

**TEACHING OF CORE SUBJECTS TO VISUAL ARTS AND NON-VISUAL ARTS
STUDENTS IN SELECTED SENIOR HIGH SCHOOLS IN THE SUNYANI
MUNICIPALITY**

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**By
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DECLARATION

I hereby declare that this submission is my own work towards the Master of Philosophy in Art Education and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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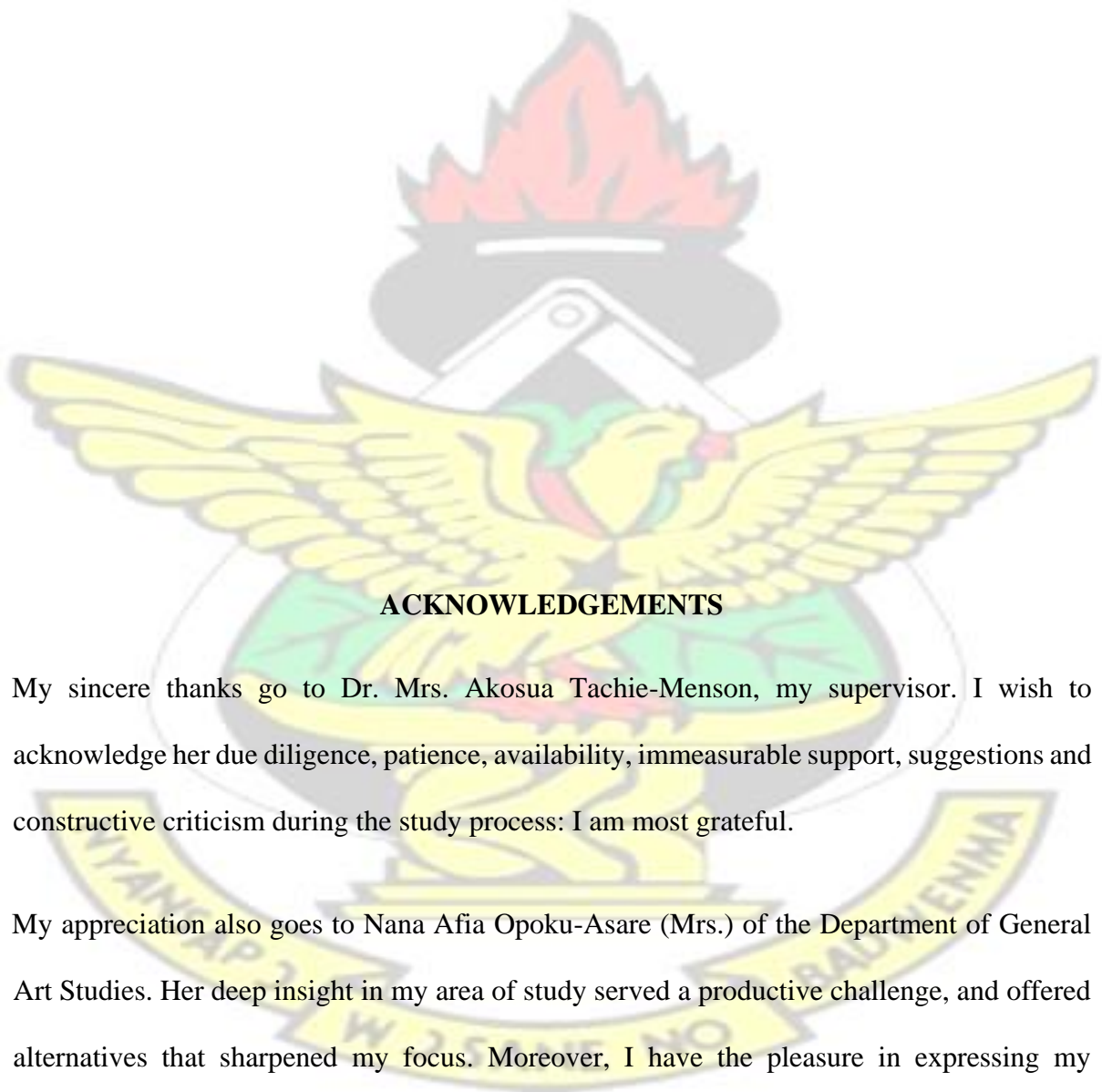
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DEDICATION

With much appreciation to the Almighty Lord Jesus Christ who gave me knowledge, strength and direction, I dedicate this thesis to the memories of Eric Prosper Sarpong and John Kwadwo Nkrumah.

