UNIVERSITY OF EDUCATION, WINNEBA

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IMPACT OF HOME VARIABLES ON SENIOR HIGH SCHOOL STUDENTS' PERFORMANCE IN INTEGRATED SCIENCE

JOYCE KLEWIAH

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A THESIS SUBMITTED TO THE FACULTY OF SCIENCE EDUCATION, UNIVERSITY OF EDUCATION, WINNEBA, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF PHILOSOPHY DEGREE IN SCIENCE EDUCATION

AUGUST, 2017

DECLARATION

Candidate's Declaration

I hereby declare that this dissertation is the result of my own original research and that no part of it has ever been presented for another degree in this university or elsewhere.

Name: Joyce Klewiah

Candidate's Signature..... Date.....

Supervisor's Declaration

I hereby declare that the preparation and presentation of this thesis were supervised in accordance with the guidelines for supervision of dissertation laid down by the University Of Education, Winneba.

Name: Prof. John K. Eminah

Supervisor's Signature ……..... Date …….....

DEDICATION

This research work is dedicated to my son Ancel Kwame Quaye.

ACKNOWLEDGEMENT

I first express my profound gratitude to the Almighty God for all that He has done for me. I am greatly indebted to my supervisors Prof. John K. Eminah and Dr. Victor Antwi who spent much time in making all the necessary corrections and contributions to ensure the completion of this project. To my parents and siblings I say God richly bless you. My appreciation goes to all my friends, especially, Claudia Aryeetey, Twumasi Kwarteng, Kwabena, Cecilia Amponsah and Mary Afriyie. May God richly bless you all.

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ABSTRACT

This study assessed the impact of home variables on Senior High School students' performance in integrated science at Ngleshie Amanfro Senior High School in the Ga – South Municipality in the Greater Accra Region. The case study design was used for this research. The main instruments for data collection were questionnaire and interview. The study involved sixty (60) students, sixty (60) parents and thirty (30) teachers and administrators. Purposive sampling was used to select the school as well as the teachers and administrators while random sampling was used to select the individual parent and student respondents. Simple percentages were used to determine the levels of impact of the different home variables affecting students' academic performance in integrated science. The major home variables underpinning the study included socio-economic status of parents, home environment, parental involvement in education and the availability of modern appliances in homes. All the respondents indicated that the socio economic status of parents had been the major factor influencing the poor performance of integrated science students in Ngleshie Amanfro Senior High School. Among the suggested interventions cutting across the various groups of respondents was an appeal to government to design and implement policies that will improve the socio-economic status of parents. Additionally, motivation of students by parents and teachers, the assignment of qualified people to teach science subjects by school authorities, parents' fulfillment of their responsibilities and the supply of adequate text books and learning materials by the Ministry of Education were some of the suggested recommendations to improve integrated science learning in the school.

CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter discusses and specifies the background to the study, statement of the problem, purpose of the study, objectives of the study and the research questions. Also presented are the significance of the study, limitations and delimitations of the study.

1.2 Background to the Study

There has been a constant outcry of fallen standards of education, especially in science, within the Ga-South Municipality of the Greater Accra Region of Ghana. The situation was established by the personal experience of the researcher. The low level of science education has reflected in students' poor performance in core science (WAEC, 2010). According to Eminah (2007), students' academic performance depended on several factors which included parental influences.

Parents are one of the most important and influential elements in the lives of their children. They have the power and the ability to shape, sustain and develop their children's capabilities to cause them to be creative and innovative through their positive involvement in the educational process. On the other hand parents who do not get involved in their children's educational process are also considered to be capable of repressing and destroying the motivation and ability of their children through neglect and indifference to their achievements. Parental involvement takes many forms including good parenting in the home, the provision of a secure and stable environment, intellectual stimulation, parent-child discussion, good models of constructive social and

educational values and high aspirations relating to personal fulfillment and good citizenship; contact with schools to share information; participation in school events; participation in the work of the school; and participation in school governance (Desforges & Abouchaar, 2003).

One area that seems to be given little attention in the educational field is parental role, especially in public schools. Hixson (2006) explained that involvement of parents and the family in decision making is often cited as one of the most important ways to improve public schools. A child's capability to succeed in school depends on how successfully the child is managed by his /her parents in the home environment. It is an environment where the child learns the skills, attitudes and behavior which could mould him/her into a productive and successful student. However, not every child comes from a home that could provide them with the requisite educational resources necessary for academic success. In accordance with that, a parent's socio-economic status played important role in providing these educational resources and which incidentally appear to impose the greatest impact on the child's educational outcomes (Vellymalay, 2012).

Socio-economic status has a relatively strong influence on parental involvement compared to other factors. However, there is a question as to how far the level of the parent's socio-economic status could inspire a child to achieve academic success. Parental involvement has a positive impact on student achievement at all socio-economic levels, though involvement is probably more important for low socio-economic parents, as they are more likely to have lower test scores in science (Driessen, Smit & Sleegers, 2005). Regardless of income, ethnicity or background,

students with concerned parents are more likely to earn higher grades and test scores, have better attitudes, behavior and attendance, graduate and go on to attain additional education than parents who do not show much concern towards their children education. Higher parental involvement is associated with higher educational expectations, enrollment in gifted and talented programmes, and positive perceptions of school. Hong and Ho (2005) have also shown that a continued effort of parental involvement throughout the child's education can improve academic achievement.

Altschul (2012) related a strong relationship between socio-economic status of parents and children's academic outcomes. Parents with high socio-economic status have influence on the choice of schools their children attend. In Ghana, it is generally observed that students from particular public senior high schools (SHS) perform well in science and most of such schools are "grade A schools" and are normally patronized by students from high socio-economic background. Entry into such schools is normally highly competitive. Since such schools can offer admission to only a small proportion of qualified applicants, the rest of the applicants have no choice but to settle for lower grade schools.

It is an undeniable fact that there is a greater parental involvement in private schools at the basic school level compared to public basic schools. It is perceived that the level of the socio – economic status of the parents is to a large extent a predictor of how well students are going to perform at school generally and in science in particular. Most of the children from such private basic school have solid foundation to engage secondary

school education. There is some empirical evidence that apart from teachers, parents exert powerful influence on how well their children are going to perform (Hattie, 2003).

Nyarko (2011) reported that home variables interact to either positively or negatively affect students. For instance, parental expectation of students' learning outcomes invariably results in improved cognitive achievement. Students in the research area have, for some time, been performing poorly in integrated science. This poor performance is a reflection of what was happening at the national level (WAEC 2008, 2009, 2010). People in the research area are predominately engaged in fishing and subsistence farming as their major source of livelihood. Since this is the catchment area of the selected school in this study, it is strongly believed that socio-economic variables in the area may have interacted to exert a negative impact on the students' cognitive achievement in integrated science in particular and in other subjects in general. The focus of this study on integrated science is due to its importance as one of the crucial core subjects required for admission into tertiary level institutions; hence, the need for this study. The findings will provide insight into interventions to be designed to improve the overall performance of the students in the learning of integrated science.

1.3 Statement of the Problem

In Ghana the performance of SHS students in integrated science in both school specific and external examinations (e.g. WASSCE) has been poor. This is reflected in the integrated science results of students in Ngleshie Amanfro Senior High School. There is research evidence (Hattie, 2003) that the home environment has some effect on students' academic performance. Although Ngleshie Amanfro Senior High is situated

in the Ga South Municipality of Greater Accra Region, the setting of the school is predominantly rural. This apart, the school is one of the deprived schools in the region and is a "Grade C" school. Also, most facilities for science lessons are lacking. Science practical activities are difficult to organize under the prevailing circumstances. This and other environmental variables have interacted to exert a negative effect on the students' performance in integrated science which incidentally also has the highest number of students like the other core subjects. This study was designed to determine the home variables that most affect students' performance in integrated science.

1.4 Purpose of the Study

The purpose of this study is to determine;

1. Which home variables have the greatest impact on the students' cognitive achievement in integrated science
2. Whether the home variables affect the Senior High School students' academic achievement in integrated science irrespective of their elective programmes?

1.5 Objective of the studies

The objectives of the study were to;

1. Collect the views of parents on the home variables that had the greatest impact on their wards' achievement in integrated science.
2. Collect the views of the students on the home variables that had the greatest impact on their academic performance in integrated science.

3. Ask the views of the teachers and administrators on the home variables that had the greatest impact on their students' performance in integrated science.
4. Determine measures that can be put in place to improve the student's cognitive achievement in integrated science.

1.6 Research questions

The following research questions were addressed in the study.

1. From the view point of the parents which home variables had the greatest impact on the academic performance of the students in integrated science?
2. From the view point of the students which home variables had the greatest impact on their academic performance in integrated science?
3. From the view point of the teachers and administrators which home variables had the greatest impact on the academic performance of the students in integrated science?
4. What interventions can be designed with regard to the view points to improve the academic performance of the students in integrated science?

