase a person's attractiveness on the job market. The majority of the time, when someone considers education, formal education comes to mind first. In a formal educational setting, students are taught in a classroom environment using a teacher-provided curriculum that follows a predetermined outline of the material that must be covered (Garcia & Garcia, 2023). According to Adam, Barblett, Kirk, and Boutte (2023), a system of standardized testing in the US aids in establishing the guidelines for the curriculum and lessons that teachers should be delivering. No Child Left Behind, a program that was put in place during his presidency, provides a way to gauge how much each student is learning across various school systems, ensuring that every child receives a minimum amount of knowledge and academic instruction.

Education is both a lifetime inheritance and insurance, Shane (2023). The key to success and the path to a better future for all of our people is education. One cannot accomplish much without education (Anderson, 2023). You can never be too old to learn new things, and education is something that happens every day. We need to be learners working toward a better life through education. Education is also viewed by Chun, Chinen, and Matsumoto (2023) as a process by which people acquire knowledge, skills, habits, values, attitudes, and moral behaviors that enable them to become useful members of their own society as well as the larger one. The process of bringing up a person in a society, then, is what education is. Teachers, parents, administrators, and other educational stakeholders are entrusted with this enormous task.

The need for fundamental standards of achievement in preparing students for careers in a highly scientific and technological environment has become urgent, according to Zalmi and Sabariyanto (2023). Additionally, education should equip people with the tools they need to accomplish three objectives: creating jobs, eliminating poverty, and emphasizing morals. The Sustainable Development Goals (SDGs), which aim to address problems with poverty, high standards in education, equality, wealth, and the environment, as well as the Education for All (EFA) goals, are also a product of the globalization culture. The method used to accomplish all of this heavily depends on students' high levels of achievement in mathematics education. It is regrettable to note that the majority of Ghanaian students do not perform as well in mathematics as is necessary to meet the challenges facing the country in this era, which is characterized by the unrelenting need for scientific and technological advancement.

➤ *What is a School?*

As noted by Oladimeji, Odefunsho, & Adeoye, (2023), a school is a special place which is a formal organization. It is purposeful that is specially set up to achieve specific laid-down goals and objectives. He further notes that active academic work takes place in the school and in the classroom since the classroom is an important place for the life of the students, it therefore has to be managed to bring about effective teaching and learning classroom management concerns how the teacher makes use of the procedures and resources available and how to organize the classroom environment in such a way as to enable him or her teach well and for the students to learn without much hardship. Oladimeji, Odefunsho, & Adeoye, (2023), also suggests that quality of education depends on four main variables: the quality of learners, the quality of teaching and learning environment content, programme and the quality of delivery.

➤ *Academic Performance of Students in Mathematics*

Sinha, & Nayak, (2023), explains that there is a commitment by the government of Ghana to improve the quality of education in Ghana. According to Sinha, & Nayak, (2023), the report of the Government white paper on the education reforms indicated that the Government was concerned about the decline in educational standards. The report noted that the Government was "painfully aware" of the failure of previous educational reforms to uplift standards. Mathematics education has been deemed to be an essential aspect of national development and it is taught from the basic school level through secondary to tertiary levels of education. Mathematics has been defined by many proponents as the master-servant of most disciplines and a source of enlightenment of human understanding of the answers (Filimowicz, (Ed.). 2023).

Ye, Liang, Ng, & Chai, (2023), define mathematics as the study of numbers, shapes and space using reason and usually special symbols and rules for organizing them. Mathematics is also the foundation for science and technology and it is therefore important for every individual to attain some level of insight into basic mathematics. There

is generally a widespread public concern about the result being achieved in mathematics at present. Quaye, (2023) and David, & Udom, (2023), posit that over the past fifteen years, the academic performance of candidates in BECE mathematics paper has not been encouraging according to the BECE mathematics chief examiners. This has created panic among all stakeholders of education. Academic achievement in general and achievement in mathematics in particular represent key educational outcomes, according to Lishchynska, Palmer, Lacey, and O'Connor (2023). Although teaching students to read, write, and calculate is frequently thought of as the main goal of formal education, this outcome is not always guaranteed by students' regular attendance and focus in class. Recent studies on mathematics literacy levels have revealed that, despite receiving comparable amounts of education, children in developing countries had lower levels of mathematics literacy than children in high-income countries (Lishchynska et al., 2023).