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ABSTRACT

High academic performance has been found to be a cardinal concept in education. Studies however, have shown that students' performance depends on many factors even though there has always been a tendency of making a direct correlation between a student's academic achievement and intelligence level. This is very common when it comes to teaching core subjects to Visual Arts students in Ghanaian SHSs. The study thus investigated the teaching processes used in delivering the core subjects to students and; evaluated the impact of the processes employed by the schools on the academic achievement of Visual Arts and NonVisual Arts students. The study adopted the qualitative research design, under which the descriptive and evaluation research methods were employed to identify, describe and examine issues such as school facilities, availability and use of TLMs, supervision, students and teachers attitudes as well as methods and quality of teaching core subjects. The stratified and purposive sampling techniques were adopted; sampling 233 respondents –199 students, 24

teachers, 8 HODs and 2 head teachers. The study identified and described the processes involved in teaching core subject to Science, Business and Visual Arts students. The research further established that the schools share lots of similarities in the processes than differences and they were evident in the examination scores that students achieved. It was therefore, necessary to adopt a modified model based on Bloom’s model for evaluating academic achievement to evaluate the academic performance of all students on the different programmes in the sampled schools. This helped the researcher to outline and recommend that managers of schools should improve and fully utilize all school resources appropriately, considering the diversity of students’ backgrounds and needs in order to achieve high academic success in core subjects at the SHS level.

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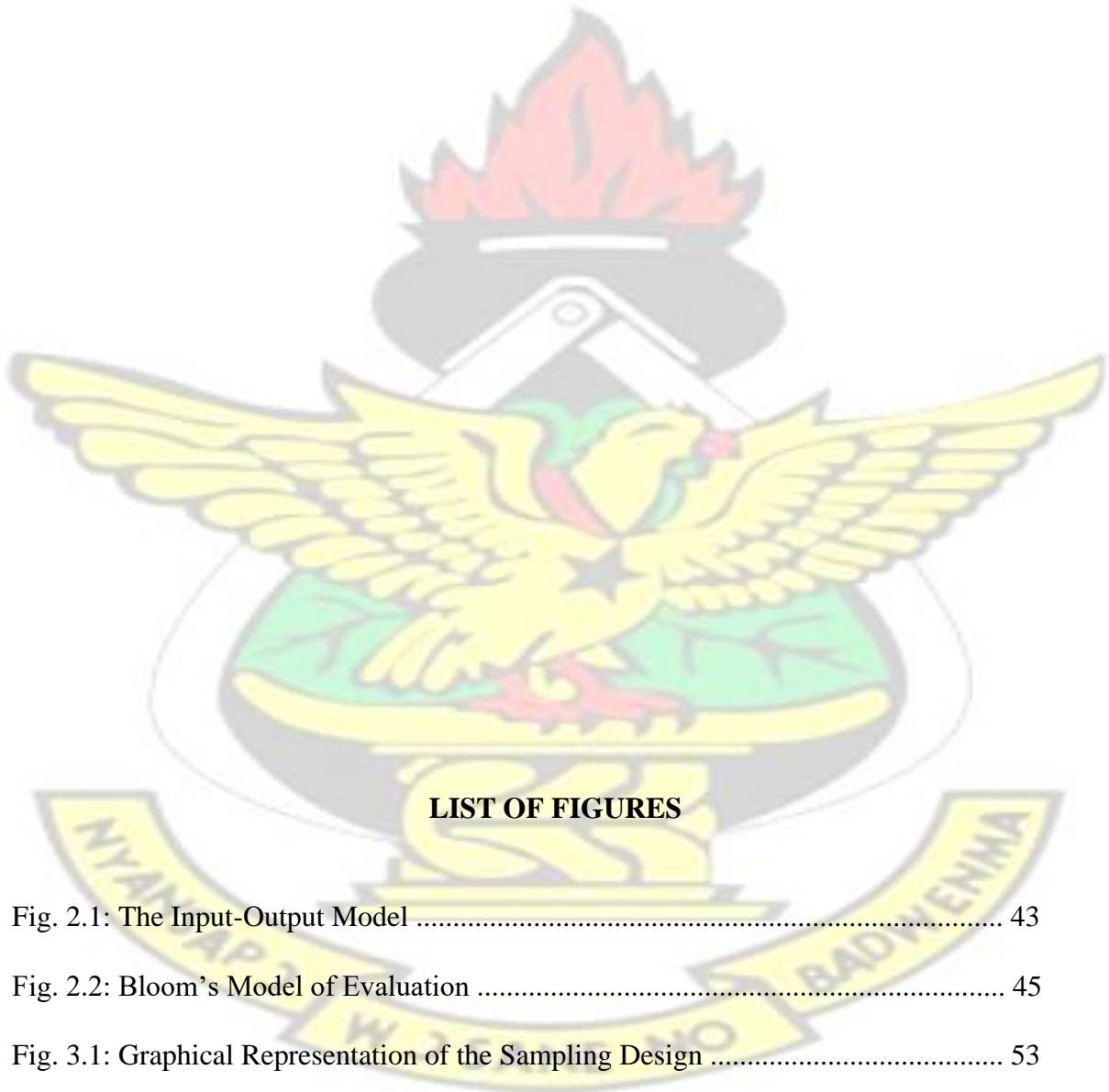
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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Owing to criticism that secondary level of education was overly academic and removed from Ghana's development and manpower needs, a new Senior Secondary School (SSS) system was structured as part of reforms to offer opportunity to build on the foundation laid at the basic level and to strengthen the general intellectual knowledge and skills required for employment or further education (Keteku, 1999 as cited in Quayson, 2006). Keteku further noted that, the reform included a core curriculum to be followed by all senior secondary students, along with five specialized programmes; two or more of which were to be offered in each school.

