UNIVERSITY OF EDUCATION, WINNEBA

THE CAUSES OF POOR PERFORMANCE IN MATHEMATICS AMONG STUDENTS IN PUBLIC JUNIOR HIGH SCHOOL IN ATIWA WEST DISTRICT

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CAUSES OF POOR PERFORMANCE IN MATHEMATICS AMONG STUDENTS IN PUBLIC JUNIOR HIGH SCHOOL IN ATIWA WEST DISTRICT

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A dissertation in the Department of Educational Foundations, Faculty of Educational Studies submitted to the School of Graduate Studies in partial fulfillment of the requirements for the award of the degree of Post Graduate Diploma (Education) in the University of Education, Winneba

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DECLARATION

Student's Declaration

I, Francis Partey, declare that this project report, with the exception of quotations references contained in published works which have been identified and duly acknowledged, is entirely the result of my own original research work, and it has not been submitted either in part or whole for another degree elsewhere.

Signature: ……

Date: ……..…….……

Supervisor's Declaration

I hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines on supervision of project report as laid down by the University of Education, Winneba.

Mr. Kweku Esia-Donkoh (Supervisor)

Signature: ……

Date: ……..…….……

DEDICATION

To my loveliest and most adorable late mother, Mrs. Comfort Dedetsu Partey.

ACKNOWLEDGEMENTS

I wish to express my heartfelt thanks to the Almighty God who made it possible for this project to become a reality. Special thanks go to all my family and friends for their prayers and moral support. Finally, my sincere appreciation goes to my Supervisor, Mr. Kweku Esia-Donkoh for his constructive criticism and encouragement that made me complete this dissertation.

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ABSTRACT

The purpose of this study was to investigate the factors that contribute to students' poor performance in Mathematics in selected public Junior High Schools in Atiwa West District. Purposive and simple random sampling technique was used to select respondents from the population for the study. The sample for the study consisted of all form three Junior High School students preparing for the final examination that comprised of 338. Descriptive survey design was used for the study. The study adopted the quantitative approach. Questionnaire in the form of five points Likert-Scale ranging from strongly disagree (1) to strongly agree (5) was used to collect data. The Statistical analyses used were mean, standard deviation and percentages. The findings revealed that students strongly agreed that they show no interest in Mathematics class was due to student related factors, the exhibition of poor instructional skills by mathematics teachers were the major factors that affect their performance in Mathematics. Based on these findings it was recommended that Ministry of Education either directly or through its agencies should enhance primary school pupils Mathematics background through inclusion of more introductory Mathematics concepts in the primary Mathematics syllabus and also motivate teachers. Again, there is need to develop a love for mathematics through the setting up of "Mathematics Club" in every Junior High School.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

All over the world, Mathematics is considered a key component of society and relates to every area of human activity, especially in the era of science and technology. Mathematics is therefore a key element of the curriculum (Mahanta & Islam, 2012). According to Morali, Köroğlu and Celik (2004), Mathematics is a thought, a way of life and a globally accepted language that is considered as essential in the rapidly changing world, and is a key area for individuals, society, technological advancement and scientific research community. In view of this, Keith (2000) firmly stated that Mathematics is considered a critical issue both by itself and through its important relationships with various fields, such as social science, natural science, medicine, engineering among others.

Reasoning along with the same pattern, Usman (2002) considers that Mathematics is a problem that permeates all aspects of human endeavor and is considered as the lifeline of several disciplines. Furthermore, Anthony and Walshaw (2009) contribute to the discourse by viewing Mathematics as a key international curriculum subject that makes a critical input to all aspects of life in the private, social and urban spheres. This means that, almost all subjects or areas of study and life center on mathematics education. Mathematics is, therefore, a global subject of study, and as such play a critical role in the school curricular of every country, particularly at the beginning stages.

Mathematics education in Ghana like in many other developing countries was keen even in the colonial era, a time when religious education was most considered in

schools. Annabelle-Addo (as cited in Serebour, 2013) expounds on colonial era history to mathematics education, where arithmetic was taught as part of the curriculum to improve commercial activities. It is therefore not surprising that in Ghana, Mathematics is considered a core subject in the basic school (primary and junior high school) and secondary school curricular and an integral part of the school placement system in Ghana. A student must have a pass in mathematics, which is a core subject for entry into Senior High Schools in Ghana. Consequently, a Ghanaian student is required to pass three core subjects before he or she gains admission to a College of education or any Tertiary institutions.

It also fits why, as clearly stated in the Junior High School syllabus in Ghana, mathematics education is deemed an essential area of learning and that everyone needs to develop mathematical concepts and skills to understand and play its role in society, Curriculum Research and Development Division (CRDD, 2012). Furthermore, Serebour (2013) points out that the real reason for teaching Mathematics is to ensure that all Ghanaian youth acquire the skills, ideas, attitudes and Mathematical values they need to succeed in their careers and their daily lives.

Subsequently, the Trends in International Mathematics and Science Studies (TIMSS) report of 2003 which was analyzed by Anamoah-Mensah & Mereku (2005) established that Ghana performed poorly in Mathematics at grade 8 (i.e. Junior High School, form two). Furthermore, Anamua-Mensah, Mereku & Asabere-Ameyaw (2005) in their TIMSS analysis, assessed a very low performance on the part of Ghanaian pupils with a low mean score of 276 as against the international average mean score of 467. Out of the 46 countries that partook in the 2003 TIMSS test, Ghana was ranked 45th. Similar performance was recorded in 2007 and 2011. The

scale scores of 130 and 430 in 2007 were far below the average score of 500 and 800 (Anamuah-Mensah, Mereku & Ghartey-Ampiah, 2008). The performance of students in Mathematics is generally assessed to be poor and therefore the suggestion to help students know or understand the relevance of mathematics in the country's educational progression to drive change in pupil's attitude. West Africa Examination Council (WAEC Chief Examiner's Report, 2011). The above WAEC chief examiners' statement resonates with the proposition that the learning of mathematics is not limited only to thinking and reasoning, but also involves the learner's attitudes towards learning of the subject (Kele & Sharma, 2014).

Despite the fact that mathematics is essential for daily life and plays a crucial role in school curriculum, students' performance remains very low. This caused an outcry from mathematics teachers, parents, and students. This is attributed to Students Related factors, Teacher Related factors, Home Related factors and School Environment factors. Githua (2002) there is a plethora of literatures to show that our primitive schools are hampered by scores of problem: shortage of well-trained teachers, inadequacy of teaching facilities, lack of funds to purchase necessary equipment, poor quality textbooks, large classes, poorly motivated teachers, lack of laboratories and libraries, poorly coordinated supervisory activities, interference of the school system by the civil service, incessant transfers of teachers and principals, over-crowded classrooms or laboratories, automatic promotion of pupils, the negative role of public examination on the teaching-learning process, inequality in educational opportunities (Githua, 2002). Githua (2002) emphasized that for education to be effective, especially at the junior school level, teaching staff strength has to be adequate. A student-teacher ratio of 40:1 may be considered adequate but where they exceed, the teacher cannot perform effectively and efficiently.

The physical environment of the school affects academic performance of the students. For example, Gronlund (2001) affirmed that environmental influences help in the acquisition of knowledge and skills. Oskemp, (2002) on the other hand noted that it is because of the effects of the environment on the child that educators are interested in the child's environment, as this, rather than heredity is the phenomenon they can easily control in order to enhance teaching, learning and achievement. Fakuade (1999) explained that the physical settings of the classroom, teaching aids to mention a few, enhance teaching, learning and achievement. It is a fact that surrounding environment of the students influences their performance. For instance, the quality of the school building has direct impact on students' performance. Students perform better academically in better buildings. Biehler and Snowman (1997) have found that students in old buildings scored 5-7% points lower than students in new buildings and so established in independent findings that there is a relationship between the school building condition and students' achievement. Those high-performance schools use various constructions and design methods to improve acoustical environment. This reduces internal noise and external noise factor like traffic (Biehler & Snowman, 1997).