For instance, a large-scale study conducted in Bangladesh found that while basic skills and levels of formal education are related, the majority of those who had completed primary school did not meet the required level of proficiency in any of the four subject areas tested, with mathematics being no exception (Ciccione, Sablé-Meyer, Boissin, Jossierand, Potier-Watkins, Caparos, and Dehaene, 2023). The crucial link between outcomes and the quality of environments, contents, and processes is highlighted by this study and others like it. According to Wu & Zhang (2023), student grades in each subject are a good indicator of how well they are performing academically. A student's academic performance suggests their competence and high level of confidence in their particular field if they perform well in that area. Fehérvári (2023) contends that each student approaches learning and attaining a high level of academic performance differently, and that this enthusiasm for succeeding in one's chosen field develops differently as well. A student needs to be equipped with strategies and techniques that will supplement his desire to achieve his goals if he is to succeed.

According to LeBelle, (2023), having an effective and flexible study routine is one way to raise one's academic performance. It is possible to connect this phenomenon to a number of variables that influence their study habits. These elements can be found in the student's environment, such as the type of home they live in, the neighbors and the level of support they provide, the student and his family's daily routines, the accessibility of study resources, and the financial situation of his family. If possible, it may be wise to find alternative means of financing college so that students can complete their degrees, maintain their academic performance levels, and thereby reap the long-term benefits of a college education. Working students appear to have negative effects on student enrollment rates and perhaps also on academic performance. Poor academic performance in students is caused by several factors, two of which are attitudes of both students and teachers. These are both home and school-based factors.

➤ *Teacher's Role*

The responsibility of a teacher is to impart knowledge and ensure that it has been understood (Baxtiyorovna, 2023). According to Baxtiyorovna (2023), the use of teacher-centered methods that restrict students' ability to explore facts and derive enjoyment from success from the activities can be blamed for poor mathematics results. The effectiveness of the lessons is also impacted by the use and accessibility of teaching and learning resources.

➤ *The Availability and use of Teaching Learning Materials*

The preparation of teaching and learning materials is a teacher's responsibility. The authors Organisciak, Acar, Dumas, and Berthiaume (2023) state. The likelihood that a student will learn more, retain more of what they learn, and perform better on the skills they are expected to develop increases with the availability and creative application of a variety of media. Young children are capable of understanding abstract concepts if they are given enough materials and concrete experiences with the phenomenon that they are to understand, according to Organisciak et al. (2023). The amount of learning that can be accommodated in a learning environment is determined by suitably well-prepared instructional materials. High-quality learning materials help to increase motivation for interest, focus, and the deeper meaning of learning. The use of instructional materials by subject teachers is essential in the modern era. The study found that few teachers actually use teaching and learning resources when they are instructing students. When mathematics is taught using teaching resources, learning becomes more enjoyable and student-centered. Sekyere (2002) argued that engaging and vivid teaching materials are necessary for students to comprehend the lesson with ease, lending support to this discussion.

➤ *Frequency of Assignments*

Ngewie (2023) demonstrated that the quantity of assignments had a favorable impact on gains made. Through the analysis of 27 studies, Xu, (2023), found a positive linear relationship between the amount of time spent on homework each week (5–10 hours) and academic achievement. Cooper also found that there was an average correlation of 0–21 between the amount of time spent on homework and academic achievement. Appropriate homework assignments can encourage self-directed participation in academic tasks. Ngewie (2023), asserts that homework based on textbooks was linked to greater achievement and that teachers could be sure their students were continuing their education outside of class by giving them homework and assignments. They went on to say that the amount of academic pressure that teachers put on their students through homework could be viewed as a proxy measure. The quantity, nature, and effectiveness of your math homework are all crucial factors.

➤ *Modern Methods of Teaching Mathematics*

Mathematics is both the academic discipline that studies these ideas as well as the body of knowledge that is centered on concepts like quantity, structure, space, and change. It is employed globally in a variety of disciplines,

including engineering, medicine, economics, and the social sciences. Teachers today need a variety of different types of mathematical expertise to effectively teach math to students. Teaching mathematics can be a difficult task regardless of the class, according to Xu (2023) and Ngewie (2023). Many students lack confidence in their mathematical prowess, while others think it's pointless or boring. The subject may become frustrating for both students and teachers as a result of all of these points of view. There are fortunately a variety of methods for teaching mathematics, including the lecture method, the expository method, inductive, deductive, heuristic, analytical, synthetic, constructivist approaches, project methods, problem-solving methods, topical, concentric, conceptual, and activity-based approaches. Inductive, deductive, heuristic, analytical synthetic, constructivist, project- or problem-solving methods, guided discovery, topical, conceptual, and activity-based/student-centered approaches are among the techniques that boost JHS students' interest in learning, comprehension, and overall achievement.

➤ *Theories of Learning Mathematics*

Several theories of learning have been used over the period. These include Constructivist theory of learning; behaviourist learning theory; Activity-based theory, as well as cooperative learning.