Building on the SSS system, the current Senior High School (SHS) structure requires that all students take a Core curriculum consisting of English Language, Integrated Science, Mathematics and Social Studies. Each student also selects three or four Elective subjects from one of seven groups, namely; Sciences, Arts (Social Sciences and Humanities), Vocational (Visual Arts or Home Economics), Technical, Business or Agriculture programme. At the end of Senior High School, all students write the West African Senior Secondary Certificate Examination (WASSCE) in each of the seven or eight subjects studied. The minimum requirement for admission into tertiary institutions for Senior High School graduates is BECE grades A1–C6 in all subjects (Ministry of Education, 2010).

It is a common place these days for government officials, heads of schools, teachers and all sorts of people to declaim that educational standards in Ghana are falling.

This is quite evident because a good number of students of the West African School Certificate Examination (WASSCE) hardly gain access to the tertiary institutions since their academic attainments fall far short of tertiary level admission requirements (Onumah, GNA, 2012). This notion was confirmed by a United States Embassy survey conducted in Accra, Ghana in 2014, which revealed that, fewer than 3% of SHS grades are A's, and 40% of students fail in at least one of their registered subjects. Another report by EducationUSA (2012) in Accra, Ghana also established that, SHS grading is exceptionally challenging: 3% of grades are As, 75% of grades are passes and only 43% of grades are credit passes of A1.C6. Thus, the report concluded that grade C can be a quite competitive grade. Therefore, the four-year SHS curriculum that was proposed for the 2007/2008 academic year was designed to devote the study of the core subjects with the intention of equipping all SHS students with the same level of the foundation knowledge needed to begin specializations in the respective subjects from the second year (Asihene, 2009).

Despite numerous government interventions, the variance that appears between students' pass rates in the SHS core and elective subjects is yet to be resolved. It was revealed that if mathematics and science at the secondary education is of high quality, then their impact on economic growth is more than years of schooling (World Bank Report, 2007). Interestingly, this disparity in the number of students who pass the SHS subjects seems to be peculiar to students selected for vocational education, of which the Visual Arts is a part. This is seen through the WASSCE results released by the West African Examinations Council (WAEC) in respect of final year Senior High School students. According to Asihene (2009), core subject teachers usually argue that most of the students on the Visual Arts programme are academically poor and non-serious; hence they cannot keep pace with the teaching of the core subjects, especially in the Visual Arts classrooms. Conversely, Visual

Arts students blame core subject teachers for being uncaring and disinterested in teaching in their classrooms because of the negative perceptions that they hold about them.