1.7 Significance of the Study

The report from this study would be of great importance to policy makers and implementers in the educational sector, such as the Ministry of Education, to know the important role parents' socio-economic status play in their children's education and factor them in their decisions concerning policy making. To the school, the result of the study will help the school administration in planning school programmes for students.

To the guidance counselors, it will serve as a document to provide basis in guiding and counseling student with low academic performances.

To the classroom teachers, they will be guided to be flexible in dealing and handling student with different economic backgrounds and to the students; they will develop self-confidence to excel academically motivated by their parents. Students will be confident in uplifting their academic status as a result of the motivation and support from their parents.

Finally, this thesis comes to add to existing literature as a handy reference material for any further study into this and related topics.

1.8 Delimitations of the Study

This study focused only on the effects of the socio-economic status of the parents on the academic performances in integrated science of students of Ngleshie Amanfro Senior High School though the problem at stake seems to be a nationwide issue and thus should have covered a larger area.

1.9 Limitations of the study

There is the tendency for respondents to give false responses. Additionally some of the students may confer with their colleagues when responding to the items in the questionnaire. This may lead to contamination of the data.

Abbreviations

SES – This refers to the parental education, occupation and income or students individual position within a hierarchical social structure based on their family member's occupation, education, income, wealth, and place of residence.

SHS- Senior High School

WASSCE- West African Secondary School Examination Certificate

PISA- Program for International Student Assessment

P.I - This refers to parents' expectations and aspirations for their children, supervision of school work and reports from the school.

M.G – This refers to television, computers, video games, fridge, freezers, micro wave etc

H.E - This refers to the psycho-social support and intellectual support from the home

Operational Definition of Terms

Home variables refer to; Socio-Economic Status (SES), Parental Involvement (P.I), Modern Gargets (M.G) and Home Environment (H.E).

Academic Performances – Refers to how students deal with their studies and how they cope with or accomplish different task given by their teacher.

Organization of the Study/Report

This research work was organized into five chapters. Chapter one, looked at the background of the study, statement of the problem, purpose, objective, research question, significant of the study, limitations and delimitations of the study. Chapter

Two deals with the literature review that is, what other people have already written about the problem at stake.

Chapter Three focuses on the methodology and procedure used for the study. It consist of the research design, population, sample, data collection methods, instruments for data collection**,** validity and reliability of the instruments, administration of the instrument and data analysis

Chapter Four records and discusses the data collected and the fifth chapter is composed of summary findings of the study, conclusions and recommendations for future research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

This chapter concerns itself with what other people have written about the topic under study or its related issues. The literature related to this study will be reviewed under the following headings;

- Socio –economic status and academic performance
- What is the state of students' academic achievement in integrated science and what influenced it?
- The nature of the relationship between parents and school authorities.
- The role of parents' in their children's academic achievement in science.
- How school authorities can enhance the role of parents' in the academic achievement of their children in integrated science.

2.2 Socio-economic Status and Academic Performance

A family's socio-economic status is based on family income, parental education level, parental occupation, and social status in the community (such as contacts within the community, group associations, and the community's perception of the family) (Demarest et al, 1993). The segregating nature of social class, ethnicity, and race may well reduce the variety of enriching experiences thought to be prerequisite for creating readiness to learn among children. Social class, ethnicity, and race entail a set of 'contextual givens' that dictate neighborhood, housing, and access to resources that affect enrichment or deprivation as well as the acquisition of specific value systems (Crnic & Lamberty, 1994). Across all socio-economic groups, parents face major

challenges when it comes to providing optimal care and education for their children. In most cases, when basic necessities are lacking, parents with low socio-economic status place priorities on housing, food, clothing, and health care. Educational toys, games, and books may appear to be luxuries, and parents may not have the time, energy, or knowledge to find innovative and less-expensive ways to foster young children's development (Ramey and Ramey 1998b). Similar results were found by Teese and Polesel (2003), in their analysis of the performance of students in Victoria. They found clear and consistent trends for children from lower socio-economic status families to have lower scores for year 12 final results and Year 5 benchmarking test results. The same relationship was found for other measures of students' engagement with schooling, such as attendance rates. Teese and Polesel introduced the concept of equity density, drawing together a number of factors such as family status, family occupation, and language background status and so on.

Ainley, Graetz, Long and Batten (2003) discussed further analyses of the Longitudinal Surveys of Australian Youth data in terms of the factors that impact on Equivalent Tertiary Entrance Ranks (a means of generating equivalent Year 12 results between Australian states). They found that the most significant influence on Year 12 score is a student's demonstrated proficiency in literacy and numeracy in earlier years of schooling (Year 9), which represents an accumulation of the student's skills in foundation areas of learning. The second greatest influence is the particular school a student attends. Ainley et al stated that school culture or environment, teaching practices, student confidence and motivation, organisation and resources contribute to differences among schools. Socio-economic background, as measured by parental

education, wealth and occupational status, was the third most important influence on tertiary entrance performance. Students whose parents are professionals, (and to a lesser extent, managers), achieve higher tertiary entrance scores. In effect, Ainley, Graetz, Long and Batten (2003), listed socio-economic status, parental involvement and school environment as factors that have potential influence on children's educational performance.

2.3 Students Academic Performances

Perceived cognitive competence is defined as the extent to which children believe that they possess the necessary cognitive skills to be successful when completing academic tasks, such as reading, writing, and arithmetic. There are theoretical pathways through which children's perceptions and expectations of their cognitive competence are influenced by others: such as (a) performance accomplishments/performance mastery, (b) vicarious reinforcement, (c) verbal persuasion, and (d) emotion regulation. In addition, a child's increased perception of cognitive competence is consistently related to higher academic performance (Chapman, Skinner, & Baltes, 1990). Home variables such us parental involvement in children education, parental socio-economic status and usage of modern gadget can either increase or lower students cognitive competence if managed properly. For instance, parental motivation and verbal advice to children on how they can deal with their learning challenges can positively enhance students' performance.

The significance of parent attitudes toward education and school is less well understood, although attitudes are believed to comprise a key dimension of the

relationship between parents and school. Parents convey attitudes about education to their children during out-of-school hours and these attitudes are reflected in the child's classroom behavior and in the teacher's relationship with the child and the parents (Hill & Chao, 2009).

Students' performance plays an important role in producing best quality graduates who will become great leaders and manpower for the country thus responsible for the country's economic and social development. Academic achievement is one of the major factors considered by employers in hiring workers especially for the fresh graduates (Alos, Caranto & Juan, 2015). Thus, students have to put the greatest effort in their study to obtain good grades and to prepare themselves for future opportunities in their career at the same time to fulfill the employer's demand.

According to Minnesota (2007) the higher educational performance in most cases depends upon the academic performance at the secondary levels. He observed that the measurement of students previous educational outcomes are the most important indicators of students future achievement; this refers that the higher the previous appearance, the better will the student's academic performance in future endeavors be. Similarly, Considine and Zappala (2002) also stated that parents or guardians who have social, educational and economic advantage definitely strengthen the level of their child's success in future.

2.4 The Nature of the Relationship between Parents and School Authorities

Teachers are frustrated with lack of parental involvement in literacy activities at home and at school. Experienced teachers are well aware of the benefits of family involvement in children's education. In the past, parental support was always thought to be a critical component of education, and teachers assumed, whether accurately or not, that families supported their efforts and expectations for children's learning. Yet in contemporary society issues, about parental support and involvement are complicated by diverse family arrangements and vast socio-cultural differences among classroom teachers, children and families. In particular, urban families are often marginalized from everyday school life by poverty, racism, language and cultural differences, and the parents often perceive that public education is designed for children from middle class, at the expense of others (Oakes & Lipton, 1999).

Many researchers have examined the challenges of involving low-income urban families in their children's education. Comer, Haynes, Joyner and Ben-Avie (1996) have shown how parents' involvement in the most poverty stricken urban schools can improve a building's psychological climate for learning and children's academic performance. Delpit (1992) argued that families should serve as cultural informants for teachers to interpret children's behaviors. McCarthey (2000) explained how family involvement in education is influenced by culture, income, language, and the adults' perceptions of school and family responsibilities.