➤ *Student's Attitude Towards the Study of Mathematics*

One's attitude toward mathematics can be either positive or negative (Ajai, & Ogungbile, 2023). Saadati, Martínez, & Espinoza, (2023), defined an individual's attitude toward mathematics as a more complex way by the emotions that he or she associates with mathematics, his or her beliefs about mathematics, which may be positive or negative, and how he or she behaves toward mathematics. The idea that there is a definitive link between a positive attitude and math achievement has not been proven, according to Nayab, Thomas, & Adil, (2023), but research on attitude in mathematics education has been motivated by the idea that "attitude" plays a crucial role in learning mathematics. Therefore, it is essential to keep looking for connections between educational approaches that might aid in the growth of a more positive attitude toward the study of mathematics. It is generally accepted that a student's success in a subject depends on their attitude toward that subject. In other words, a positive attitude contributes to good academic performance. A student's constant failure in a school subject and mathematics in particular can make him to believe that he can never do well on the subject thus accepting defeat. On the other hand, his successful experience can make him to develop a positive attitude towards learning the subject. This suggests that student's attitude towards mathematics could be enhanced through effective teaching strategies by the teacher. It has in fact been confirmed that effective teaching strategies can create positive attitude on the students towards school subjects Hammou, & Kesbi, (2023). Several studies in the area of mathematics have shown that instruction, especially at the secondary school level remains overwhelmingly teacher-centred, with greater emphasis being placed on lecturing and textbook than on helping students to think critical across subject area and applying

their knowledge to read-worlds situation (Mazana, Montero, & Njotto, (2023). Furne, & Jokstad, (2023). states that investigation into student mathematics attitude and perspective not only informs teachers, parents, and administrators about students' needs, but also serves as a catalyst for reform in mathematics education.

Nurhaifa, (2023, June), are of the view that students' who are well organized, achievement oriented and enthusiastic, tend to have more positive mathematics attitudes. This shows that the personality and behaviour of the teacher are very important in the formation of student's attitudes. Absenteeism on the part of student that is absence of students from class may break the consistency on the part of the academic subjects. Raising attendance rates in schools is on way to improve student's performance. Hussein, & Csikos, (2023), suggest that students with negative attitudes towards mathematics have performance problem.

Copur-Gencturk, Thacker, & Cimpian, (2023), asserts that there is a common and reasonable belief that positive attitudes, particularly liking for, and interest in Mathematics lead to greater effort and in turn to higher achievement. Xie, & Liu, (2023), added that the relationship between attitudes towards mathematics and ability in the subject is dynamic and interactive in that individuals with low ability in mathematics are more likely to have negative attitudes towards the subject and those with negative attitudes are less inclined to make the effort to improve their mathematical abilities.

➤ *Teacher's Value of Humour*

Ngewie, (2023), claims that "the main value of humour in the classroom is for the teacher to stimulate, illustrate, motivate, and ease tensions". Cahyadi, & Ramli, (2023), studied the effects of humour in the classroom. They explained that in the classroom, students most of the time wants to see instructors as real human beings.

➤ *Lack of Commitment*

The academic performance of students can be negatively impacted by a teacher's lack of commitment, according to Lter (2023). According to the author, some teachers may actually view their employment as a teacher as a part-time job and a farm or small business as their principal. The teacher plays a crucial role in the learning of mathematics because they actively encourage it. Therefore, it is the responsibility of the teacher to make mathematics meaningful for the students as they learn it.

Mahato and Sen (2023), Overall, the body of research indicated that factors related to the teachers are most crucial for the growth of students' attitudes toward mathematics study. From the perspective that each student's teacher should set up and prepare the instructional environment to enable them to achieve their instructional and behavioral objectives, he designed his study to probe the most significant school-related determinant of liking or disliking mathematics. The aforementioned points suggest that a teacher's dedication can have a significant impact on learning.

Prior to introducing higher order thinking skills, the behaviourist learning theory mandates practice, repetition, and testing of discrete basic skills (Zohar, 2023). In contrast, learning is viewed in the constructive and informational processes models as a process of developing one's own knowledge and logic. This means that assessments should place less emphasis on the ability to memorize information and more emphasis on critical thinking and problem-solving. Assessments in schools have increased over the past ten years. Due to this, teachers now have a heavy assessment workload, which reduces the amount of time they have to assess each student. Thus, it is tempting to read through workloads for marking.

➤ *Poor Technological Development to Improve Students' Academic Performance*

The vast diversity of school facilities in the developing world concerns many who believe that technology and students' development of technology-related skills will be crucial factors in the 21st century knowledge-based global economy (Matheson, et, al, 2015).