1.2 Statement of the Problem

The West African Secondary School Certificate Examination is the benchmark against which all students are assessed after their Senior High School education has ended. In recent years however, the West African Examinations Council (WAEC), the body which is in charge of examinations in Ghana, Nigeria, Sierra Leone, Liberia and The Gambia, has expressed much worry at the rate at which students underperform in the various subjects. In a communiqué issued by WAEC at the end of its 55th Meeting of the Nigeria Examinations Committee (NEC) in Lagos on January 2014, the Chief Examiners' Reports stated weak manipulative or mathematical skills, lack of in-depth understanding of various concepts, lack of detailed explanations to questions, poor command of the English language, poor handwriting, incorrect spelling of technical terms and inadequate study of the set texts as the main causes for most of the failures in the examination (The Independent, 2014).

Furthermore, WAEC revealed that there are disparities in the percentage of students' passes between the Core and the Elective subjects. Available statistics show that most of the failures or underperformance in the West African Secondary School Certificate Examination in Ghana occurs in the core subjects (WAEC, 2012). This was reiterated by Kyeremeh (2014) who expressed much concern especially at the drop in performance in English Language from 75.90% in 2011 to 65.70 in 2013. He attributed the cause of the problem to the widely held perception among students that the core subjects are extremely difficult.

Though all SHSs in Ghana follow the same syllabus and write the same WAEC external examinations, past examination records coupled with informal interviews conducted personally between 23rd and 27th February, 2015 with some headmasters of Senior High Schools revealed that Visual Arts students mostly fail or underperform in the various core subjects as opposed to their colleagues in Science, Business and other programmes. In addition, these same Visual Arts students do very well in their corresponding elective subjects when writing the same examination. While some teachers believe that this problem stems from the selection of academically poor students for the Visual Arts programme during admissions, others argue that the Visual Arts students are not serious with academic work (K. Sie, personal communication, July 22, 2014).

According to Amissah and Sam-Tagoe (2009), a lot of factors such as teachers' preparation, familiarity with curriculum or syllabi, type of learners in a particular class, learners' readiness, availability and types of teaching resources, motivational techniques employed, teaching strategies used among others, influence teaching and learning in the classroom. Additionally, Zainal, Haris and Ng (1991) have acknowledged that students' performance is largely influenced by teachers' pedagogical approach to teaching, where the teaching approach used should attract the students' attention, develop their interest in learning, and ensure full participation in the classroom. Thus, the failure of teachers to regard these significant factors makes most of the concepts they teach abstract and difficult to assimilate by students which makes some students perceive some core subjects as difficult. This often leads to students performing below the expected level. Invariably, the failure or poor performance of students in the core subjects hinders them from pursuing higher education in the various tertiary institutions since passes in the core subjects form a major part of the requirements for admission. Therefore, this study sought to

investigate the teaching of core subjects to both Visual Arts and Non-Visual Arts students by identifying and examining the systematic series of activities involved and to evaluate their impact on students' academic achievement in two Senior High Schools in the Sunyani Municipality of Brong Ahafo Region, Ghana.

1.3 Objectives of the Study

The study sought to:

1. Identify and describe the processes involved in the teaching of core subjects to Visual Arts and Non-Visual Arts students in selected Senior High Schools in the Sunyani Municipality.
2. Discuss the similarities and differences in the various teaching approaches of core subjects to Visual Arts and Non-Visual Arts students in the selected Senior High Schools.
3. Evaluate the impact of the teaching of core subjects on the academic performance of both Visual Arts and Non-Visual Arts students in the selected Senior High Schools.

1.4 Research Questions

1. What are the processes involved in the teaching of core subjects to Visual Arts and Non-Visual Arts students in the Senior High Schools?
2. What are the variations in the teaching of core subjects to Visual Arts and Non-Visual Arts students in the Senior High Schools?
3. How does the teaching of core subjects impact on the academic achievement of Visual Arts and Non-Visual Arts students in the Senior High Schools?