It is widely known that low-income urban parents are reluctant to be involved in their children's education. Hoover-Dempsey and Sandler (1997) identified three psychological factors contributing to this problem. First, the family's perceptions of

their role and responsibility in their children's education are the most important factor predicting parental involvement. Middle class parents, for example, feel that they should collaborate with school efforts. But low-income families often perceive themselves as outside the school system and feel it is the school's responsibility to do the teaching. Secondly, parental feelings of efficacy contribute to their involvement in their children's school. Parents who believe they can make a difference in their children's education are more likely to visit and participate in school activities than those who feel ineffective. Thirdly, some schools are more welcoming than others, and the extent to which schools make parents feel comfortable and valued, contributes to the adults' participation in their children's education. Schools serving low income, ethnically diverse neighborhoods, Hoover-Dempsey and Sandler argued, must make greater efforts to welcome families, because those are the parents who often feel excluded because of differences in their ethnicity, income and culture. In the current study most of the parents are not rich and so it is important to improve upon the relationship between parents and teachers so as to guide children in their education.

There are a variety of reasons why low income urban parents resist involvement in school activities, but certainly cultural and communication differences between teachers and families lie at the heart of the problem. Au and Mason (1981) found that when teachers' conversation styles match that of the community, children are more able and eager to participate in classroom activities. Health (1983) discovered that children will achieve more when their home language patterns and values for literacy resemble that of the school. Cazden (1988) showed that teachers, who are familiar with

children's conversational styles, including the uses of silence, are more successful in their instruction than teachers who are not.

Urban teachers often lack knowledge and respect of the ethnicities and cultures of the children they teach. Baker, Kessler-Sklar, Piotrkowski and Parker (1999) discovered that teachers often have limited knowledge of what parents do at home to help children in school. Pianta, Cox, Taylor and Early (1999) found that most teacher-communications with low income families are poor.

Recently, Nieto (1999) as well as Bloom, Katz, Slosken, Willet and Wilson-Keenan (2000) have emphasized that teachers must establish respectful and trusting social relationships with children and families, and this is essential for any efforts to improve urban education.

Disturbed relationships characterize the social exchanges of schooling: teachers with student, teachers with other teachers, teachers with parents, and all groups. Each party in a relationship maintains an understanding of his or her role's obligations and holds some expectations about the obligations of the other parties. For a school community to work well, it must achieve agreement in each role relationship in terms of the understandings held about these personal obligations and expectations of others. An interrelated set of mutual dependencies are embedded within the social exchanges in any school community. Regardless of how much formal power any given role has in a school community, all participants remain dependent on others to achieve desired outcomes and feel empowered by their efforts.

Important consequences play out in the day-to-day social exchanges within a school community. Comer, Haynes, Joyner and Ben-Avie (1996), stated that social trust among teachers, parents, and school leaders improves much of the routine work of schools and is a key resource for reform. For example, Comer's School Development Project demonstrated that strengthening the connections between urban school professionals and parents of low socioeconomic status can improve their children's academic achievement. Meier (1995) also argued persuasively that building trust among teachers, school leaders, students, and parents was a key component of the success of the middle school that was created in Harlem. The efforts of Alvarado and his colleagues to build learning communities in Community School District 2 in Manhattan also supported the importance of the social dimension of school change (Malloy, 1998).

Strong relational trust also makes it more likely that reform initiatives will diffuse broadly across the school because trust reduces the sense of risk associated with change.

Nieto (1999) indicated that analysis of Holiday School provides strong testimony here, too. Both professionals and parents at Holiday shared a commitment "to go to extra mile for the children".

Elementary school teachers spend most of their time engaged with students. Little in their professional training prepares them for working with parents and other adults in the community. Moreover, because of the class and ethnic differences between school professionals and parents in most urban areas, conditions can be ripe for misunderstanding and distrust. Effective urban schools need teachers who not only

know their students well but also have an empathetic understanding of their parents' situations and the interpersonal skills needed to engage adults effectively.

The stability of the student body directly affects teacher-parent trust. Building and maintaining trust depends on repeated social exchanges. Teachers find it hard to develop and sustain direct positive engagement with all parents when the student population changes frequently. Moreover, in transient neighborhoods, parents who find it difficult to share reassuring information with one another about their good experiences with teachers may fall back on predispositions to distrust, especially if many of their social encounters outside of the school tend to reinforce this worldview. Relational trust is more likely to flourish in small elementary schools. Larger schools tend to have more limited face-to-face interactions and more bureaucratic relations across the organization.

Good schools depend heavily on cooperative endeavors. Relational trust is the connective tissue that binds individuals together to advance the education and welfare of students. Improving schools requires us to think harder about how best to organize the work of adults and students so that this connective tissue remains healthy and strong.

2.5 Concept of Academic Achievement

Cary, Roseth, David and Roger (2008) define academic achievement as:

Performance on task which measures including comprehension, quality and accuracy of answers of tests, quality and accuracy of problem solving, frequency and quantity of

desired outcome, time or rate to solution, time on task, level reasoning and critical thinking, creativity, recall and retention, and transfer of tasks.

Academic achievement refers to a successful accomplishment or performance in a particular subject area and is indicated by grades, marks and scores of descriptive commentaries. Academic performance also refers to how students deal with their studies and how they cope with or accomplish different tasks given to them by their teachers in a fixed time or academic year (Dimbisso, 2009).

2.6 The role of parents in their children's academic achievement in science

Traditionally, parental involvement in education included contribution to their children's home-based activities (helping with home-work, encouraging children to read, and promoting school attendance) and school-based activities (attending Parent-Teachers' Association meetings, parent-teacher conferences, and participating in fund raising activities). Hixson (2006) explained that involvement of parents and families in decision making is often cited as one of the most important ways to improve public schools. Many researchers have examined the challenges of involving low-income urban families in their children's education. Comer, Haynes, Joyner & Ben-Avie (1996) have shown how parents' involvement in the most poverty stricken urban schools can improve a building's psychological climate for learning and children's academic performance. Delpit (1992) argued that families should serve as cultural informants for teachers to interpret children's behaviors.

Epstein and Sanders(2002) identified six areas of parental involvement in their children's academic activities. These are; parenting, communicating, volunteering,

learning at home, decision-making, and collaborating with the community. He noted that if parents were actively involved in these areas, there is likelihood that it will stimulate their children's interest in school and positively influence their academic achievement. Though families and schools have worked together since the beginning of formalized schooling, the nature of the collaboration has evolved over the years. It is the parent's responsibility to: pay the child's academic fees, provide a place for your child to study daily, show interest in the assignments, commend satisfactory performance, read with your child regularly, and provide the proper conditions for home study.

Consistency is essential. Parents can help by checking assignments each evening for accuracy, neatness and completeness. This checking helps to ensure good study habits for each student.

How school authorities can enhance the role of parent's in the academic achievement of their children in integrated science

Parents in most urban school communities remain highly dependent on the good intentions of teachers. To promote relational trust, teachers need to recognize these parents' vulnerabilities and reach out actively to moderate them. Unfortunately, many schools do not acknowledge this responsibility as a crucial aspect of teachers' roles.

Fan & Chen (2001) indicated that when school authorities and teachers characterize their relationship with parents by mutuality, warmth, and respect, students achieve more and exhibit higher levels of emotional, social, and behavioural adjustment. Their

report contains important implications for promoting parental involvement and teaching practices to benefit student behavior and achievement.

Rimm-Kaufman, Pianta , Cox and Bradley (2003) stated that parents and teachers tend to play a more prominent role than peers in students' academic behavior and achievement, it is all the more important that parents and teachers work together to support students' academic endeavors. Three important topics repeatedly appeared throughout teachers interaction with the parents:

1) Teachers need to display respect and love for children.
2) They should communicate frequently with families, and this can be done through notes, newsletters, and telephoning the parent at home or work.
3) Teachers should visit students' communities because this shows interest and care for children and their families.

Hughes and Kwok (2007) suggested that schools should encourage communication between parents and teachers, such as having regular parent-teacher conferences. Teachers can then provide parents with guidance and information to assist them in supporting their children to achieve academic excellence by adopting academically oriented behavior. Parents and teachers should also recognize gender and developmental differences in students' need for particular kinds of academic support.

Henderson and Mapp (2002) concluded parents and teachers can provide more effective academic support to improve students' behavioral and achievement outcomes by considering students' gender, developmental, and cultural differences. Good

communication skills and respect for children and their families reappeared as the most desirable teacher characteristic for these parents. Parents appealed for good communication skills in their children's teachers. The best teachers communicated frequently through notes and telephone conversations with the parents. Parents liked teachers who sent home weekly newsletters or note. They appreciated phone calls and loved it when teachers visited. Evidently, the school can also improve strategies for working with families by coming down from the school to visit the homes several times. The parents see these as caring.

Schools need alternative ways of connecting and communicating with parents who live in high poverty areas (Hughes & Kwok, 2007). For example, the conventional "Parents Night" might be placed at a community room in the neighborhood where families live. Schools with children who are acquiring English should plan for interpreters when parents attend conferences and other school events. While some of the parents are bilingual, teachers should ensure that language differences should not prevent parents from attending school functions.