Due to the inadequate infrastructure in our schools, it is not possible to use technology to eliminate inequalities through platforms like educational television and Internet-based learning. Such learning strategies may significantly contribute to raising the standard of educational processes in areas with access to electricity and telephone lines. There are some innovations that use technology to support important content and outcome goals, like basic literacy, outside of regions with relatively developed infrastructure. Among them are the use of CD-ROMs to distribute Internet downloads in areas without connectivity and the use of handheld computers for tasks that were previously limited to desktop computers. An innovative idea that could be investigated further in underdeveloped nations is the use of Internet technologies to assign teachers where they are needed (Matheson et al., 2015). According to Rajkumar, Daniel, and Jayashree (2023), education and the Internet are the two main equalizers in life. With the help of e-learning, time and geographic barriers are removed, allowing everyone, everywhere to learn whenever they want. There is still much to learn about how technology can help close rather than widen educational gaps, but one thing is certain: if students can master the fundamentals, technology can only be a small part of the learning process. The human factor is the most crucial component in matters relating to educational innovation, according to the author of a study on educational television.

➤ *Peaceful, Safe Environments, Especially for Girls*

When girls are admitted to schools, they may come across both overt physical threats and covert attacks on their identity, self-worth, and self-confidence (Matheson, Daoud, Hamilton-Wright, Borenstein, Pedersen, and O'Campo, 2015). Since many girls experience verbal harassment and physical assaults on public transportation in cities or on isolated country roads, the commute to school may be unsafe. In addition to letting boys bully girls at school, teachers frequently make girls perform maintenance tasks while the boys study or play. Girls frequently have to sit in

the back of the room, where the teacher might only occasionally call on them. Occasionally, girls may be the targets of severe physical abuse at school, including rape. Threats such as unfair treatment, harassment, bullying, and low regard for girls hurt them deeply and permanently.

III. METHODOLOGY

To address the different research questions, the researcher will employ a descriptive survey. Zhao, Shen, Wang, & Zhang, (2023), opined that descriptive studies are designed to obtain pertinent and precise information in order to draw valid generalizations and conclusions from facts discovered. The researcher employed this qualitative research because it helped describe and analyze people, individuals and collective actions, beliefs, thoughts and perceptions. It also enabled the researcher to gather data by interacting with selected persons in their settings and to obtain relevant documents on topics under study (Zhao, Shen, Wang, & Zhang, 2023). Furthermore, it also made the researchers use the smaller but focused sample in order to elicit in-depth information or views from respondents. Again, the qualitative research helped the researcher to describe and analyse teachers' and students' collective actions and attitude towards the poor performance of mathematics in schools in Akuapem North Municipality. Finally, it enabled the researcher to gather data by interacting with the selected samples in their settings to validate clues.

➤ *Study Area*

The Akuapem-North Municipality is in the eastern region will be the study area. The municipality has nine circuits within its jurisdiction. The nine circuits within the Municipality are Mangoase, Amanfrom, Adukrom, Akropong, Larteh, Mampong, Adawso, Tinkong and Okorase. It stretches from Mampong- Akuapem to Okorase near Koforidua and Akropong through to Nyamebekyere. There are eighty-nine (89) registered Junior High Schools in the Municipality.

➤ *Study Population*

Obilor, (2023), postulates that a population refers to any collection of specified groups of human beings or no human entities such as objects, educational Institutions, time, units and geographical area. For the purpose of the study, the targeted population will be:

- *Students in junior high school in the Akuapem-North Municipality*
- *Mathematics teachers in junior high school in the Akuapem-North Municipality.*
- *Headteachers in the Akuapem-North Municipality.*
- *Parents of students in JHS in the Akuapem-North Municipality.*

➤ *Sample Size*

In all, ninety (90) respondents were selected for the study. The breakdown is as follows; Nine (9) schools were selected from the 9 circuits within the Municipality. Six students, a Mathematics teacher and a head teacher were

also selected from each of the schools within the circuits. Two (2) parents were also be selected based on the students picked.

➤ *Sampling Procedures*

The data for the study was obtained from selected schools within the Akuapem-North Municipality. The Schools were randomly selected. This was done by writing all the names of the schools in the circuits on pieces of papers and students were asked to pick. The nine schools selected were used for the study. Similarly, the selection of students was also done randomly because they are homogenous in character and each of them is a penitential respondent. Again, the researchers employed a convenience method to select the parents, head teachers and mathematics teachers because that helped the researcher to locate and access selected students, parents, Mathematics teachers and head teachers. In all, ninety (90) respondents were selected for the study. The breakdown was as follows; Nine (9) schools were selected from the 9 circuits within the Municipality. Six students, a Mathematics teacher and a headteachers were selected from each of the schools within the circuits. Two (2) parents were selected based on the students picked.