1.2 Statement of the Problem

Mathematics is seen by society as the foundation of scientific and technological knowledge that is vital in social economic development of the nation. Because of this, Mathematics is a compulsory subject at both primary and secondary levels in Ghana. Mathematics is also used as a basic entry requirement into any of the prestigious courses such as medicine, and engineering among other degree courses Pisa (2013). Despite the important role that Mathematics plays in society, there has always been poor performance in the subject at public examinations. The importance of

mathematics in daily life is recognized worldwide and as a result of this, the subject has been given a special place in the school curriculum.

However, students' poor performance in Mathematics is globally known, Ghana not being different. Morris and Maisto (2001) contend that the problem of students' poor performance in Mathematics is not confined to any one country but universal. In response to this global problem, researchers in various countries investigated its root causes. It is in view of this that the researcher designed and conducted this study, which focused on the factors that influenced Junior High School students' performance in Mathematics.

1.3 Purpose of the Study

The main purpose of the study was to investigate the factors that cause poor performance among Junior High School students in Mathematics in the Atiwa West District of the Eastern Region of Ghana.

1.4 Objectives of the Study

1. To examine student-related factors that result in poor students' performance in Mathematics.
2. To investigate the teacher-related factors that result in poor students' performance in Mathematics.
3. To identify the school-related factors that cause poor students' performance in Mathematics.

1.5 Research Questions

The following are questions that guided the study:

1. What are the student-related factors that result in poor students' performance in Mathematics?
2. What are the teacher-related factors that result in poor students' performance in Mathematics?
3. What are the school-related factors that cause poor students' performance in Mathematics?

1.6 Significance of the Study

The study would serve as an advice to students since the findings of the study would provide them with insights into the causes of poor performance in Mathematics and suggest measures to improve the study of Mathematics as reference material. The findings will provide Mathematics teachers the guidance on the selection of suitable methods and resources for teaching and learning Mathematics. Policy developers like the Ghana Education Service, policy implementers and all stakeholders in education would access information that would help in the development of better strategies to improve students' standard in Mathematics. The outcome of the research will therefore be useful for policy direction and development in the field of Mathematics in Junior High Schools. This study will add to the existing knowledge in the teaching and learning of Mathematics. It will therefore encourage other researchers to undertake similar studies in other districts or municipalities of the subject area. Thus, it will help obtain more information relating to the causes of poor performance in Mathematics in Junior High Schools.

1.7 Delimitation of the Study

The scope of this study encompasses Junior High Schools students in the Atiwa West District of the Eastern Region. It would have been ideal to cover the whole of the Eastern Region or perhaps the whole of Ghana. However, it is worth noting that the findings and recommendations from this study could be adapted by areas of similar characteristics in the region and outside the region for the purposes of decision-making.

1.7 Organisation of the Study

The organisation of this study was divided into five chapters. Chapter one discusses the introduction to the study. It involves the statement of problem, purpose of the study, objectives of the study, research questions, significance of the study and organization of the study. Chapter two covers review of related literature relevant to the study, while chapter three focuses on the population, simple instrument for data collection and the procedure used in data analysis. Chapter four deals with data presentation, analysis and discussion of findings. Chapter five dealt with the summary of the research findings, conclusion and recommendation of the study.

1.8 Definition of Terms

To set ground for assessment on the causes of poor performance in Mathematics among students in Junior High School in the Atiwa West District, the researcher presented the working definitions for some of the terms used in this study.

Performance: Accomplishing or achievement of specific goals, objectives set in any academic undertaking in basic mathematics.

Teacher Characteristics: This refers to the attributes and practices which contribute immensely to teacher success or failure. These are displaying fairness, having a positive outlook, being prepared, using a personal touch, possessing a sense of humour, possessing creativity, admitting mistakes, being forgiving, respecting students, maintaining high expectations, showing compassion, and developing a sense of belonging for students.

School Environment: School environment encompasses physical environment such as classrooms and teachers' bungalow, how dark or light the classroom is, temperature and the arrangement of chairs.

Curriculum: The lessons and academic content taught in the school or in a specific programme.

Teaching Method: This comprises the principles and techniques used for instruction. Commonly used teaching methods may include class participation, demonstration, recitation,

memorization, or combinations of these, teacher centred and student-centred methods.

Qualified Teacher: This is the teacher who holds the following certificate such as, Diploma in Education, B.Ed., B.Sc. (Ed), B.Sc. and PGDE, Masters in Education and PhD from a recognized university or college in Ghana and outside Ghana.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

In this chapter the review focuses on the factors that are responsible for the students' poor performance in Mathematics in junior high schools. The study will be reviewed under the following headings:

2.1 The Essence of Mathematics Education

The main goal of mathematics education is to promote students 'learning of mathematics. It focuses on the content and the tools, methods and the approaches that facilitate the teaching/ learning activities. This makes mathematics education essentially practical and dynamic, necessitating new changes in teaching the subject. According to Bush (2009), there have been many changes in both the content and the style of mathematics teaching for the last thirty years. They note that modern methods made greater demands for visual and physical aids to help children understand concepts and processes. The old didactic methods of teaching mathematics which involved rote learning, are gradually being replaced by interactive teaching methods. On the other hand, the introduction of the use of graphic calculators and computers in mathematics classrooms is another worth mentioning recent change in mathematics. The power of using computers in the teaching of mathematics has been emphasized by Bush (2009) as a strategy for developing problem solving skills which was seen as a touchstone for reform. For this reason, the Bush (2009) advised that mathematics education programmes must take full advantage of the power of calculators and computers at all grade levels.

2.2 Determinants of Teacher Related Factors of Students' Performance in Mathematics

2.2.1 Methods of Teaching Mathematics

There are various techniques and methods of teaching mathematics. Every teacher uses his/her specific way of presenting a lesson. That is why many scholars argue that there are as many methods of teaching as there are teachers. On the other hand, there is no one best or most effective method in teaching mathematics. Miheso (2002) notes that no single teaching method can be the method of choice for all occasions. However, much is known about the characteristics of effective methods of teaching mathematics. What is important for every teacher is to select and use the methods with such characteristics. The quality of implementing mathematics programmes is ultimately determined by the teacher's performance and effective work in the classroom situations (Roulet, 2001).

Traditionally, teaching in general and teaching mathematics in particular strongly relied on teachers' exposition followed by practice of the fundamental skills. Many mathematics teachers support the idea that practice makes perfect. They strongly contend that practice or drill alone can help students to master fundamental skills and procedures. According to Moris and Maisto (2001), mathematics teachers at all levels reverted to an emphasis on facts and skills in mathematics (through drill) became very common in many classrooms. It was monkey see, monkey do mathematics, with little or no reason given. Sloan (2002) notes that teachers explain a rule on the blackboard, give some examples of the rule in operation, and then set the class many more examples and exercises to do for themselves. They also noted that teachers believe that understanding would eventually come through sufficient practice. However,

research has shown that drill alone cannot even guarantee recording of the learned theories.

Moris and Maisto (2001) contend that drill with a fact or skill does not guarantee immediate recall. They posit that student competence with a mathematical skill does necessitate extensive practice. Drill alone contributes little or nothing to growth in student‘s mathematical understanding. There are a number of principles that appear frequently in any literature on effective mathematics instruction. These include a problem-oriented learning, focusing on meaning, whole-class discussion and small group-work. Effective teaching requires continuing efforts to learn and improve. Many scholars have addressed various issues relating these topics as effective methods of teaching mathematics. Research findings clearly support the use of small groups as part of mathematics instruction. This approach can result in increased student learning as measured by traditional achievement measures, as well as in other important outcomes (Moris & Maisto, 2001).