Teacher education programmes must prepare new teachers to work effectively with parents. Teachers need to learn a variety of strategies and skills to involve parents in their children's education. Teachers must learn to communicate clearly and sensitively with adults of different ethnic and cultural backgrounds. They must learn strategies that allow parents to collaborate in their children's education; evidence from other studies indicates that exemplary teachers view families as collaborators in their children's education (Alvarez & Williams, 1998) and not as clients or adversaries.

Schools might make greater use of looping models of instruction. With "looping" children remain with the same teacher for two years. So, for example, a form teacher or house mistress would move-up to second grade to follow her students as they are promoted. The advantage of looping in terms of family involvement is that teachers will have greater opportunity to construct long lasting relationships with parents and family members. Less learning time will be lost at the beginning of a school year because the form teacher and the house mistress already know the children and their families.

The impact of parental involvement on children's academic achievement in science

There are two major mechanisms by which parental school involvement promotes achievement. The first is by increasing social capital. That is, parental school involvement increases parents' skills and information (i.e., social capital), which makes them better equipped to assist their children in their school-related activities. As parents establish relationships with school personnel, they learn important information about the school's expectations for behavior and homework; they also learn how to help with homework and how to augment children's learning at home (Lareau, 1996). They have the conviction that when parents are involved in their children's schooling and meet other parents with information and insight on school policies and practices, they are more likely to take interest in assisting their kids with their homework. In addition, when parents and teachers interact, teachers learn about parents' expectations for their children and their children's teachers.

Rimm-Kaufman, Pianta, Cox and Bradley (2003) stated that social control another mechanism through which parental school involvement promotes achievement. This occurs when families and schools work together to build a consensus about appropriate behavior that can be effectively communicated to children at both home and school. They share the view that can be effectively communicated to children at both home and school. They share the view that parents' coming to know one another and agree on goals, both behavioral and academic, serve as a form of social constraint that reduce behavioral problems among kids. It is also our conviction that when children and their peers receive similar message about appropriate behavior across settings and from different sources, the messages become clear and salient, reducing confusion about expectations. Moreover, when families do not agree with each other or with schools about appropriate behavior, the authority and effectiveness of teachers, parents, or other adults may be undermined.

2.7 Factors that Influence Students' Academic Performance

According to Hattie (2009) the main variables that influence students' academic achievement are home, school, curricula, teachers and teaching strategies. These factors may singly or by interaction affect the cognitive achievement of students in integrated science.

2.7.1 Home Environment

The home environment is considered a powerful influence on the child. A home environment is viewed as consequential for child developmental outcomes such as cognitive ability, school readiness, academic achievement and emotional adjustment

(Fantuzzo, Tighe and Childs, 2000). Historically, examination of the influence of home environments on developmental outcomes have focused on distal variables as the primary measures of home experience, such as the family income, parents educational level, parents occupational status, parental involvement and parenting styles (authoritarian, demanding and permissive parenting styles).

The academic performance of any child cannot be separated from the home environment in which the child grows up (Fantuzzo et al., 2000). Numerous studies (Fan, 2001; Gonzalez-Pienda, Nunez, Gonzalez-Pumariega, Alvarez, Roces & Garcia, 2002) revealed various factors that are responsible for scholastic failure of students, such as low socio-economic background, student's cognitive abilities, school related factors, environment of the home, or the support given by the parents and other family members.

2.7.2 Family Background

Family background features include family structure, socio-economic status, parental relationship quality, parent school involvement, and parental-school aspirations. This is not an exhaustive list of family background features but rather focuses on the features most frequently linked to academic outcomes (Weiser &. Riggio, 2010).

Majoribanks (2005) stated that the family is the key to a student's life outside of school; it is the most important influence on students‟ learning and includes factors such as socio-economic status and family structure. The environment at home is a primary

socialization agent and influences a child's interest in school and aspirations for the future.

2.7.3 Socio-Economic Status (SES) of parents

Majoribanks (1996) defines socio-economic status (SES) as a person's overall social position to which attainments in both the social and economic domain contributes. When used in studies of children's school achievement, it refers to the SES of the parents or family educational level, occupational level and income level (Jeynes 2002). Several comprehensive reviews of the relationship between SES and educational outcomes exist (Eamon, 2005; Jeynes 2002). These studies indicated that children from low SES families are more likely to exhibit the following patterns in terms of educational outcomes as compared to children from high SES families. They may have lower levels of literacy, numeracy, comprehension and lower retention rates, earn lower test scores and are likely to drop out of school. In addition, they exhibit higher levels of problematic school behaviour, for instance; truancy and are more likely to have difficulties with their studies and display negative attitudes towards school.

Similarly, studies of children's educational achievements over time have also demonstrated that social background remains one of the major sources of educational inequality (Graetz, 1995). He went on to say that, educational success depends very strongly on the socio-economic status of one's parents. The effect of parental SES on children's educational outcomes according to Barry (2005), may be neutralised, strengthened or mediated by a range of other contextual, family and individual

characteristics. Parents may have a low income and a low-status occupation, for example, but nevertheless transmit high educational aspirations to their children. What family members have (material resources, for instance) can often be mediated by what family members do (for example parental support, family cohesion). The social and the economic components of socio-economic status, in other words, may have distinct and separate influences on educational outcomes. While both components are important, social factors (for instance, parents educational attainments) have been found to be more significant than economic factors, such as a family's capacity to purchase goods and services, in explaining different educational outcomes. It is argued that in families where the parents are advantaged socially, educationally and economically, tend to foster a higher level of achievement in their children. They also may provide higher levels of psychological support for their children through environments that encourage the development of skills necessary for success at school (Barry, 2005).

2.7.4 Family Structure

Socio-economic status may be linked to family structure. There is evidence to show that children from single-parent household do not perform well in school as children from two-parent households (Majoribanks, 1996). Rich (2000) supports this view by explaining that children from single- parent families are likely to have lower educational performance because sole parent families on average have lower levels of income, are headed by parents with lower educational attainment and are less likely to be in the labour force. According to Rich, other factors that are likely to adversely affect educational outcomes of such children as compared to those from two-parent

families are said to include; the custodial parent having less time to spend with children in terms of supervision of school-work and maintaining appropriate levels of discipline, increased responsibilities on children such as childcare roles, domestic duties which impede the time available for school work; and the nature of parent-child relationships in sole parent families may cause emotional and behavioural problems for the child. Divorce has been found to negatively affect academic performance (Jeynes, 2002) as students whose parents are divorced are among those who scored lowest on a standardized test. Possible explanations for this relationship, according to Majoribanks (1996) and Jeynes (2002), is that divorce can cause a family's socio-economic status to decrease and parental connection harmed. This reveals that the quality of parents and home background of a student goes a long way to predict the quality and regularity of the satisfaction and provision of a child's functional survival and academic needs. Poor parental care with gross deprivation of social and economic needs of a child, usually yield poor academic performance of the child. Contrary, good parenting supported by strong economic home background could enhance strong academic performance of the child. This further predicts academic performance where the child is properly counselled in the choice of his/her courses and vocation that matches his mental ability, interest and capability.

2.7.5 Learning Environment

Barry (2005) was of the view that, students' educational outcome and academic success is greatly influenced by the type of school they attend. The school one attends is the institutional environment that sets the parameter of a student's learning experience. Depending on the environment a student can either close or open the doors that lead to

academic achievement. A learning environment that is free of barriers, or obstacles or distractions such as noise, gas/smoke pollutions and so on can cause health hazards, which in turn affect or reduce the student's concentration or conceptual focus to learning. According to Basil (2007), markets and garages located near schools have always posed a threat to students. Noise and pollution from these sources have always endangered students' life and concentration. Crosnoe, Johnson, and Elder (2004) have suggested that school sector (public or private) and class size are two important structural components of schools. Private schools tend to have better funding and smaller class size than public schools. The additional funding of private schools leads to better academic performance and more access to resources such as computers, which have been shown to enhance academic achievement (Eamon, 2005). Smaller class size creates more intimate setting and therefore can increase teacher-students bonding which has also been shown to have a positive effect on students' success.

According to Danesty (2004), other factors that compliment environmental and socio-economic factors to produce high academic achievements and performance include good teaching, counselling, good administration, good seating arrangement and good building. Dilapidated buildings, lacking mentally stimulating facilities that are characterized with low or no seating arrangements will also be destructive. Danesty (2004) indicated that an innovative environment do stimulate head start learning and mental perception. Fan and Chen (2001) opined that students who come from simulative environments with laboratory equipment or those that are taught with rich instructional aids and pictures perform better than those trained without them. Thus, teaching and learning should be done under organized, planned, and fortified

environment with learning instructional aids to stimulate students' sense of conception, perception and concentration to facilitate systematic understanding and acquisition of knowledge. In sum, a combination of a healthy family background, good environment in addition to the child being educated in a conducive environment with a fortified learning or instructional aids or motivational incentives, prompt academic performance whiles a lack of these will retard academic performance.