➤ *Data Collection Instrument*

Considering the nature of research questions being examined, the instruments for the collection of data were questionnaires and semi-structured interview guide. Data was collected from the selected respondents in the various schools with a questionnaire. The questionnaires were developed by setting criterion questions from the research questions. The questions were close-ended. This limited time consumption and made it easier to gather personal data of the respondents. The drafted questionnaire was given to other postgraduate students for peer review to ensure its validity. Other items in the questionnaire contained closed ended items which helped the respondents to freely express their opinions and views to obtain adequate information for the study. The items in the questionnaire were straight forward, systematic and placed in logical sequence. This instrument was cross checked and corrections made by the researcher's supervisor. The semi-structured interview guide gave the interviewer control over the process of obtaining information from the interviewee. The semi-structured interview guide was used for the parents. The advantage of the semi structured interview is that the interviewer is in control of the process of obtaining information from the interviewee, but is free to follow new leads as they arise (Amoah, 2018). During the interview sessions, the researcher allowed the free flow of ideas from the interviewee there were two sets of questionnaires one each for, teachers and students. The questionnaires were validated by administering them on the ten sample respondents on campus. The results proved that there was the need to improve the performance of mathematics. The secondary data on the other hand was obtained from books, journals, the internet and other relevant publications on the subject.

➤ *Reliability and Validity*

The questionnaires were validated by administering them on the ten sample respondents on campus. The results proved that there was the need to improve the performance of mathematics. On the other hand, results of the various school data was obtained from the West African Examinations Council (WAEC). WAEC is a respectable body in charge of examination in West Africa operating in the Gambia, Ghana, Liberia, Nigeria and Sierra Leone. Other data was also sourced from other literature works by different authors who have also used the results of students from WAEC.

➤ *Data Collection Procedure*

In order to find out the factors affecting the poor performance in mathematics, the researcher prepared questionnaire and interview guide. The responses to items in the questionnaire and interview schedule were coded and used to develop database using the Statistical Package for Social Science (SPSS).

➤ *Data Processing And Analysis*

Data collected from the study will be quantified and transformed into simple frequencies, percentages, tables, graphs after which they will be given qualitative interpretation with the relevant literature.

➤ *Ethical Considerations*

• *Permission, Consent and Assent*

Permission letters were sent to the Municipal Director of Education and the two Junior High Schools whose students and mathematics teachers will be involved in the study. Letters of consent will be sent to the head masters of the Junior High Schools who will take part in the study. The researcher will use an interview guide to conduct the interview sessions. The interview sessions between the mathematics teachers and the students will be done. The interviews will be recorded, transcribed and stored on a computer. The researcher will ensure that participants will be well-informed about the purpose of the research they will be participating in. The researcher will further ensure that the participants will understand the risks as well as benefits they will be facing as a result of being part of the research as well as understand the benefits that might be accrued as they participate in the research. The researcher also ensured that the participants were free to make an independent decision without any negative consequences.

IV. RESULTS

A. *The results of the analyses of the data and discussion of the findings are summarized below. The data was organized and presented using tables, charts and descriptive statistics. The results were presented under the following themes:*

- *The attitude of students to teaching and learning Mathematics in the classroom at the Akuapem-North Municipality.*

- *The attitude of teachers to teaching and learning Mathematics in the classroom at the Akuapem-North Municipality.*

To examine the attitude of students to teaching and learning Mathematics in the Akuapem-North Municipality. Table 1 shows students responses on the question “I Enjoy studying mathematics frequency percent cumulative percent strongly”.

B. Students’ Attitude to Teaching and Learning of Mathematics in the Akuapem-North Municipality.

Table 1 I Enjoy Studying Mathematics Frequency Percent Cumulative Percent Strongly

	FREQUENCY	PERCENT	CUMULATIVE PERCENT
STRONGLY AGREE	9	16.7	16.7
AGREE	12	22.2	38.9
DISAGREE	20	37.0	75.9
STRONGLY DISAGREE	13	24.1	100
TOTAL	54	100.0	

From Table 1, the responses from students indicated that thirteen (13) students representing 24.1% strongly disagreed that they enjoyed studying mathematics and twenty (20) students representing 37.0% disagreed with the statement. Twelve (12) students representing 22.2% agreed that they enjoyed studying mathematics while nine (9) representing 16.7% strongly agreed that they enjoyed studying mathematics. The role of teachers in making mathematics enjoyable cannot be downplayed. Table 2 shows students responses on the question “I am not happy anytime I miss mathematics classes”.

Table 2 I am not Happy Anytime I Miss Mathematics Class

	FREQUENCY	PERCENT	CUMULATIVE PERCENT
STRONGLY AGREE	15	30.2	30.2
AGREE	19	35.2	65.4
DISAGREE	13	24.1	89.5
STRONGLY DISAGREE	7	10.5	100.0
TOTAL	54	100.0	

Table 2 also revealed that, 10.5% of the students strongly disagreed with the statement that they were not happy anytime they missed mathematics classes. 24.1% of the students disagreed with that statement. 35.2% of the students agreed that they were not happy anytime they missed a mathematics class. 30.2% of the students strongly agree to the statement. Table 3 shows students responses to the question “My teacher motivates me a lot during mathematics class”.