1.5 Delimitation

The content of this study was limited to the systematic processes involved in the teaching of Core Subjects, namely: Mathematics, English Language, Integrated Science and Social Studies to Year Two Visual Arts and Non-Visual Arts students in the Business and General Science departments of two Senior High Schools in Sunyani, Brong Ahafo Region of Ghana.

The teaching processes investigated and evaluated were based on the following criteria:

- a. school facilities used for teaching and learning
- b. methods and quality of teaching
- c. availability and usage of teaching/learning materials
- d. students and teachers attitudes towards Core subjects
- e. supervisory roles played by management in teaching and learning of Core subjects

1.6 Definition of Terms

The operational definitions of the technical terms used in this thesis are as follows:

- **Core subject:** A compulsory school subject that all students are required to study at school, for example, English Language or Mathematics.
- **Academic performance:** The extent to which a student, teacher or institution has achieved their educational goals, commonly measured by continuous assessment or examinations.

1.7 Abbreviations

CRDD: Curriculum Research and Development Division

| | |
|---------|---|
| MoE: | Ministry of Education |
| GES: | Ghana Education Service |
| HOD: | Head of Department |
| TLM: | Teaching and Learning Materials |
| JSS: | Junior Secondary School |
| JHS: | Junior High School |
| SHS: | Senior High School |
| WASSCE: | West African Secondary School Certificate Examination |
| WAEC: | West African Examinations Council |

1.8 Importance of the Study

1. The research will benefit core subject teachers, heads of Senior High Schools, the Curriculum Research and Development Division of Ghana Education Service, Ministry of Education and other stakeholders since they can identify and understand the strengths and weaknesses of the teaching and learning processes of core subjects that exist in the schools that enable students excel or underperform in tests and examinations conducted on them in SHS classrooms as well as in the external examinations organized by WAEC.
2. The study will be important to core subject teachers and SHS students since it reveals appropriate guidelines that can be used to make teaching and learning effective in the schools. This will improve students' understanding of core subjects to enable them achieve high academic excellence, which will eventually help the schools to attain their ultimate aim of providing quality education to students.

3. The Ministry of Education and Ghana Education Service can review the SHS core curriculum using the findings of this study on processes suitable for teaching and learning core subjects at the secondary level.
4. The study can serve as reference material for researchers, educators and students who are interested in pursuing further studies to improve the quality of the Visual Arts education and education as a whole.

1.9 Organization of the rest of the Text

Chapter Two deals with the empirical and theoretical review of pertinent literature related to the topic. Chapter Three comprises research design, population, sample and sampling techniques and instrumentation. Chapter Four looks at the presentation and analysis of the major findings. Chapter Five focuses on the summary, conclusions and recommendations for the study.



CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0 Overview

This chapter reviews literature that are related to senior high school education in Ghana and how the core subjects are taught at that level. The review of related literature provides the researcher the opportunity to critically analyse and evaluate relevant literature, while demonstrating the capacity to integrate and synthesize the

existing literature. In order to facilitate this review, the chapter has been sub-divided as follows:

- Education in Ghana
- Senior Secondary / High School Education in Ghana
- Concept of Teaching
- Effective Teaching
- Teaching Methods / Strategies
- Concept of Learning
- Learning Theories
- Conditions for Learning
- Motivation for Learning
- Factors that Affect Students' Performance
- Models and Frameworks for Evaluating Academic Performance

2.1 Education in Ghana

Since education is one of the most significant tools for national development, it becomes the responsibility of any progressive government anywhere to make available, support and encourage sound educational policies as well as infrastructure that will aid her people to develop skills, knowledge and attitudes that enable them to realize their potentials. However, McWilliam and Kwamena-Poh (1975) as cited in Eyiah (2004) has stated that it was not until the last quarter of the 19th century that Ghana began to take the first steps towards a state-organized education. Before then informal systems of education had been the main way in which Ghanaian communities prepared their members for citizenship. It is interesting to note that in Ghana the first school was the home: the teachers were parents and elders in the family. The curriculum was life and learning was by observation and practice.