CHAPTER THREE

METHODOLOGY

3.1 Overview

This chapter discusses the methods and the procedures that were used to gather data for the study. It specifies the research design, target population, sample and the sampling procedure. The instruments that were used for data collection are described in addition to the data collection and analysis procedures utilized in the study.

3.2 Research Design

This study is a qualitative case study. This is an approach to research that facilitates exploration of a phenomenon within its context using a variety of data sources (Yin, 2003). This ensures that the issue is not explored through one lens, but rather a variety of lenses which allow for multiple facets of the phenomenon to be revealed and understood. It would allow the researcher to find out whether there was really a significant relationship between home variables of students and their academic achievements. In this study, questionnaire and organized semi-structured interviews were the main instruments of data collection used to elicit responses from participants (teachers, parents and students). The Researcher personally administered the questionnaire to enable her obtain and give vivid and accurate information description which would be clearly understood and as such when generalized would be appropriate and reliable.

3.3 Population and Sampling Procedure

The target population for this study was made up of all parents, students, science teachers, administrators, and school heads in all senior high schools in the Ga South Municipality of the Greater Accra Region. For the purpose of this study, the accessible population comprised all parents, students, teachers, and the headmistress of Ngleshie Amanfro Senior High School in the Ga-South Municipality in the Greater Accra Region of Ghana. The school has a total population of one-thousand, one hundred (1100) students. The sample population for this study consisted of one hundred and fifty research subjects; made up of, sixty (60) students, sixty (60) parents and thirty (30) teachers including the headmistress of Ngleshie Amanfro Senior High School in the Ga-South Municipality. To obtain a sample that was typical of the population under study, the sample of sixty (60) students were randomly selected with fifteen (15) from each of the forms; form one, two, three and four (who were the last batch of the 4years SHS programme at the time of the study). This probability sampling gave equal chances to include all the population to belong to the sample size. It also ensures that generalization is reliable. The parents were purposively and conveniently selected to enhance easy and reliable access to data. The thirty (30) teachers were randomly selected to give equal opportunity to all the elements in the population to answer. The selected sample was given questionnaires to answer. Individual respondents were also interviewed to probe further on issues relating to parental involvement in children's education.

3.4 Research Instruments

The main instrument used to collect the data was questionnaire. This was supplemented with interview which was designed and validated by the researcher.

3.5 Data Collection Procedure

Questionnaire; personally prepared closed and factual items questionnaire were personally distributed to respondents to answer. They consisted of dichotomous and multiple choice items. In the case of parents who were not able to read, their children were encouraged to help by reading and explaining for them to make their own choice of response. Where this was not applicable, such parents were organized at one location on an occasion such as PTA meetings for the questionnaires to be administered. At the same time, items that were not clear were explained. This ensured a high rate of retrieval of the questionnaires. In the case of the interview, respondents were made to answer semi-structured oral questions that were administered by the researcher. Multiple-choice and open ended items were asked and the responses recorded on tape to have full attention on non-verbal cues that may be absent for the use of questionnaires. Such non-verbal cues were quickly jotted down as field notes to supplement the recorded responses.

3.6 Validity of the main Instrument

To maximize the content validity of the questionnaire, expert advice was sought from my supervisor who guided and ensured the selection of only items in the questionnaire that fit the objectives of the study. Validity is 'the extent to which an indicator

accurately measures a concept (Fielding & Gilbert, 2000). In other words, validity can be defined as the degree to which a test measures what it is supposed to measure. Internal validity was assessed to test the ability of the questionnaire to measure what it is intended to measure.

The questionnaires were developed in consultation with peers and the supervisors providing expert advice to enhance content validity of the instrument.

3.7 Reliability of the main instrument

The reliability of an instrument is the degree to which items in an instrument generates consistent responses even when different respondents respond. It measures the dependability of the items used in collecting data (Cohen, Manion, & Morrison, 2007). It is possible to have questionnaire that is reliable because the responses are consistent, but may be invalid if it fails to measure the concept it intends to measure (Fraenkel & Wallem, 2000). The reliability of the questionnaire was established through the test-retest approach. The method permitted the researcher to test the stability and reliability of the instrument. The questionnaire was administered to 58 students of different schools with the same rural settings. These schools were not selected for the research. A week later, the same questionnaire was readministered to the same students in order to check for the reliability of the questionnaire items. Their responses were analysed using Pearson's Product Moment Correlation Formula (Appendix D).This yielded a correlation coefficient of 0.85. The result of 0.85 proves the reliability of the questionnaire.

3.8 Procedure for Data Analysis

Using content analysis, salient points from recorded responses from oral interview and field notes from non-verbal cues were described with some statistical presentation where necessary or when required. Also, responses to questionnaires that were retrieved were analyzed. The analysis of the questionnaire was done thematically and each variable considered. The result was grouped in frequency tables with the number of respondents responding to each variable being expressed as a percentage.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Overview

This chapter deals with the findings of the research which is a presentation of the data obtained from the questionnaires. It first presents separate responses from the three respondent groups (students, teachers and parents) and then a comparison of responses of the three respondent groups to research items that ran through in all two or three categories of the questionnaire. Frequency count and simple percentage in a form of frequency tables were used to analyze responses.

4.2 Socio-Demographic Characteristics of Parent Respondents

The socio-demographic characteristics of the survey respondents provide a clear idea of who the respondents of the study are. Table 1 below presents information on the socio-demographic characteristics of the parent respondents.

Table 1: Socio-Demographic Characteristics of the Parent Respondents

Socio-Demographic variables	Frequency (N=60)	Percentages (%)
Sex		
Male	22	37
Female	38	63
Age		
40 – 50	31	52
51 – 60	20	33
61 – 70	9	15
Occupation		
Formal sector	9	15
Artisans	18	30
Petty trading	24	40

Unemployed	9	15
Educational Level		
Basic school	8	13
Middle school	20	33
Secondary	28	47
Tertiary	4	7
Family size		
1-3	15	25
4-6	40	67
7 and above	5	8

From table1, out of the sixty (60) parents, 38 representing 63% of them are females while 22 representing 37% are males. A total of 60 parents between the ages 40 to 70 years participated in the study. Of the total number of parent respondents, the majority (52%) fell within the age group of 40 – 50 years, 33% fell within the age group of 51– 60 years and the remaining 15 % were between 61– 70 years. Among the parents used for the study, 15%, 30% 48% and 7% were in formal sector, Artisans, petty trading, and unemployed respectively. Most of the parents (47%) were secondary school graduates while 7% were tertiary school graduates. Some of the parents involved in the study completed basic school (13%) and middle school (33%). A higher percentage of parents (67%) have family sizes between 4- 6 while 25% of the parents have family sizes between 1- 3. The largest family size was 7 and above and this was indicated by 8 percent of the parent respondents.

4.3 Socio-Demographic Characteristics of Student Respondents

Table 2 below shows the socio-demographic characteristics of the student respondents.

Table 2: Socio-demographic characteristics of students' respondents

Socio-Demographic variables	Frequency (N=60)	Percentages (%)
Sex		
Male	30	50
Female	30	50
Age		
14-16	18	30
17-19	31	52
20- 22	11	18
Department		
Agric Science	10	16.67
Business	15	25.00
General arts	15	25.00
Virtual arts	10	16.67
Home Economics	10	16.67
Class		
SHS 1	15	25
SHS 2	15	25
SHS 3	30	50

From table 2, the study involved thirty (30) male students and thirty (30) female students with varying ages. The ages of the student respondents were grouped as 14-16, 17-19 and 20-22 and had 30%, 52% and 18% of students respectively. The percentages of students selected from Agric science, Business, General arts, virtual arts and Home economics were 16.67%, 25%, 25%, 16.67 and 16.67% respectively. Among the sixty (60) students used for the study 25% each were selected from SHS1 and SHS 2 with the remaining 50% being SHS 3 students.

Presentation of the Results by Research Questions

Research Question one: In the view of the parents which home variables had the greatest impact on the academic performance of the students in integrated science?

Views of parents on home variables and academic performance

Table 3 below summarizes Parents' views on home variables which had greatest impact on their wards academic performance in integrated science.