Miheso’s (2002) study on grouping in Mathematics classrooms, concluded that students working in small groups significantly outscored students working individually in more than 40 percent of the studies. Miheso (2002) further argues that most studies on achievement on cooperative learning found that, there was significantly greater achievement in cooperative classes than in the control classes. Aiken (2001) observes that considerable research evidence within mathematics education indicates that using small groups of various types for different classroom tasks has positive effects on student learning. Reviews of studies of the effects of cooperative learning have generally yielded positive findings. Research has shown that these programs enhance various effective outcomes, including inter-group

relations, acceptance of mainstream academically handicapped students by their classmates, self-esteem, enjoyment of class or subject, and general acceptance of others. Further, achievement effects of cooperative learning are generally positive (Aiken, 2001).

According to Farooq and Shah (2008), a classroom in which problem solving plays a central role can provide a good environment for mathematics learning to take place. When confronted with an appropriately challenging and interesting problem, students feel both the urge to solve that problem and the concomitant tension that it arouses. A problem needs two attributes if it is to enhance student understanding of mathematics. First, a problem needs the potential to create a learning environment that encourages students to discuss their thinking about the mathematical structures and underlying computational procedures within the problem's solution. Second, a problem needs the potential to lead student investigations into unknown yet important areas in mathematics (Farooq & Shah, 2008). Cockcroft (2002) notes that investigations have consistently shown that an emphasis on teaching for meaning has positive effects on student learning, including better initial learning, greater retention and an increased likelihood that the ideas will be used in new situations. Similarly, Sloan (2002) found that focusing on the meanings gives students a strong foundation for learning new related ideas. It also helps them to know when to apply particular skills or procedures, because they see the underlying reasons that these methods work.

Miheso (2002) research findings indicated that achievement levels were significantly different in interactive from those in traditional classrooms at computational levels. However, differences in achievement were evident between interactive and traditional classrooms in application and comprehension levels of cognitive growth (Miheso,

2002). Miheso also found that currently didactic teaching accounted for 75% of mathematics teaching and only 25% accounted for classroom interaction.

On the other hand, research suggests that whole-class discussion can be effective when it is used for sharing and explaining the variety of solutions by which individual students have solved problems. It allows students to see the many ways of examining a situation and the variety of appropriate and acceptable solutions (Zan & Martino, 2007). Some mathematics educators believe that for a mathematics teaching method to be effective, it should contain various and balanced pedagogical approaches and activities so that students with different types of learning styles can be catered for. Cockcroft (2002) notes that mathematics teaching at all levels should include opportunities for: Exposition by the teacher;

1. Discussion between teacher and pupils and between pupils themselves.
2. Appropriate practical work.
3. Consolidation and practice of fundamental skills and routines.
4. Investigational work.
5. Problem solving, including the application of mathematics to everyday situations.

2.2.2 Teacher-students Interaction

Students learning mathematics do so with assistance from their teachers. Teacher learner interaction in classroom should be geared towards achieving a goal; to learn mathematics, teachers should be conscious of their own attitudes towards mathematics and other subjects and towards his/her students regardless of their gender. Zan and Martino (2007). They further emphasized that there should be provision of guidance and counselling to students with repeated under-achievement to

reinforce the students accordingly and motivate them by providing for the individual differences.

2.2.3 Teacher Self-efficacy

Self-efficacy as a teacher, on the other hand, is a powerful predictor of how and whether a teacher will act (Dienes, 2000). Self-efficacy is the belief that one is capable of exercising personal control over one's behaviour, thinking and emotions. Effective teachers believe that they can make a difference in children's lives, and they teach in ways that demonstrate this belief (Dienes, 2000). What teachers believe about their capability is a strong predictor of teacher effectiveness. To Dienes (2000) teachers who hold strong self-efficacy beliefs tend to: be more satisfied with their job, demonstrate more commitment and have lower absenteeism. Dienes (2000) further emphasized that teachers who have high self-efficacy tend to: persist in failure situations, take more risks with the curriculum, use new teaching approaches, make better gains in children's achievement and have more motivated students.

2.2.4 Teachers Experience

Teacher characteristics such as years of teaching experience have been investigated to determine their effect on student outcomes (Chapman, 2002). A more recent analysis by Mwangi (2002) used multilevel structural equation modeling to analyze data and found that teachers with a major or minor in the subject area that they are assigned to teach produce greater gains in student achievement in both mathematics and science. This remained true even after controlling for teacher professional development, teacher classroom practices, class size, and student demographics. Interestingly, Aiken (2000) found that students with mathematics teachers' assigned infield scored higher and had greater gains than students with mathematics teachers' assigned out-

of-field which indicates a connection of content-knowledge, but not necessarily applying pedagogical knowledge to other content areas. However, teacher experience is a topic of potential concern to policymakers, because experienced teachers often try to move to districts, schools, and classrooms with a more privileged student body and higher resources.

Thus, if teacher experience is related to student achievement, and more experienced teachers are able to some extent select the schools and districts in which they teach, or even their teaching assignments within a school, poor students and students at risk of educational failure may end up being doubly disadvantaged because they are more likely to be taught by inexperienced teachers. Akey (2006) found in their meta-analytical study that teaching experience had a positive and significant effect on student achievement. Akey (2006) further found evidence that although teaching experience appears to be related to student achievement, the relationship may not be linear; students whose teachers had fewer than 5 years of experience had lower levels of mathematics achievement, but there were no differences in mathematics achievement among students whose teachers had more than 5 years of experience.

2.2.5 Teacher Qualifications

Interest in student performance and teacher qualifications has intensified among education policymakers and researchers. During this time period, research has accumulated that links student achievement to the qualifications of teachers (Aborisade, 2009). Two central measures of teacher qualifications are teachers' education and their certification. To understand how many students are taught by teachers lacking specified levels of training, efforts have focused on mismatches between teacher qualifications and their teaching assignments (Besant, 2000). One of

the main findings concerning teacher qualifications has been the relatively high incidence of teachers teaching subjects outside their areas of subject matter training and certification (Besant, 2000). Moreover, the incidence of out-of-field teaching has been shown to vary by subject and by grade level. Out-of-field teaching also has been shown to occur more often in the classrooms of low income students (Costello, 2001).

Oskemp (2002) analysis of teachers' qualification and students' mathematics performance found a positive relationship between these variables; with higher levels of performance among students whose teachers held a bachelor's or master's degree in mathematics than among students whose teachers were diplomates. Oskemp (2002) examined data on the degrees and certification status of teachers and their students' performance in mathematics and observed a positive relationship between teachers' degrees and student performance in mathematics. Oskemp (2002) further found that students whose teachers were certified in mathematics but did not hold a degree in mathematics did not perform as well.

2.2.6 Teacher Attitude towards Mathematics

An understanding of how attitudes are learned should establish a connection between teachers and students' attitudes, and attitudes and performance. Sorensen (2003) reports that positive teacher attitude towards mathematics was significantly related to high achievement in pupils. Sorensen (2003) studied how the teachers' attitude contributed to students' academic performance and behaviour. The study unveiled among other things, that students with more devoted teachers were regarded by their peers as helpful to victims of bullying relative to students with less devoted teachers. The study also disclosed that students with the devoted teachers had the courage and determination to face difficulties in school life. Teachers were recognized as those

who provided support, encouraged students and their value for love eradicated unwanted behaviour in students. Teachers are, invariably, role models whose behaviours are easily copied by students. What teachers like or dislike, appreciate and how they feel about their learning or studies could have a significant effect on their students. Unfortunately however, many teachers seldom realize that how they teach, how they behave and how they interact with students can be more paramount than what they teach (Sorensen, 2003).