Table 3 My Teacher Motivates Me A Lot During Mathematics Class

	FREQUENCY	PERCENT	CUMULATIVE PERCENT
STRONGLY AGREE	6	11.1	11.1
AGREE	17	31.5	42.6
DISAGREE	21	38.9	81.5
STRONGLY DISAGREE	10	18.5	100.0
TOTAL	54	100.0	

Table 3 below also depicts that seventeen (17) students representing 31.5% agreed that their mathematics teachers motivates them a lot, six (6) students representing 11.1% strongly agreed to that statement. Twenty-one (21) students representing 38.9% disagreed that they are motivated by their mathematics teachers and ten (10) students representing 18.5% strongly disagreed that they are motivated by their mathematics teachers. Table 4 shows students response on the question “Are the students punctual and regular to mathematics classes?”.

Table 4 Are the Students Punctual and Regular to Mathematics Classes?

	FREQUENCY	PERCENT	CUMULATIVE PERCENT
YES	5	55.6	55.6
SOMETIMES	4	44.4	100
TOTAL	9	100	

Responses from mathematics teachers about students punctuality and regularity to classes indicated from table 4 below that five (5) teachers representing 55.6% agreed that their students were punctual and regular to mathematics classes while four (4) students representing 44.4% stated that there were times when students were not punctual and regular to mathematics classes. Table 5 shows students response on the question “Do students come to class with all necessary materials in mathematics?”

Table 5 Do Students Come to Class with All Necessary Materials in Mathematics?

	FREQUENCY	PERCENT	CUMULATIVE PERCENT
NO	1	11.1	11.1
SOMETIMES	7	77.8	88.9
YES	1	11.1	100
TOTAL	9	100	

Table 5 below also depicts that seven (7) students representing 77.8% agreed that their mathematics teachers motivates them a lot, six (6) students representing 11.1% strongly agreed to that statement. Table 6 shows responses to the question “What are the students attitude towards mathematics?”

Table 6 What are the Students Attitude Towards Mathematics?

	FREQUENCY	PERCENT	CUMULATIVE PERCENT
GOOD	1	11.1	11.1
QUITE GOOD	1	11.1	22.2
BAD	7	77.8	100
TOTAL	9	100	

Responses from the mathematics teachers about students attitude towards mathematics indicates from table 6 below that seven (7) teachers representing 77.8% stated that students attitude towards mathematics was bad, one (1) teacher representing 11.1% agreed to the statement that students attitude towards mathematics was quiet good while one (1) teacher representing 11.1% also agreed that students attitude towards mathematics was good.

Table 7 What are the Student’s Attitude Towards Mathematics in your School?

	FREQUENCY	PERCENT	CUMULATIVE PERCENT
GOOD	2	22.2	22.2
QUITE GOOD	2	22.2	44.4
BAD	5	55.6	100
TOTAL	9	100	

Responses from the head teachers of the various schools about students attitude towards mathematics indicates from table 7 below that five (5) head teachers representing 55.6% stated that students attitude towards mathematics was bad, two (2) head teachers representing 22.2% agreed that students attitude towards mathematics was quiet good while two (2) other head teachers representing 22.2% agreed to the statement that students attitude towards mathematics was good.

C. Mathematics Teachers Attitude to Teaching and Learning of Mathematics in the Akuapem-North Municipality

To examine the attitude of mathematics teachers to the teaching and learning of Mathematics in the Akuapem-North District teachers were made to answer questions.

Table 8 My Teacher has A Good Attitude when Teaching Mathematics

	FREQUENCY	PERCENT	CUMULATIVE PERCENT
STRONGLY AGREE	8	14.8	14.8
AGREE	15	27.8	42.6
DISAGREE	21	38.9	81.5
STRONGLY DISAGREE	10	18.5	100.0
TOTAL	54	100.0	

Students responses on teachers attitude to teaching and learning of mathematics from table 8 indicated that eight (8) students representing 14.8% strongly agreed that their teachers attitude when teaching mathematics was good, fifteen (15) students representing 27.8% also agreed that their teachers attitude when teaching mathematics was good. Twenty-one (21) students representing 38.9% disagreed that their teachers’ attitude when teaching mathematics was good. Ten (10) students representing 18.5% strongly disagreed that their teachers’ attitude when teaching mathematics was good.

Table 9 How Often do you Give Students Homework in Mathematics?