Table 3: Views of parents on home variables which had the greatest impact on their wards' performance in integrated science

What home variable most affect your wards academic performance in science?	Frequency (N=60)	Percentages (%)
SES	40	66.7
H.E	15	25.0
Parental involvement	4	6.7
Modern appliances	1	1.6
Do you think your income is enough for your daily needs?		
YES	14	23.3
NO	46	76.7
Does your ward perform well in science?		
YES	18	30
NO	42	70
Do you think your financial situations affect your wards performance in school?		
YES	49	81.7
NO	11	18.3
Do your children have any scholarship?		
YES	4	6.7
NO	56	93.3
Do you have any laptop?		
YES	8	13.3
NO	52	86.7
If yes, are they available to your ward?		
YES	2	25
NO	6	75
Facilities available in students home?		
Study room	0	0
Library	0	0
Study table	29	48.3
None of the above	31	51.7

From table 3, forty (40) parents representing 66.7% of the parent respondents indicated that their socio-economic status greatly affected their children's performance in school. Some of the parents 15(25%) indicated home environment, parental involvement 4(6.7%) and modern Gadget 1(1.6%) to be variables that influenced the students' academic performance. In a follow up interview, the parents admitted that their inability to provide needed materials from their meager salaries has negatively affected their children. Some of the parents stated that, they spend more time working rather than getting involved in their children's studies as well as creating suitable environment for their children to study. Most of the children assist their parents to generate income for the family and get tired by the close of the day and are unable to read their books. A majority of the parents 46(76.7%) indicated that the income they generate is not enough to cater for their family needs and as a result 49(81.7 %) of the parents agreed that their children's poor performance in school can be related to their weak financial situation. Only 4(6.7%) of the parents indicated that their children enjoyed scholarship. The responses given by parents suggest that non-school factors such as poverty, low educational attainment and illiteracy of parents and poor health and nutrition greatly affect students' performance in learning of integrated science. Unlike parents of low socio-economic status, parents of high socio-economic status are able to pay their children's school fees on time, provide for their exercise and test books as well as providing them better food for good mental development. The provision of such amenities boosts the confidence of such children to learn hard. This study conforms to that reported by Graetz (1995) who conducted a study on socio-economic status of the parents of students and concluded that the socio economic background has a great

impact on student's academic performance. He mentioned that socio-economic status of parents has been the main source of educational imbalance among students and students' academic success. Similarly, Considine and Zappala (2002) in their study on the influence of social and economic disadvantage in the academic performance of school students found that parents or guardians who had social, educational and economic advantage definitely strengthened the level of their children's success in future.

The study revealed that the parents possessed only few modern gadgets. For example, only 8 parents representing (13.3%) had laptop computers and out of this number 6(75%) indicated that such gadgets are not available to their wards. The availability of some of these modern gadgets in the homes and their proper usage could have enhanced students' performance but only 2% of the 60 parents have modern gadgets in their homes. Also, on the issue of facilities available in the house to facilitate children learning in the house, none of the parent respondents indicated that they have study room or library. Only 48.3% (29) of parents indicated the availability of study table in their homes while 51.7% (31) of them have none of such facilities in their homes. Almost all the parents in an interview express their willingness to provide these facilities and associated their inability to low financial status. According to the US Department of Education (2003), low socio economic status causes environmental deficiencies which results in low self esteem of students. This suggests that, most basic needs of students remain unfulfilled and hence they do not perform better, academically. For instance, the health status of children which could be traceable to

parental socio – economic background can be another factor that can affect the academic performance of the students.

Students' academic performance in school could be influence by parental involvement. Parents could motivate, assist children in their assignments and criticize constructively to help their wards perform better in learning of integrated science. Barnard (2004) stated that students depended heavily on parental involvement in their academic activities to attain higher levels of quality in academic success.

Research Question Two

In the view of students which home variables had the greatest impact on their academic performance in integrated science?

The students' views on home variables which had greatest impact on their performance are summarized in Table 4.

Table 4: Views of students on home variables which had the greatest impact on their performance in integrated science

What home variable most affect students' academic performance in science?	**Frequency (N=60)**	**Percentages (%)**
SES	43	71.7
H.E	14	23.3
Parental involvement	3	5
Modern appliances	0	0
Do you think the income of your family is enough for your daily needs?		
YES	16	26.7
NO	44	73.3
Do you perform well in science?		

YES	25	41.7
NO	35	58.3
Do you think your pocket money affects your performance in school?		
YES	48	80
NO	12	20
Do you have any scholarship?		
YES	4	6.7
NO	56	93.3
Do you have any personal computer/mobile phone?		
YES	28	46.7
NO	32	53.3
If yes, does it affect your study period?		
YES	10	35.7
NO	18	64.3
Do you have any other financial responsibilities towards yourself or your siblings?		
YES	10	16.7
NO	50	83.3
Facilities available in students home?		
Study room	0	0
Library	0	0
Study table	30	50
None of the above	30	50

From table 4, a greater number of student respondents 43(71.7%) indicated the socio-economic status of parents as home variables that most influenced their performance in learning of science. This was followed by the home environment 14(23.3%), parental involvement 3(5%) and none (0%) indicating modern appliance. On whether the income of their family is enough for their daily need, 73.3% (44) of the students said NO while 26.7% (16) indicated YES. On the issue of performance in science, 58.3 %

(35) of the students indicated that, they do not perform well in science and related this to the small pocket money their parents give to them. Out of the sixty students 48 representing 80% supported this fact. Among the sixty student respondents only 4 (6.7 %) of them are benefiting from scholarship. The study also revealed that 10 (16.7%) of the student respondents have financial responsibilities towards themselves or their siblings. In an interview with the students, some of them stated that their parents do not give them pocket money for school. Others mentioned that the inability of their parents to acquire for them text books and suitable learning materials has negatively impacted their performance in learning of science. The findings of this study agree with those of Ogoye (2007). He noted that socio-economic status was a critical issue in many African communities where illiteracy and poverty levels were high, thus limiting parental involvement in homework. Eze (2002) also argued that socio–economic status of parents do not only affect the academic performance, but also reduce the ability of children from low background to compete well their counterparts from high socio – economic background under the same academic environment. In effect children from Poor homes come from environments that are educationally impoverished and the conditions nearly affect every aspect of life. The low background status perpetuates educational deprivation. Poor families find it difficult to pay fees. Moreover, poor families on average tend to have more school-age children at home than higher income families. The wealthier and better educated parents utilized their education and deployed resources and created school conditions which were conducive for a successful school performance.

From table 4, it can be seen that 28 (46.7%) of the student respondents use modern gargets like personal computers and mobile phones. Among the students who have personal computers and mobile phones 10(35.7%) indicated that, usage of such gargets affect their study periods. This means that a higher percentage 18(64.3%) of these student respondents study period is affected by the usage of mobile phones and personal computers and is of great concern to parents and teachers. On the availability of facilities in the home to support learning, 50% (30) of the students indicated they have only study table in their homes while the remaining 50% (30) have neither study room, library nor study table. The presence of these facilities enables students to develop positive attitude toward learning as a whole. Marzano (2003) reported that creating positive home environments lead to improvement in students' quality of work and school performance.

4.4 Socio-Demographic Characteristics of the Teachers and administrators

Table 5 below presents the socio-demographic characteristics of thirty (30) teachers and administrators who responded to questionnaire.

Table 5: Socio-demographic characteristics of Teacher respondents

Socio-Demographic variables	Frequency (N=30)	Percentages (%)
SEX		
Female	2	7
Male	28	93
DEPARTMENT		
Chemistry	8	26.7

Physics	7	23.3
Biology	10	33.3
Agric science	5	16.7

From table 5, Out of the thirty (30) teachers and administrators, 28(93%) are males while 2(7%) are females. The number of teachers and administrators selected from Chemistry, Physics, Biology and Agric science departments are 8,7,10 and 5 respectively.

Research Question Three

In the view of the teachers and administrators which home variables had the greatest impact on the academic performance of students in integrated science?

Teachers and administrators views on home variables which had the greatest impact on students' performance are summarized in Table 6.