Like all other kinds of attitude, a teacher's attitude towards mathematics can be measured by the emotional response towards Mathematics (affective), beliefs about Mathematics (cognitive), as well as behaviour. Steen (2000) postulate that attitudes and practices of teaching mathematics are complexly affected by beliefs, emotions, social context and content knowledge. Studies confirm that emotional responses toward mathematics that are found in teachers include like and dislike of mathematics, anxiety associated with mathematics and self-confidence in relation to mathematics (Kwakman, 2003). These emotional factors have been found to have an impact on student performance. In their study of teachers' self-esteem connected to mathematics, Kwakman (2003) found that approximately half of the participating pre-service teachers, some of whom were highly qualified, lacked self-esteem in relation to mathematics. Hamachek (2002) stipulate that teachers' exhibition of self-confidence when teaching Mathematics motivates student achievement in mathematics. The learner draws from the teacher's disposition to form his own attitude which may affect her learning outcomes.

Teachers' beliefs about mathematics such as the usefulness of mathematics, the way Mathematics should be learned, the difficulty or ease of mathematics, as well as

gender ability and beliefs also affect their attitude towards the subject and impact on students' performance. According to Hamachek (2002), teachers' beliefs about the utility of mathematics are often found to correlate with either a more positive or negative attitude towards the subject. It is believed that a teacher who sees no usefulness of mathematics in the real world and believes that mathematics should be learnt as a set of rules and algorithms will require his students to memorize procedures and rules without meaning. This is a negative outlook that will make his students develop a negative attitude towards the subject. Also, a teacher who believes that girls are poor in mathematics is likely to impact negatively on girls in his class who will begin to believe that they cannot do mathematics (Hamachek, 2002).

Another aspect of the teacher's attitude towards mathematics is the teacher's behaviour in relation to mathematics. Such mathematics-related behaviour as avoidance of mathematics, pursuit of mathematics and instructional behaviour in the classroom all affect student attitude and performance (Hamachek, 2002). Usually, the way that University of Education, mathematics is represented in the classroom and perceived by students, even when teachers believe they are presenting it in authentic and context dependent way stands to alienate many students from mathematics (Hamachek, 2002). Good and Brophy (1999) stipulates that students' positive attitude towards mathematics is enhanced by the following teacher-related factors: teachers' enthusiasm, teachers' resourcefulness and helpful behaviour and teachers' thorough knowledge of the subject-matter and their making mathematics quite interesting. It is inferred that teachers can foster in students the positive attitudes about mathematics that help to build confidence by: encouraging the belief that everyone can "do" mathematics – emphasizing effort, not innate ability, modelling enthusiasm for teaching and learning Mathematics, addressing the learning styles of students by

providing a variety of ways for students to gain an understanding of difficult concepts, helping students to appreciate the value of mathematics in their lives, and choosing activities carefully (not too easy, not too hard), so that students can be both challenged and successful (Good & Brophy, 1999).

2.3 Students Related Factors in Mathematics Performance

2.3.1 Students Willingness towards Problems Solving and Mathematics Achievement

Students who have high level of positive attitude in mathematics will have high level of success in life (Watson, 2002). Therefore, willingness towards problem solving is believed to play a significant role in mathematics achievement. Schenkel (2009) found that excellent students have high level of willingness to solve mathematics problems compared to average and weak students. His finding is also supported by Aiken (2001) that excellent students have high level of willingness towards problem solving. Aiken (2001) further highlight that an individuals' self-efficacy expectation of their individual ability to successfully perform a given task is a reliable predictor of whether or not they will attempt the task, the amount of effort they will expend and their level of perseverance in the face of unanticipated difficulties. (Aiken, 2001). Watson (2002) shown that self-efficacy has been used in the evaluation of performance in a variety of academic areas but a major focus has been related to mathematical skills.

2.3.2 Teachers-Students ratio

Githua (2002) there is a plethora of literatures to show that our primitive secondary schools are hampered by scores of problem: shortage of well-trained teachers, inadequacy of teaching facilities, lack of funds to purchase necessary equipment, poor

quality textbooks, large classes, poorly motivated teachers, lack of laboratories and libraries, poorly coordinated supervisory activities, interference of the school system by the civil service, incessant transfers of teachers and principals, over-crowded classrooms or laboratories, automatic promotion of pupils, the negative role of public examination on the teaching-learning process, inequality in educational opportunities (Githua, 2002). Githua (2002) emphasized that for education to be effective, especially at the junior school level, teaching staff strength has to be adequate. A student-teacher ratio of 40:1 may be considered adequate but where they exceed, the teacher cannot perform effectively and efficiently.

Martens and Witt (2004) asserts that owning to the bloated class-size, the work becomes unwieldy and tedious, personal attention to individual pupils becomes impracticable, marking of assignments becomes tedious and burdensome, while compilation of results became a frustrating exercise. The resultant effect is the pathetic situation of poor performances in Mathematics examination. They wonder how a single teacher can take care of 50 students at a time. In most cases, the rooms are too small and poorly ventilated. It becomes difficult for the teachers to establish any close individual contact with the students.

Baldacchino and Farrugia (2002) affirm the effects of class size and teacher/student ratio on performance of students especially in mathematics. They further (1998) concluded that small classes have an advantage over larger classes in school performance and confirms that students in small classes scored higher on standardized test than students in regular class.

2.3.3 Students' Attitude and Commitment

Anderson (2011) confirmed that a child who has a positive attitude towards what he learns will be highly motivated to engage in activities that promote learning thereby developing a positive self-concept in relation to the total teaching environment. One of the most important factors for improving performance is students' involvement. By involvement it means how much time, energy and efforts students devote to the learning process. Several studies have found a small but positive correlation between some school factor and attitudes (Anderson, 2011). Cooper (2009) provides evidence that aspects of the classroom learning environment are positively related to mathematics attitudes.

Attitudes therefore relate to the way we act or react and the way we perform our thinking is what results in our attitudes. Our actions therefore depend on our attitudes. There is now a good deal of research evidence to suggest that the more time and efforts students invest in the learning process and the more intensely they engage in their own education, the greater will be their growth and achievement, their satisfaction with their educational experiences and their persistence in school, and the more likely they are to continue their learning (Cooper, 2009), the students bring to the instructional setting his abilities, motivational propensities, personal background; home background, community values and these can mar, make or supersede teacher's intervention of whatever quality. Cooper (2009) sees attitude as a mental state of readiness organized through experiences, exerting a direction or dynamic influence upon the individual's response to all objects and situations with which it is related.

Attitude therefore is fundamental to the dynamics of behaviours and determines how far a student learns. Jolibongo (2012) posits that if a student has a positive

attitude towards mathematics, he will not only enjoy studying it but will also derive satisfaction from the knowledge of mathematical ideas he gains. Jolibongo (2012) explains further, if a student has a positive attitude to mathematics, he will definitely be interested in its teaching and learning. For Munn (2009), most mathematics teachers do not make the teaching of mathematics practical and exciting and this leads to negative attitude to mathematics by students.

According to Munn (2009), the elements of novelty, usefulness and sheer intellectual curiosity are the primary stimuli for the awakening, maintaining the students' interest in mathematics. With genuine attitudinal change, sustained interest and continual challenge, mathematics would no longer seem to the students a boring, useless to real life issues and increasingly incomprehensible but a subject that will be longed for. The aim of understanding such an investigation, the researcher hoped, would be useful for teachers of mathematics in Ghanaian junior high schools. It has in fact been confirmed that effective teaching strategies can create positive attitude on the students towards school subjects (Munn, 2009).