	FREQUENCY	PERCENT	CUMULATIVE PERCENT
ONCE A WEEK	4	44.4	44.4
TWICE A WEEK	4	44.4	88.8
EVERYDAY	1	11.1	100.0
TOTAL	9	100	

Teachers responses on how often students are given home work in mathematics from table 9 indicated that only one (1) teacher representing 11.1% gives homework every day, four (4) teachers representing 44.4% give home work twice a week and four (4) teachers representing 44.4% gives homework once a week. Homework is seen as a contribution towards students' learning, extending the curriculum beyond the classroom and it can be conceived as one facet of opportunity to learn in the sense that home assignments offer students the opportunity to continue school work after regular school hours.

Table 10 How Often do you Conduct Mathematics Class Tests in A Term?

	FREQUENCY	PERCENT	CUMULATIVE PERCENT
ONCE	2	22.2	22.2
TWICE	5	55.6	77.8
THRICE	2	22.2	100.0
TOTAL	9	100	

Teachers responses on how often mathematics class tests are conducted in a term from table 10 indicated that two (2) teachers representing 22.2% conduct mathematics class tests once in a term, five (5) teachers representing 55.6% also conduct mathematics class tests twice in a term and two (2) teachers representing 22.2% conduct mathematics class tests thrice in a term. Class test is a contribution towards students' learning, extending the curriculum beyond the classroom bringing about continuous practice and can be conceived as one facet of opportunity to learn in the sense that tests offer students the opportunity to continue with their regular school work school hours.

Table 11 What Theories of Learning Mathematics do you follow when Teaching Mathematics?

	FREQUENCY	PERCENT	CUMULATIVE PERCENT
BEHAVIORIST	2	22.2	22.2
CONSTRUCTIVIST	5	55.6	77.8
NONE	2	22.2	100.0
TOTAL	9	100	

Teachers' responses on what theories of learning mathematics teachers use when teaching mathematics from table 11 indicated that three (3) teachers representing 33.3% applies the behaviourist theory of learning, two (2) teachers representing 22.2% applies the constructivist theory of learning while four (4) teachers representing 44.5% no theory of learning.

Table 12 What Methods of Teaching Mathematics do you use in Teaching Mathematics?

	FREQUENCY	PERCENT	CUMULATIVE PERCENT
EXPOSITORY LEARNING	2	22.2	22.2
DISCOVERY LEARNING	5	55.6	77.8
BOTH EXPOSITORY AND DISCOVERY LEARNING	2	22.2	100.0
TOTAL	9	100	

Teachers responses on the methods of teaching mathematics used in teaching mathematics from table 12 indicated that one (1) teacher representing 11.1% uses the discovery method, five (5) teachers representing 55.6% also expository method and three (3) teachers representing 33.3% uses both discovery and expository methods of teaching.

Table 13 shows teachers responses on the question on "What techniques/skills do you use when teaching mathematics?"

Table 13 What Techniques/Skills do you use when Teaching Mathematics?

	FREQUENCY	PERCENT	CUMULATIVE PERCENT
EXPOSITORY LEARNING	2	22.2	22.2
DISCOVERY LEARNING	5	55.6	77.8
BOTH EXPOSITORY AND DISCOVERY LEARNING	2	22.2	100.0
TOTAL	9	100	

Teachers responses on the techniques and skills used when teaching mathematics from table 13 indicated that two (2) teachers representing 22.2% uses evaluative skills, one (1) teacher representing 11.1% also uses the questioning skills, one (1) teacher representing 11.1% also uses the motivational skills and five (5) teachers representing 22.2% uses all three types of skills.

V. DISCUSSIONS

➤ *Discussion on Students' Attitude to Teaching and Learning of Mathematics*

In order to find out students' attitude to teaching and learning of Mathematics in the Akuapem-North District, questionnaires were answered by teachers and head teachers. The mathematics teachers' responses revealed that most of the students had poor foundations in mathematics hence they found it difficult in solving mathematics problems. Again, some of the mathematics teachers were of the view that, most of the students do not have mathematical instruments which they need for their mathematics classes. Some head teachers attributed the factors responsible for the pupil's poor performance in mathematics to the mathematics teachers inability to motivate pupil's, while others also attributed it to parents not being able to find out from the students what they learnt at school and also laziness on the part of the students. In addition to that, it came to light that some of the mathematics teachers were not using TLMs in the teaching and learning process. Also some of the head teachers were of the view that some teachers were not given students enough home work in mathematics. As to whether motivation, given students time to do their homework and supervising them could improve students' performance in mathematics, the number of who responded in the affirmative were far greater than the number of parents who responded that could not improve their performance in mathematics. However, it was evident that students had a very bad attitude to the study of mathematics due to the fact most of the students are not punctual and regular to mathematics classes. This confirms what Tapia (2004) suggested in the literature review that students with negative attitudes towards mathematics have performance problem. In addition to that, according to both the head teachers and the mathematics teachers explained that most of the students had a bad attitude to the study of mathematics because they do not do their homework regularly and are always not punctual to class.