Table 6: Views of teachers and administrators on home variables which had the greatest impact on students' performance in integrated science

Home variable	Frequency (N=30)	Percentages (%)
What home variable most affect your student's academic performance in science?		
SES	25	83.3
H.E	5	16.7
Parental involvement	0	0
Modern appliances	0	0
Do your students have the required textbooks for integrated science?		
YES	3	10
NO	27	90
When do parents/ guardians normally pay their wards school fees?		
Beginning of the term	0	0
Middle of term	12	40
When sacked	12	40
Not at all	6	20
When do students normally report to school?		
6:30am – 7:00am	0	0
7:00am – 7:30am	0	0
7:30am – 8:00am	12	40
8:00am – 8:30am	18	60
How regular are most of your students at school?		
Once a week	0	0
Twice a week	0	0
Thrice a week	30	100
Everyday	0	0

The result presented in table 6 depicts that 83.3% (25) of teachers and administrator agree that the main home variable militating against students' performance in the learning of integrated science is their parents' socio-economic status followed by home

environment which was indicated by 16.7% (5) of the respondents. None of the teachers and administrators under this category ticked parental involvement and modern appliance usage as a contributing factor to students' poor performance in the learning of science. On whether students have required textbooks for integrated science, 90% (27) of the teachers and administrators indicated NO while only 10% (3) ticked YES. On the issue of when parents pay their school fees, 12(40%) indicated middle of the term, 12 (40%) indicated that payment is done after students have been sacked, 6 (20%) indicated that some students do not pay their fees at all with no students making full payment at the beginning of the term. In a follow up interview some of the teacher respondents stated that all these challenges are intertwine with parental socio-economic status influencing them all. For instance Christenson and Sheridan (2001) reported that education usually entails expenses such as buying reading materials, stationery among others. This introduces the element of family economic status into disrepute. As a result studies have noted that economic status determines the extent of parental involvement in their children's education. On the time students report to school, 18(60%) of the teachers and administrator respondents ticked that students usually report to school at times between 8:00 am to 8:30 am while only a few reported between 7:30 am to 8:00 am. None of the respondents indicated that students report to school before 7:30am. It was also revealed that most of the students are regular in school for only three days and this was indicated by 100% of the respondents. In a follow up interview, some of the teachers attributed these to the fact that some of the students forfeit school and go to market or farm to help their parents. It was realized that the school attendance was usually low on market days.

Research Question Four

What interventions can be designed to improve the academic performance of the students in integrated science?

Students' perspectives on interventions to improve learning of science

Suggested interventions from students' perspective to improve learning of integrated science are presented in Table 7.

Table 7: Students' perspective on interventions to improve the academic performance of students in integrated science

Interventions	Frequency (N=60)	Percentages (%)
Measures schools should implement to enhance learning		
Provision of scholarship for poor students	36	60
Schools should encourage parents to pay school fees	12	20
Teachers should not sack students on school fees	12	20
Measures Teachers should implement to enhance learning		
Provision of scholarship for brilliant but needy students	35	58.3
Teachers should give more homework to students	25	41.7
Measures parents should implement to enhance learning		
Parents should be made to pay for children feeding and school fees	21	35.0
parents should not burden them with work in the house	22	36.7
parents should get them extra tuition in the house	17	28.3
Measures Ministry of Education should implement to enhance learning		
Should provide enough text books and learning materials to schools	22	36.7
Should ensure that teachers are doing their work well	18	30.0
Should ensure teachers do not drink and smoke while in school	20	33.3

From table 7, the student respondents, 36 (60%), stated that provision of more scholarships to needy but brilliant students by school authorities will go a long way to enhance students' performance in integrated science and all other subjects as well. They also stated that schools should encourage parents to pay their wards school fees and pleaded with school authorities not to sack students from school but rather invite parents to come and fulfill their responsibilities. Some of the students in an interview said that school authorities should improve school infrastructure such as science laboratory and libraries to help improve the teaching and learning of science. Similarly, Kwesiga (2002) noted that the performance of students was also influenced by the school in which they studied; however, he also asserted that the number of facilities a school offered usually determined the quality of the school, which in turn affected the performance and accomplishment of its students. In addition to the interventions to improve the academic performance of students, 25(41.7%) of the student respondents mentioned that integrated science teachers should frequently give homework to keep them busy at home. On measures students think parents are to implement include an appeal to parents to fulfill their responsibilities by paying school fees and providing pocket money for school.

Also, 17 (28.3%) of the student respondents suggested extra tuition at home as one of the remedies to improve their performance in science. The students further stated that provision of enough text books and learning materials to schools, ensuring teachers discipline and effective supervision of teachers by the Ghana Education service (GES) will also catalyse effective teaching and learning of science in schools. This is in line

with findings reported by Yara and Otieno (2010). They stated that the availability of teaching/learning resources enhances the effectiveness of schools as these are basic things that can bring about good academic performance in the students. Some of the students, 20 (33.3%), said teachers should not drink alcohol while in school since no effective teaching is done by such teachers. In an interview, some of the students doubted the qualification of some of the science teachers and so pleaded that the ministry should ensure that qualified people teach science in schools. Similarly, Bangbade (2004) found out that teachers' attributes have significant relationship with students' academic performance. Such attributes, according to Bangbade, included teachers' knowledge of the subject matter, communication ability, emotional stability, good human relationship and interest in the job. This is in support of the present study's findings which show that teacher-related factors were deemed to be the most impactful category of factors that pose an impact on student academic performance.

Teachers and administrators perspectives on interventions to improve the learning of integrated science

Suggested interventions from teachers' perspective to improve the academic performance of students in integrated science are presented in Table 8 below.

Table 8: Teachers perspective on interventions to improve the academic performance of students in integrated science

Interventions	Frequency (N=30)	Percentages (%)
Measures schools should implement to enhance learning		
schools should provide teachers with the necessary	16	53.3

motivation		
schools should buy needed materials like text books and equip their laboratories for the learning of science	14	46.7
Measures Teachers should implement to enhance learning		
Teachers should be friendly and motivate students to learn.	13	43.3
Teachers should vary methods of teaching to enhance learning.	8	26.7
Teacher should organize counseling for parents and students.	9	30.0
Measures parents should implement to enhance learning		
Parents are to ensure that they provide basic amenities for their children education.	11	36.6
Parents are to motivate their children to learn science.	5	16.7
Parents are to ensure that children revise their notes in the house.	6	20.0
Parents should put restrictions on children's usage of mobile phones and computers.	8	26.70
Measures Ministry of Education should implement to enhance learning		
Basic schools are to provide solid foundation for students to enhance the learning of science at the SHS level.	24	80
Design good policies to ensure discipline in school	6	20

From table 8, 14 teachers representing 46.7% stated that schools need to buy enough text books and equip science laboratories to enhance the teaching and learning of science while 16 (53.3%) of them indicated that provision of motivational package for teachers will go a long way to help curb the menace. The teachers and administrators who answered the questionnaire stated that variation in methods of teaching (26.7%),

organization of counseling for parents and students by teachers (30%) as well as motivating and establishing good relationship with students (43.3%) are some of the measures teachers should implement to improve academic performance of students in integrated science. Some of the teachers, 11(36.6%), stated that parents are to make it a habit to provide basic amenities needed to enhance their childrens' education. Others suggested intensification of parental involvement such as parental motivation of children to learn science, parental monitoring of children executing their private studies and putting restrictions on children use of modern gargets such as mobile phones and computers. This result is consistent with Nyarko's (2011) findings that parental involvement was significantly and positively associated with academic performance of Ghanaian students. In a similar work, Houtenville and Conway (2008) reported that parents have the potential to model positive attitudes and behaviors toward school, and research in developed countries such as the United States has shown that parental involvement contributes to youth academic success. In fact, children are more likely to apply themselves and perform better in school when their parents show an interest in their school work, are willing to assist them with homework, and are willing to hold their children accountable for completion of school assignments. Youth who are not working hard at school may begin to perceive school as valuable when parents actively demonstrate that they value school through involvement.

In relation to measures the Ministry of Education should implement, 24(80%), of the teachers call on the ministry to design and implement policies that will ensure discipline in school from the basic to the tertiary level. In an interview majority of the teachers stated that government should design good and effective economic policies to

improve the socio- economic status of parents. The teachers also emphasized on the provision of text books and teaching materials as well as equipping science laboratories. Yadar (2007) opined that no course in science and mathematics can be considered as complete without some practical work. The practical work ought to be carried out by individuals either in science laboratories or in classes. At school level, practical work is even more important because of the fact that we learn by doing. Scientific practices and applications are thus rendered more meaningful. It is an established truth that an object handled impresses itself more firmly on the mind than the object merely seen from a distance or in an illustration. Thus practical work forms an important feature in any science and mathematics course (UNESCO, 2008).

CHAPTER FIVE

SUMMARY, RECOMMENDATION AND CONCLUSION

5.1 Overview

The chapter presents the summary, recommendation and conclusion of the study.

5.2 Summary of the Major Findings

The study was conducted to investigate home variables that most affect students' performance in the study and learning of integrated science in the Ngleshie Amanfro Senior High School in the Ga-South Municipality. The main objectives were to determine a dominant home variable militating against the teaching and learning of science as well as determining measures that can be implemented to improve students' cognitive achievement in integrated science from the perspective of teacher and administrators, parents and students. The main instruments for data collection were questionnaire and interview. The study involved sixty (60) students, sixty (60) parents and thirty (30) teachers and administrators.