2.4 School Related Factors

2.4.1 The school environment

The physical environment of the school affects academic performance of the students. For example, Gronlund (2001) affirmed that environmental influences help in the acquisition of knowledge and skills. Oskemp, (2002) on the other hand noted that it is because of the effects of the environment on the child that educators are interested in the child's environment, as this, rather than heredity is the phenomenon they can easily control in order to enhance teaching, learning and achievement. Fakuade (1999) explained that the physical settings of the classroom, teaching aids to mention a few,

enhance teaching, learning and achievement. It is a fact that surrounding environment of the students influences their performance. For instance, the quality of the school building has direct impact on students' performance. Students perform better academically in better buildings. Biehler and Snowman (1997) have found that students in old buildings scored 5-7% points lower than students in new buildings and so established in independent findings that there is a relationship between the school building condition and students' achievement. Those high-performance schools use various constructions and design methods to improve acoustical environment. This reduces internal noise and external noise factor like traffic (Biehler & Snowman, 1997).

Another interesting factor to note is that daylight is a central component of high-performance design. Providing natural daylight provides biological stimulation for that regulate body system and moods, provide opportunities for natural ventilation, and reduce the need for artificial light, thereby reducing energy costs (Biehler & Snowman, 1997). Dean (2004) concludes that the inadequacy of such physical resources like lecture halls, halls of residence, laboratories, libraries and other academic resources translate to poor results because it breeds over crowdedness. To Dean (2004) good acoustics are important in any learning situation, but noise in classrooms often makes children struggle to hear and concentrate, defeating the learning process at the outset. In a typical school, classrooms may bombard students with three sources of noise: Noise from the outdoors, Mechanical noise generated between rooms or between corridors and rooms, Noise generated within the classroom, including the ventilation system.

Taken all together, the noise can stifle a child's chance to learn (Dean, 2004). The interaction between the environment factor and the personal characteristics of the student do exhibit significant effects on the academic performance of the students. This has supported Hamachek notion of person-environment interaction (Hamachek, 2002). Clearly, there is consensus that newer and better school buildings contribute to higher students' score on standardized tests (Lubinski, 2003), but just how much varies depending on the study and the subject area. For example, Sorensen (2003) found impressive gains in mathematics scores and found lower gains in social sciences. When buildings new schools, it is essential to incorporate the best design practices available. This is particularly relevant as numerous studies show that the central features of high-performance schools including ventilation, day lighting, and acoustics have a direct impact on academic outcomes. School facilities affect learning. Spatial configurations, noise, heat, cold, light and air quality obviously bear on students' and teachers' ability to perform. Empirical studies will continue, focusing on fine-tuning the acceptable ranges of these variables for optimal academic outcomes. But we already know what is needed: clean air, good light and a quiet, comfortable, and safe learning environment. This can be and generally has been achieved within the limits of existing knowledge, technology, and materials. It simply requires adequate funding and competent design, construction, and maintenance (Sorensen, 2003).

2.4.2 Classroom environment

To many people classroom environment is just another expression for classroom setting. It is an undeniable fact that classroom lighting, temperature and ventilation affect student's performance but creating an environment conducive to learning is more than having attractive sights, relaxing sounds, and good ventilation. In addition

to that, a classroom environment conducive to learning is a place where everybody feels comfortable and at ease. It is a place where there is mutual respect in a friendly and nonthreatening atmosphere (Sorensen, 2003).

The teacher is the key factor in influencing the mood of the classroom environment. It is the teacher who creates learner‘s attitudes towards the subject. With the help of their students, teachers foster positive classroom climate which encourages students to be comfortable and at ease in participating in all kinds of teaching learning activities. The teacher is always the decisive element in the classroom. It is the teacher‘s knowledge, personality, mood and skills that mold the entire classroom climate. Although most teachers are not aware of it, it is them who mend or end the children ability to learn the subject.

On the other hand, clear and simple standards of conduct that all students understand are essential to a productive classroom environment. Classroom routines and procedures are the best way to establish these standards. Effective classroom management is more than rules and discipline. Rather, effective teachers establish responses to common classroom issues of order that allow them to focus maximum time and energy on the instructional process. A classroom environment is affected by both physical and psychological factors. Having emotionally safe and encouraging classroom climate is equally important, in creating an effective environment, as the physical makeup of the room (Sorensen, 2003).

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter discusses the methods used in carrying out the present study. Research issues such as the design, population, sample, sampling procedure, research questionnaire, and statistical analysis are presented.

3.1 Research Design

This research used descriptive survey design. This is a method of collecting information by interviews or administering questionnaire to sample of individuals (Orodho, 2009) it can be used in collecting people's data about altitude, opinion habits or any education issues. Survey research is a self-report study which requires collection of quantified information from sample Mugenda (2003). This study was appropriate for this study because by identifying schools-based factors it enabled the school to understand the factors that will lead to poor performance in mathematics. The study employed descriptive survey approach. Sekaran (2000) states that the basic aim of survey research is that the information is collected at one point in time. Rubin (2005) defines descriptive research as a process of collecting data in order to test hypothesis or to answer questions concerning the current status of the subject in the study. Martens (2005) assert that descriptive research involves describing, reading, analyzing and interpreting condition that exists. The study further adopted a cross sectional survey design. This design was chosen because according to Cohen & Manion (2000) studies of this nature may be more productively undertaken because data can be collected from a cross section of a population in a short time and then

results generalized to represent the entire population of the study. This was used in the selection of the school.

3.2 Population of the Study

Orodho (2002) defined population as the group of people from which a sample can be drawn. Population is the total collection of elements about which we wish to make some inferences. The target population for this study comprised Public Junior high school students preparing for the final examination in Atiwa West District. The table 3.1 below illustrates the study population.

Table 3:1 Distribution of the Study Population and their Schools

Schools	**Students' population**
AA	65
BB	75
CC	71
DD	54
EE	73
Total	**338**

3.3 Sample

From the target population, a sample of 102 was selected for the study using simple random method. Simple random sampling technique was employed because it ensured that everyone in the population had an equal chance of being selected. The goal of the sampling method used was to obtain a sample that is a representative of the population. The techniques used by the researcher to select the sample size required prior knowledge of the target population which allowed a determination of the size of

the sample needed to achieve a reasonable estimate with accepted precision and accuracy of the population. With the use of the simple random sampling technique, ''YES'' or ''NO'' was written on piece of papers and folded them and those who selected the ''YES'' were selected. In determining the sample size above, Rubin (2005) postulated that 20% to 30% of the population is sufficient for reliable findings. For the purpose of this study 30% was used. Thus a representative sample of 102 students which constitutes 30% of the entire population was adequate for reliable findings.

3.4 Sampling Procedure

The study used two types of sampling procedures which are purposive and simple random sampling methods. Purposive sampling means that respondents are chosen on the basis of their knowledge of the information desired (Calderon, 1993). Purposive sampling was used to select five junior high schools because it represents 20% of the public junior high schools in the District namely: Banso R/C Junior High School, Abomosu Presby Junior High School, Muoso Methodise Junior High School, Akrofufu R/C Junior High School, Bomaa D/A Junior High School. This sampling technique was employed because it represented the population geographically. And simple random sampling technique was used in the selection of the students by assigning on pieces of papers numbers so that they have equal chance of selection

Table 3.2: The Distribution of Population and Sample Selected from the Various Targeted Junior High Schools.

Schools	Students Population	Selected Sample (30%)
AA	65	20
BB	75	22
CC	71	22
DD	54	16
EE	73	22
Total	**338**	**102**

3.5 Instrumentation

The researcher constructed a questionnaire that had closed ended questions, which were designed to obtain information and data from the junior high school students. Structured questionnaires were preferred by the researcher because of its advantages like; easy to administer on a large population. Questionnaires require less time and money compared to other methods like focus group discussions (Amin, 2005). The questionnaire was a 5-point Likert scale (1= Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree). The questionnaire consisted of 23 items. The items 1 to 5 measures respondents' demographic characteristics. Items 6 to 11 also measured teacher related factors causing poor performance in mathematics in relation to the individual, items 12 to 17 measures teacher Related issues causing poor performance in mathematics, 18 to 23 school Related factors.