➤ *Discussion on Teachers' Attitude to Teaching and Learning of Mathematics*

In finding out teachers' attitude towards teaching and learning of Mathematics in the Akuapem-North District, questionnaires were answered by students and head teachers. The head teachers' responses revealed that most of the students did not have basics in mathematics hence they found it hard in solving mathematics problems. In addition to that, some of the head teachers explained that, most of the teachers were not motivating the students as such their poor performances. Some head teachers attributed the factors responsible for the pupil's poor performance in mathematics to the mathematics teachers inability to motivate the pupil's, while others also attributed it to parents not being able to find out from the students what they learnt at school and also laziness on the part of the students. In addition to that, it came to light that some of the mathematics teachers were not using TLMs in the teaching and learning process. As to whether motivation, given students time to do their homework and supervising them could improve students' performance in mathematics, the number of parents who

responded in the affirmative were far greater than the number of parents who responded that could not improve their performance in mathematics. One other factor observed was the frequency with which students were given homework or assignments to do. Homework is a contribution towards students' learning, extending the curriculum beyond the classroom and conceived as one facet of opportunity to learn in the sense that home assignments offer students the opportunity to continue school work after regular school hours. A cross-analysis from the teachers' questionnaires revealed that most of the mathematics teachers give homework once a week or twice a week which is inadequate for the students practice on the subject being taught while only a few teachers give home work at least thrice a week. In addition to that, the frequency with which students were given class tests to write also determines the teachers attitude since class tests are tests written to find out students learning weaknesses and strengths which brings about an extension of the syllabus in the classroom and seen as one aspect of opportunity to learn in the sense that class tests also offer students the opportunity to continue with their school work. From the teachers questionnaires, it was evidently clear that most of the mathematics teachers write class tests once or twice a term which is inadequate to help identify the students strengths and weaknesses in the subject being taught while only a few teachers ensure that students write class tests at least thrice a term. Theories of learning mathematics cannot be downplayed since they are propounded theories that have helped in the understanding of the various concepts in mathematics. It was evident that most teachers had no or little idea about the theories of learning mathematics. The few who had ideas about the theories used the behaviorist theory than the constructive as indicated from teachers responses on the theories teachers use when teaching mathematics. It is therefore expedient for teachers to note that the constructivist theory helps every individual learner in his own mind to construct his/her own knowledge from personal experiences and from social interactions which depends solely on the learners existing knowledge structures. This is determined by what is perceived as appropriate and practical. Thus mathematics learning is a process of knowledge construction in which people use available knowledge to construct new knowledge while the behaviorist learning theory requires practice repetition and testing of discrete basic skills prior to any teaching of higher order thinking skills. This means assessment should reduce the emphasis on the ability to memorize and increase the emphasis on thinking and problem solving. Hence teachers are expected to use the Constructive theory of teaching and learning mathematics. Methods of teaching mathematics cannot be underestimated. It is of high importance for the appropriate methods of teaching mathematics to be used in the teaching learning process. Teachers responses on the methods used in teaching mathematics from the questionnaire indicated that only a few teachers uses the discovery method and both discovery and expository methods of teaching while majority of the teachers use the expository method. It is worth noting that in teaching mathematics students must be guided to discover the various concepts for themselves. Students are given the opportunity to attempt to solve a new problem by devising

their own strategies, rather than following a set of teacher instructions. Guided discovery learning is more effective than conventional, teacher-led instruction; Students not only form a better understanding of the subject matter but also develop deeper cognitive reasoning abilities. It is imperative, however, to ensure that discovery learning is guided to the extent that students know the starting point, parameters and end goal. Based on the above discussions, it is worth stating that teachers' attitude to teaching and learning of Mathematics in the classroom at the Akuapem-North District is bad due to the above reasons

VI. CONCLUSION

This study showed the poor attitude of teachers and students towards the learning of mathematics. The study also revealed the factors responsible for the pupil's poor performance in mathematics as mathematics teachers inability to motivate pupil's, , not given students enough home work in mathematics, not using teaching learning materials to teach , teachers not using the right method to teach mathematics, students poor foundations in mathematics, laziness on the part of the students, students not having basic mathematical tools to help them in solving mathematics problems, lack of mathematics students and teachers text books, parents in ability to provide their children with their basic school needs and not finding out from students what was learnt in school. It is worth noting that teachers play an important role towards enhancing student's participation in classroom activities. Also parents and guardians are key players in improving students' performance in mathematics.

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