The major home variables underpinning the studies included socio-economic status of parents, home environment, parental involvement and modern appliances. From the responses given, it was revealed that 83.3%, 66.7% and 71.7% of teacher and administrators, parents and students respectively indicated that socio-economic status of parents has been the major factor influencing the poor performance of integrated science learning in Ngleshie Amanfro Senior High School in the Ga-South Municipality. Also, 16.7%, 25% and 23.3% of teachers and administrators, parents and students respectively indicated home environment to be the next contributing factor

influencing students' performance. The study also revealed that modern gargets usage influence the situation to some extend but not as socio economic status and home environment. Among the suggested interventions cutting across, include an appeal to government to design and implement policies that will improve the socio economic status of parents and provision of scholarship to brilliant but needy students. . Also, motivation of students by parents and teachers, ensuring that qualified people teach science subjects by school authorities, parents fulfillment of their responsibilities and the supply of adequate text books and learning materials by the Ministry of Education and monitoring of teachers to be of good conduct were some of the other suggested interventions.

5.3 Conclusion

The findings in totality showed that the socio-economic status of parent respondents were low. The majority (40%) were traders while 30% were artisans while only 15% of them were workers in the formal sector (teachers, nurses, etc). It was found that 15% of the parents were unemployed at the time of the study. This situation exerted a negative impact on the students since the majority of the parents could not satisfactorily meet the financial demands of SHS schooling. This is combined with rural setting variables, to exert a negative impact on the students' performance in integrated science.

5.4 Recommendations

Students

The students should:

- Be disciplined and take all courses seriously.

- Not perceive that learning of science is difficult.
- Manage judiciously any amount of money that is given to them.

Parents

Parents should:

- Work hard to improve their socio economic status to enable them provide for the basic needs of their children.
- Not engage children in ventures that earn them income during school days.
- Intensify their involvement in their ward education so as to enhance students learning.
- Provide suitable home environment to enhance learning in homes.

Schools/ teachers

The school should:

- Provide scholarship package for brilliant but needy students.
- Ensure discipline of teachers and students
- Provide guidance and counseling to both parents and students
- Provide adequate textbooks and laboratories to enhance the learning of integrated science.

Ministry of Education

The ministry should:

- Design policies to minimize the cost of education
- Improve school infrastructure and ensure adequate supply of science textbooks and teaching materials.

- Ensure that qualified people are appointed to teach integrated science.

Suggestions for Future Studies

There are several ways this study can be extended into further studies aimed at identifying home variables that impact the learning of integrated science in senior high schools. The findings from this research provide science educators and policy makers with better understanding of the home variables that influence the learning of integrated science. The researcher suggests that, the following future studies be conducted so that additional knowledge about this research can be explored.

1. This study should be replicated in schools with identical settings in the Greater Accra Region. The most likely next step is to expand the size of the research study so that a larger sample population can be engaged, more voices can be heard, and a greater understanding of solutions for the problem can be gained.

2. Assessing the most effective ways of teaching science at the basic level can be another area for further research. If science is taught efficiently at the basic school, it will increase their understanding to choose science over non science programmes.

3. A research to assess students' learning attitudes towards integrated science can be conducted. If students' attitude pertaining to a particular subject is good then the student will have the will power to read it often.

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APPENDIX A

QUESTIONNAIRE FOR STUDENTS

SECTION A

Department ……..

Form……..

Age……sex: Male [ ] Female [ ]

Dear respondent,

This study is purely meant for academic purposes. You will be contributing to its success if you answer the items as frankly and honesty as possible. Your responses will be kept confidential. Kindly read through each of the items carefully and indicate the opinion that is nearest expression of your view on each of the issues raised.

SECTION B

1. What home variable most affect your academic performance in science?

   1) Socio-economic status (SES) 2) Home Environment (H.E) 3) parental involvement 4) modern appliances

2. Do you think the income of your family is enough for your daily needs?

   a)Yes [ ] b) No [ ]

3. Do you perform well in science?

   a)Yes [ ] b) No [ ]

4. Do you think your pocket money affects your performance in school?

   a)Yes [ ] b) No [ ]

5. Do you have any scholarship?

   a)Yes [ ] b) No [ ]

6. Do you have any personal computer/mobile phone?

   a)Yes [ ] b) No [ ]

7. If yes, does it affect your study periods?

   a)Yes [ ] b) No [ ]

8. Do you have any other financial responsibilities towards yourself or your siblings?

   a)Yes [ ] b) No [ ]

9. Underline any of the following facilities available in your home. 1 study room

   2. Library 3. Studies table 4. None of the above.

10. What measure can teachers put in place to help improve the students' performance in science

11. What measure can the parents put in place to help improve the students' performance in science?

12. What measure can the school put in place to help improve the students' performance in science?

13. What measure can Ministry of Education put in place to help improve the students' performance in science?

APPENDIX B

QUESTIONNAIRE FOR PARENTS

SECTION A

Age …….. Sex: Male [ ] Female [ ]

Occupation …….

Academic qualification ……..

Family size…….

SECTION B

1. What home variable most affect your wards academic performance in science?

   1) Socio-economic status 2) Home Environment 3) parental involvement 4) modern appliances

2. Do you think your income is enough for your daily needs?

   a)Yes [ ] b) No [ ]

3. Does your ward perform well in science?

   a)Yes [ ] b) No [ ]

4. Do you think your financial situations affect your wards performance in school?

   a)Yes [ ] b) No [ ]

5. Do your children have any scholarship?

   a)Yes [ ] b) No [ ]

6. Do you have any laptops?

   a)Yes [ ] b) No [ ]

7. If yes, are they available to your ward?

   a)Yes [ ] b) No [ ]

8. Underline any of the following facilities available in your home.

   a) Study room b) library c) Study table d) none of the above.

9. When do you normally pay your wards school fees?

   a) Beginning of term [ ] b) middle of term [ ] c) when sacked [ ]

   d) not at all [ ]

10. What measure can the parents put in place to help improve the students' performance in science?

11. What measure can Ministry of Education put in place to help improve the students' performance in science?

12. Suggest any other interventions that can be put in to improve the students' performance in science?

APPENDIX C

QUESTIONNAIRE FOR TEACHERS

SECTION A

Department ……sex: Male [ ] Female [ ]

Dear respondent,

This study is purely meant for academic purposes. You will be contributing to its success if you answer the items as frankly and honesty as possible. Your responses will be kept confidential. Kindly read through each of the items carefully and indicate the opinion that is nearest expression of your view on each of the issues raised.

SECTION B

1. What home variable most affect your students' academic performance in science?

   1) Socio-economic status 2) Home Environment 3) parental involvement 4) modern appliances

2. Do your students have the required text books for integrated science?

   a)Yes [ ] b) No [ ]

3. When do parents/guardians normally pay their wards school fees?

   a) Beginning of term [ ] b) middle of term [ ] c) when sacked [ ]

   d) not at all [ ]

4. When do students normally report to school?

   a) 6:30am-7:00am b) 7:00am-7:30am c) 7:30am-8:00am

   d) 8:00am-8:30am

5. How regular are your students at school?

a) Everyday b) threes a week c) twice a week d) once a week

6. Suggest any other interventions that can be put in to improve the students' performance in science by teachers.
7. What measure can the parents put in place to help improve the students' performance in science?
8. What measures can the school put in place to help improve the students' performance in science?
9. What measure can Ministry of Education put in place to help improve the students' performance in science?

APPENDIX D

CALCULATION OF PEARSON'S PRODUCT MOMENT CORRELATION

RESULTS OF FIRST TEST(X)

Items in questionnaire	Respective number of responses(x)
Do you think the income of your family is enough for your daily needs?	Yes responses= 17
Do you perform well in science?	Yes responses= 15
Do you think your pocket money affects your performance in school?	Yes responses= 13
Do you have any scholarship?	Yes responses= 3
Do you have any personal computer/mobile phone?	Yes responses=10

RESULTS OF SECOND TEST(Y)

Items in questionnaire	Respective number of responses(Y)
Do you think the income of your family is enough for your daily needs?	Yes responses= 19
Do you perform well in science?	Yes responses=14
Do you think your pocket money affects your performance in school?	Yes responses=9
Do you have any scholarship?	Yes responses= 4
Do you have any personal computer/mobile phone?	Yes responses= 12

Summary results of first and second test

X	17	15	13	3	10
Y	19	14	9	4	12

n=5 $\sum x$= 58 $\sum y$= 58 $(\sum x)^2$ = 3364 $(\sum y)^2$= 3364 $\sum x^2$= 792 $\sum y^2$= 810 $\sum xy$= 782

$r = n(\sum xy) - (\sum x)(\sum y) / \sqrt{[(n\sum x^2 - (\sum x)^2)(n\sum y^2 - (\sum y)^2]}$

$r = 5(782) - (58)(58) / \sqrt{[(5(792) - (3364)(5(810) - 3364]}$

$r = 3910 - 3364 / \sqrt{[(3960 - 3364)(4050 - 3364]}$

$r = 546 / \sqrt{[(3960 - 3364)(4050 - 3364]}$

r=546/639.418

r=0.853