3.5.1 Questionnaires

Questionnaire was the main instrument used in this study which was answered by students. It was chosen because of the nature of this study so as to get opinion and views of the respondents. Respondents replied them on their own free will without any influence from another person, they were easy to be administered within a short time and from the relatively larger groups of people who were scattered geographically. Moreover, its results could easily be tabulated and interpreted (Calderon & Gonzales, 1993). The questionnaires used are found in the appendices in this study.

3. 6 Validity and Reliability of the Questionnaire

The validity of research instruments was ensured by assessing the questionnaire items during their construction. Questions were discussed with the supervisor for verification. This was to clear any lack of clarity and ambiguity. The content related validity of the questionnaire was determined and strengthened through an extensive review of the literature.

Reliability refers to the consistency of the instruments in tapping information from more than one respondent. Reliability relates to the consistency of a measure (Tavakol & Dennik, 2011). A participant completing an instrument meant to measure motivation should have approximately the same responses each time the test is completed. In ensuring reliability, the researcher piloted the instrument using pupils who were not part of the selected sample. The internal reliability of the questionnaire was determined with the help of the Statistical Product and Service Solution (SPSS) version 20. According to Tavakol and Dennik (2011), Cronbach's alpha is an important and most common means of evaluating the internal consistency of a

research statistical instrument. Kothari (2004) offered the following guidelines regarding interpretation of Cronbach's alpha scores: ≥ 0.9 is excellent, ≥ 0.8 is good, and ≥ 0.7 is acceptable, ≥ 0.6 is questionable, ≥ 0.5 is poor, and ≤ 0.5 is unacceptable. Using this guide of the Cronbach's alpha score, the reliability test results of the research instrument yielded 0.72 which is acceptable.

3.7 Data Collection Procedure

The questionnaire administration spanned three weeks, and were delivered to the respective schools personally by the researcher for the pupils to respond to them. This was after permission had been sought and granted by the District Directorate of Education with a letter of introduction from the Department of Educational foundation, University of Education. Upon reaching the schools, the researcher went to the head teachers to introduce himself and sought permission by handing over the letter of authorization from the District Education Office before administering the questionnaire. The researcher visited the schools that were involved in the study to administer the instrument to the pupil respondents and teachers concerned.

The instruments were administered to all the sampled schools in four weeks. In order to ensure that the instruments were well completed, enough time was given to the pupils so that they could have time to complete them well. The return rate for the instrument was 100% since its administration was personally done by the researcher.

3.8 Data Analysis Procedure

With the aid of version 2020 of the Statistical Product and Service Solution (SPSS) software, descriptive statistics such as frequency counts, percentages, means and standard deviation will be employed to analyse the questionnaire. The percentage of the total respondents responding to each question was stated with their means and

standard deviations calculated. The data were presented according to the responses of the respondents.

3.9 Ethical Considerations

As this study utilized human participants and investigated on accounting school practices in life, certain issues were addressed. The consideration of these issues is necessary for the purpose of ensuring the privacy as well as the security of the participants. These issues were identified in advance so as to prevent future problems that could have risen during the research process. Among the significant issues that were considered included consent, confidentiality and data protection.

In the conduct of the research, the questionnaire was drafted in a very clear and concise manner to prevent conflicts among respondents. People who participated in the research were given ample time to respond to the questions posed on them to avoid errors and inaccuracies in their answers. The respondents were given a waiver regarding the confidentiality of their identity. The respondents' cooperation was eagerly sought after, and they were assured that the data gathered from them would be treated with the strictest confidence, so that they would be more open. This was done with the hope that this would promote trust between the researcher and the respondents.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.0 Introduction

This chapter is divided into two major sections. The first section provides the demographic characteristics of the respondents. The second section presents the answers and discussions to the study research questions.

4.1 SECTION A – Demographic Characteristics of Respondents

Table 4.1 below shows the age group of the students. The dominant age group of the students ranged between 13 – 15 years representing 65 (63.7%), followed by age group between 16 to 18 years representing 33 (32.4%) whereas between 10 to 12 years made up the smallest group, representing 4 (3.9%) of the students.

Table 4.1: Age Distribution of Students

Age (years)	Frequency	Percentage
10 – 12	4	3.9
13 – 15	65	63.7
16 – 18	33	3.9
Total	**102**	**100.0**

The sex distribution of the students indicated differences with 64 boys representing 62.7% and 38 girls representing 37.3%. This implies boys who participants were more than girls participants. Table 4.2 below illustrate this relationship

Table 4.2: Sex Distribution of Students

Gender	Frequency	Percentage
Boys	64	62.7
Girls	38	37.3
Total	**102**	**100.0**

Concerning the students' parents' marital status, Table 4.3 below presents that 24 of the students representing 23.5% parents were single, whiles 76.5% parents were intact or married. Table 4.3 below illustrates this relationship

Table 4.3: Distribution of Students Parental Marital Status

Marital status	Frequency	Percentage
Single/ Divorce	24	23.5
Married / Intact	78	76.5
Total	**102**	**100.0**

With regard to the students living status, Table 4.4 below presents that 29.4%. stay with their mothers only, 3.9% reported stayed with their fathers only, 52% indicated that they stayed with both of their parents, whiles 15 of the students representing 14.7% stayed with other relatives. Table 4.4 below illustrates this relationship

Table4.4: Parental Living Status

Living Status	Frequency	Percentage
Mother only	30	29.4
Father only	4	3.9
Both Parents	53	52.0
Other Relatives	15	14.7

4.2 Analysis of Research Questions

4.21 Research Question 1: What are the student – related factors that result in poor performance in Mathematics in the study area?

This section of the research question was meant to identify student related factors that result in poor performance in mathematics in the study area. The students were given questionnaires and requested to express in their views so as to assist in finding out the student-related factors in poor performance in Mathematics. Their responses were recorded in Table 4.5

Table 4.5: Student – related factors that result in poor performance in Mathematics

Statement	SD	D	N	A	SA	Mean
Difficulty in understanding mathematics problem.	5(4.9)	6(5.9)	3(2.9)	46(41.1)	42(41.2)	4.12
Doing assignments help me understand mathematics better.	6(5.9)	4(3.9)	5(4.9)	59(57.8)	24(27.5)	3.97
Students find it difficult to concentrate in mathematics class.	6(5.6)	7(6.9)	6(5.9)	59(57.8)	24(23.5)	3.86
Students do not show interest in mathematics class.	4(3.9)	4(3.9)	2(2)	37(36.3)	55(53.9)	4.32
Calculator would help me do mathematics better.	6(5.9)	7(6.9)	5(4.9)	66(64.7)	18(17.6)	3.81
I feel intimidated by my colleague class mates.	6(5.9)	8(7.8)	2(2)	49(48)	37(36.3)	4.01

Table 4.5 above shows the respondents' views on Student – related factors that result in poor performance in mathematics. The students were asked if they have difficulty in understanding Mathematics problem in class. With this statement, 5 of the students representing 4.9% strongly disagreed, 6(5.9%) disagreed, 3(2.9%) stayed neutral, 46(41.1%) agreed while 42(41.2%) strongly agreed. The mean score of 4.12 implies that averagely the students strongly agreed that they have difficulty in understanding mathematics in class.

The researcher wanted to find out if doing assignments help students understand mathematics better and 6 of the students representing 5.9% strongly disagreed,

4(3.9%) disagreed, 5(4.9%) stayed neutral, 59(56.8%) agreed whiles 28(27.5%) strongly agreed. The mean score of 3.97 fell in the category of agreed. This implies that averagely, the students agreed that doing assignments help them understand mathematics better.

Moreover, I wanted to find out if the students do not concentrate in math class and 6 of the students representing 5.9% strongly disagreed, 7(6.9%) disagreed, 6(5.9%) stayed neutral, 59(57.8%) agreed whiles 24(23.5%) strongly agreed. The mean score of 3.86 fell in the category of agreed. This implies that averagely, the students agreed that they do not concentrate in math class.

The students were further asked they show no interest in math class. With this statement, 4 of the students representing 3.9% strongly disagreed, 4(3.9%) disagreed, 2(2%) stayed neutral, 37(36.3%) agreed while 55(53.9%) strongly agreed. The mean score of 4.32 implies that averagely the students strongly agreed that they show no interest in math class.

The researcher wanted to find out if Calculator would help the students do mathematics better and 6 of the students representing 5.9% strongly disagreed, 7(6.9%) disagreed, 5(4.9%) stayed neutral, 66(64.7%) agreed whiles 18(17.6%) strongly agreed. The mean score of 3.81 fell in the category of agreed. This implies that averagely, the students agreed that Calculator would help them do mathematics better.

Moreover, I wanted to find out if the students feel intimidated by my colleague class mates when asked to perform mathematical task and 6 of the students representing 5.9% strongly disagreed, 8(7.8%) disagreed, 2(2%) stayed neutral, 49(48%) agreed

whiles 37(36.3%) strongly agreed. The mean score of 4.01 fell in the category of strongly agreed. This implies that averagely, the students strongly agreed that they feel intimidated by my colleague class mates when asked to perform mathematical task

It could be said that, majority of the students strongly agreed that they show no interest in math class was due to Student related factors among junior high school students in the study area. This finding was in line with Perina, 2002) noted that lot students experience math anxiety and unwillingness to attempt mathematics problems and exhibit fear of attending mathematics classes, and being unusually nervous when in mathematics class. The finding of this study supports that of Prescott (2001) who indicated that mathematics anxiety hinders students' working memory.

4.2.2 Research Question 2: What are the Teacher – related factors that result in poor performance in Mathematics in the study area?

Table 4.6: Investigate the Teacher-Related Factors that Result in Poor Students' Performance in Mathematics

Statements	SD	D	N	A	SA	Mean
Mathematics teacher is not punctual in class.	22(21.6)	40(39.2)	10(9.8)	20(19.6)	10(9.8)	2.96
Mathematics teachers do not give us enough exercise.	5(4.9)	8(7.8)	5(4.9)	26(25.5)	58(56.9)	4.23
Mathematics teachers cannot explain concepts well to us.	6(5.9)	8(7.8)	6(5.9)	24(23.5)	58(56.9)	4.18
Mathematics teacher teaches us using only one methodology (lecture method only)	11(10.8)	10(9.8)	12(11.8)	55(53.9)	14(13.7)	3.50
Mathematics teacher do not solve more examples with us	22(21.6)	19(18.6)	18(17.6)	31(30.4)	12(11.8)	2.92
Mathematics contents were not fully covered.	14(13.7)	22(21.6)	26(25.5)	24(23.5)	16(15.7)	3.06

Findings in table 4.6 above show the students responses on Teacher related factors affecting their performance in mathematics in junior high school students in the study area. In the first place, I wanted to find out from the students if Mathematics teacher is not punctual in class. With this statement, 22 of the students representing 21.6% strongly disagreed, 40(39.2%) disagreed, 10(9.8%) stayed neutral, 20(19.6%) agreed

while 10(9.8%) strongly disagreed. The mean score of 2.96 implies that averagely the students disagree.

Again, 5(4.9%) strongly disagreed that Mathematics teachers do not give them enough exercise. 8(7.8%) disagreed, 5(4.9%) stayed neutral 26(25.5%) agreed whiles 58(56.9%) strongly agreed to that statement. The mean score of 4.23 fell in the category of strongly agreed. This implies that averagely, the students strongly agreed that Mathematics teachers do not give them enough exercise., which serves as a factor that affects their performance in mathematics.

6(5.9%) strongly disagreed that Mathematics teachers cannot explain concepts well to them, serves as a factor that affects their performance in mathematics, 8(7.8%) disagreed, 6(5.9%) stayed neutral 24(23.5%) agreed whiles 58(56.9%) strongly agreed to that statement. The mean score of 4.18 fell in the category of strongly agreed. This implies that averagely, the students agreed that that Mathematics teachers cannot explain concepts well to them, serves as a factor that affects their performance in mathematics.

Moreover, 11(10.8%) strongly disagreed that Mathematics teachers teach them using only one methodology (lecture method only) serves as a factor that affects their performance in mathematics, 10(9.8%) disagreed, 12(11.8%) stayed neutral 55(53.9%) agreed whiles 14(56.9%) strongly agreed to that statement. The mean score of 3.50 fell in the category of agreed. This implies that averagely, the students agreed that Mathematics teachers teach them using only one methodology (lecture method only) serves as a factor that affects their performance in mathematics.

The researcher further wanted to find out from the students if Mathematics teachers do not solve more examples with them serves as a factor that affects their performance in mathematics. With this statement, 22 of the students representing 21.6% strongly disagreed, 19(18.6%) disagreed, 18(17.6%) stayed neutral, 31(30.4%) agreed while 12(11.8%) strongly disagreed. The mean score of 2.92 implies that averagely the students stayed neutral on that statement.

Lastly, I wanted to find out from the students if mathematics contents were not fully covered by their teachers serves as a factor that affects their performance in mathematics. With this statement, 14 of the students representing 13.7% strongly disagreed, 22(21.6%) disagreed, 26(25.5%) stayed neutral, 24(23.5%) agreed while 16(15.7%) strongly disagreed. The mean score of 3.06 implies that averagely the students agreed on the statement that mathematics contents were not fully covered by their teachers serves as a factor that affects their performance in mathematics.

In short, majority of students strongly agreed that exhibition of poor knowledge of mathematics content by many mathematics teachers and poor teaching methods by teachers were the major factors that affect their performance in Mathematics. This finding support that of Dewey (2007) who indicated that poor knowledge of mathematics content by mathematics teachers breeds mathematics teacher ineffectiveness in teaching that highly made teachers incapable in mathematics which in turn crate learning problems for the students. The finding was also in line with Monk (2004) who emphasized that teacher poor pedagogical content knowledge do not attracted the attention and interest of students to the subject.

Black (2001) on the other hand indicated that knowledge of subject matter alone is not sufficient, the Mathematics teacher should be effective and efficient in teaching

methodology. Black (2001) further argued that this creates the template for a sympathetic, well-informed, competent, mathematical language fluency and inspiring teaching and learning and concluded that lack of these breeds inattentive among learners.

4.4 Research Question 3: What are the school-related factors that cause poor students' performance in Mathematics.

The respondents' responses were presented in Table 4.7 below.

Table 4.7: School-Related Factors that Causes Poor Students Performance in Mathematics

Statement	SD	D	N	A	SA	Mean
Overcrowding in Mathematics classroom	51(50)	37(36.3)	8(7.8)	4(3.9)	2(2)	1.71
Lack of reading materials	6(5.9)	4(3.9)	2(2)	25(24.5)	65(63.7)	4.36
Lack of Qualified Mathematics teachers.	22(21.6)	20(19.6)	10(9.8)	40(39.2)	10(9.8)	2.96
Unconducive classroom condition (in the afternoons).	22(21.6)	19(18.6)	18(17.6)	31(30.4)	12(11.8)	2.92
Limited mathematics period.	14(13.7)	22(21.6)	26(25.5)	24(23.5)	16(15.7)	3.06
Lack of student-teacher motivation.	11(10.8)	10(9.8)	12(11.8)	55(53.9)	14(13.7)	3.50

Findings in Table 4.7 above show the students responses on Overcrowding in Mathematics classroom. With this statement, 51 of the students representing 50%

strongly disagreed, 37(36.3%) disagreed, 8(7.8%) stayed neutral, 4(3.9%) agreed while 2(2%) strongly agreed. The mean score of 1.71 implies that averagely the students disagreed that in their classroom they are overcrowded.

Again, 6(5.9%) strongly disagreed that they Lack of reading materials 4(3.9%) disagreed, 2(2%) stayed neutral, 25(24.5%) agreed whiles 65(63.7%) strongly agreed to that statement. The mean score of 4.36 fell in the category of strongly agreed. This implies that averagely, the students strongly agreed that they lack of reading materials.

I wanted to find out from the students if acute shortage of qualified professional mathematics teachers serves as a factor that affects their performance in mathematics. With this statement, 22 of the students representing 21.6% strongly disagreed, 20(19.6%) disagreed, 10(9.8%) stayed neutral, 40(39.2%) agreed while 10(9.8%) strongly disagreed. The mean score of 2.96 implies that averagely the students agreed on the statement that acute shortage of qualified professional mathematics teachers serves as a factor that affects their performance in mathematics.

The researcher further wanted to find out from the students if unconducive classroom condition (in the afternoons) serves as a factor that affects their performance in mathematics. With this statement, 22 of the students representing 21.6% strongly disagreed, 19(18.6%) disagreed, 18(17.6%) stayed neutral, 31(30.4%) agreed while 12(11.8%) strongly disagreed. The mean score of 2.92 implies that averagely the students stayed neutral on the statement that unconducive classroom condition (in the afternoons) serves as a factor that affects their performance in mathematics.

I wanted to find out from the students if limited mathematics periods serve as a factor that affects their performance in mathematics. With this statement, 14 of the students representing 13.7% strongly disagreed, 22(21.6%) disagreed, 26(25.5%) stayed neutral, 24(23.5%) agreed while 16(15.7%) strongly disagreed. The mean score of 3.06 implies that averagely the students agreed on the statement that limited mathematics periods serves as a factor that affects their performance in mathematics.

Moreover, 11(10.8%) strongly disagreed that lack of student-teacher motivation serves as a factor that affects their performance in mathematics, 10(9.8%) disagreed, 12(11.8%) stayed neutral 55(53.9%) agreed whiles 14(56.9%) strongly agreed to that statement. The mean score of 3.50 fell in the category of agreed. This implies that averagely, the students agreed that lack of student-teacher motivation serves as a factor that affects their performance in mathematics.

In conclusion, majority of the students strongly agreed that that lack of reading materials and unconducive classroom conditions were some of the school related factors that cause poor performance among junior high school students in the study area. This finding was in line with Gronlund (2002) affirmed that environmental influences the acquisition of knowledge and skills. Oskemp, (2002) also noted that it is because of the effects of the environment on the child that educators are interested in the child's environment, as this, rather than heredity is the phenomenon they can easily control in order to enhance teaching, learning and achievement.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the major findings of the study, which investigate the factors that contribute to students' poor performance in mathematics at selected junior high schools in Atiwa West District This chapter includes the summary of the research findings, and conclusions from the results and finally the implications and recommendations for further studies.

5.2 Summary of the Study

The study attempted to investigate the factors that contribute to students' poor performance in mathematics at selected junior high schools in Atiwa West District. The following research questions were posed to guide the study:

1. What are the student-related factors that result in poor students' performance in Mathematics?
2. What are the teacher-related factors that result in poor students' performance in Mathematics?
3. What are the school-related factors that cause poor students' performance in Mathematics?

5.3 Key Findings

The following findings were arrived at in the present study: The first research questions sought to find out the student-related factors that result in poor students' performance in Mathematics among junior high school students in the study area. The study revealed that students strongly agreed that they show no interest in math class was due to Student related factors among junior high school students in the study area

Moreover, the second research question which sought to find out teacher-related factors that result in poor students' performance in Mathematics in junior high school students in the study area revealed that the exhibition of poor knowledge of mathematics content by many mathematics teachers and poor teaching methods by teachers were the major factors that affect their performance in Mathematics.

The final research questions sought to find out the school-related factors that cause poor performance in the subject revealed that students strongly agreed that lack of reading materials, lack of student-teacher motivation and lack of Qualified Mathematics teachers are the causes.

5.4 Conclusion

This present study was aimed at surveying the factors responsible for students' poor performance in mathematics in junior high schools in Atiwa West District. The findings of this survey confirmed the fact that; Students do not show interest in mathematics class, difficulty in understanding mathematics problem, the exhibition of poor knowledge of mathematics content by many mathematics teachers and poor teaching methods by teachers were the major factors that affect their performance in Mathematics. Stakeholders enhancing the students understanding that mathematics is the bedrock of technological inventions and growth was the major strategy that serves to improve their performance in Mathematics. These findings therefore would be of great help to governments, teachers, students, professional policy makers and parents in providing a solid springboard to launch a new template to finding a lasting solution to the perennial poor performance issues in mathematics at the BECE.

5.5 Recommendations

From the findings, the following recommendations are made.

- Assignments and group works should be given regularly to students by mathematics Teachers.
- Peer studies should be encouraged by Mathematics Teachers.
- Organization of workshop for Mathematics teachers.
- Headmasters of Junior High School should strengthen organization of PLC
- Teachers should identify and address the needs of learners.
- There is need to develop a love for mathematics through the setting up of "Mathematics Club" in every junior school. It's aims should be as follows: To initiate and develop love for mathematics, to help students develop positive attitude towards mathematics. Frequent inter-school competition in mathematics should be organized.
- Guidance and counselling units should be set up in our junior schools and they should be guiding and counselling students on the educational, personal and social issues affecting students. This will definitely help them to change their view with regard to mathematics and can help in improving their performance in it.

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APPENDIX

Questionnaire for Students

Dear Respondent,

I am carrying out a study on the topic ***Causes of Poor Performance in Mathematics Among students in public Junior High School Students in Atiwa West district***. It is against this background that you have been randomly selected to participate in the research by completing the questionnaire. It would thus be very helpful if you assist by answering the questionnaire as per instructions at the beginning of each section. You are required to provide the most appropriate answer in your opinion. Your responses will be kept confidential. In any case the questionnaire is anonymous. Thank you.

SECTION A

STUDENTS BACKGROUND INFORMATION

Please help us classify your response by supplying the following facts about yourself and your opinion on the raised issues by ticking the appropriate box. There is no right wrong answer therefore no particular response is targeted.

1. Sex: Male [ ]. Female [ ].
2. Age. 10-12 [ ]. 13-15 [ ]. 16-18 [ ]
3. Parental Marital Status: Single/Divorce [ ]. Intact [ ]
4. Living Statuses. Mother only [ ], Father only [ ]. Both Parents [ ]. Other Relatives [ ]
5. Educational level of your guardian or one you stay with Tertiary [ ] Secondary [ ] Basic [ ] Uneducated [ ]

SECTION B

STUDENTS QUESTIONNAIRE

Indicate your level of agreement on the causes of poor performance in Mathematics in relation to Teacher related factors, Student related factors, School related factors and ways of improving it using the scale below: **1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree.**

S/N	Student Related factors	1	2	3	4	5
6	I have difficulty in understanding mathematics problem.					
7	Doing assignments help me understand mathematics better.					
8	Students find it difficult to concentrate in mathematics class.					
9	Students do not show interest in mathematics class.					
10	Calculator would help me do mathematics better.					
11	I feel intimidated by my colleague class mates.					

S/N	Teacher Related factors	1	2	3	4	5
12	Mathematics teacher is not punctual in class.					
13	Mathematics teachers do not give us enough exercise.					
14	Mathematics teachers cannot explain concepts well to us.					
15	Mathematics teacher teaches us using only one methodology (lecture method only)					
16	Mathematics contents were not fully covered.					
17	Mathematics teacher do not solve more examples with us					

S/N	School Related factors	1	2	3	4	5
18	Overcrowding in Mathematics classroom					
19	Lack of reading materials					
20	Lack of Qualified Mathematics teachers.					
21	Unconducive classroom condition (in the afternoons).					
22	Limited mathematics period.					
23	Lack of student-teacher motivation.					