According to the authors, the first major purpose of such education was the inculcation of good character and good health in the young members of the community. The second was to give them adequate knowledge of their history, beliefs and culture, thus, enabling them to participate fully in social life. This suggests that the aim and objective of non-formal education in Ghana has been national development.

McWilliams (1971) states that missionaries who introduced Christianity into the Gold Coast used schools and church activities to bring about changes in communities. The missionaries who restructured education by introducing formal education and Christian religion into the Gold Coast got the support to establish more schools from 1765. A board of education was set up in the 1880s to inspect schools and to standardize their management. Grants were established for private schools that met government standards, and the government devised regulations for the recognition of new schools. Primary education was emphasized until limited secondary education was introduced from the late 1880s.

In 1988, Oduro (2000) indicates that the government of Ghana implemented broad reforms that touched on all levels of the education system and attempted to address recurring issues affecting the system. The reforms reduced pre-university education in the country from 17 years to 12 years (six years of primary, three years of junior secondary) and three years of senior secondary school education). The senior secondary school (SSS) system began in 1990 and the first final examinations were written in 1993. The middle school system which preceded JSS education was phased out in 1989 when the last set of students took the middle school leaving certificate. The 'O' and 'A' level examination systems which guided secondary

education were gradually brought to an end in 1994 and 1996 respectively (Oduro, 2000).

2.2 Senior Secondary / High School Education in Ghana

The Senior Secondary Schools (SSS) system that began in 1990 was criticised as being overly bookish and removed from Ghana's development and manpower needs (Keteku, 1999 as cited in Quayson, 2006). A new SSS system was structured to offer opportunity to build on the foundation laid at the basic level and strengthen the general intellectual knowledge and skills required for employment or further education. Keteku (1999) established that the reformed SSS was structured to include a core curriculum to be followed by all Senior Secondary students alongside five specialized programmes, two or more of which were to be offered in each school. SSS students were required to select one specialized programme from which they would follow one option consisting of a package of three subjects.

Keteku noted that the core curriculum originally consisted of seven subjects that were to be studied throughout the three-year senior secondary school period:

English, Science, Mathematics, Agricultural and Environmental Studies, Ghanaian Language (nine different languages offered), Life Skills (renamed Social Studies in 1999) and Physical Education. Beginning with the class of 1998, the core curriculum was reduced to six subjects: English, Integrated Science, Mathematics, Social Studies, Physical Education and Religious and Moral Education though students were examined only in the first four subjects. Quayson (2006) indicated that with the five specialized programmes were instituted, namely; Agriculture, Business, Technical, Vocational and General Education, each student had to select one of the

options from which they studied three elective subjects in addition to the core subjects.

Quayson (2006) identified the following, among others, as the objectives of the new SSS system: to reinforce knowledge and skills acquired at the basic level; to diversify curriculum to the differing needs of individuals; to increase access to higher levels of education by increasing opportunities with a variety of occupational skills and to develop students longing for further self-improvement. The aim of the new curriculum was to meet the socio-economic and manpower needs of the nation in terms of education, agriculture, industry, health, science and technology. However, beginning with the class of 1999, subject combinations were greatly liberalized, permitting combinations that had been impossible previously: elective subjects from the General Arts and General Science programmes could be combined with the other programmes, giving these vocational programmes a higher academic content (Keteku, 1999).

The Senior Secondary School year run from January to December, for three terms and a total of forty weeks per year. Senior Secondary School teachers of academic subjects are university graduates; in the vocational and technical subjects they had five years of post-secondary teacher training. At the end of SSS Form 3 (twelfth grade), all students took the Senior Secondary School Certificate Examinations (SSSCE).

According to a report by the Ministry of Education, Science and Sports in 2007, demand for secondary education was on the rise to as much as 60% enrolment rate, yet the completion rate of 34% in 2006 suggested dropout was still high. In 2006, secondary net enrolment stood at about 13% after stagnating at 10% for a decade. Therefore, despite the relatively high enrolments, the secondary education system

had not been very efficient in delivering high numbers of graduates for further education and the labour market (Ministry of Education, Science & Sports, 2007).

□ **Senior High School (SHS) Curriculum**

The senior high school's curriculum is identical to the United States High School system in terms of structure with core and elective subjects yet the Ghana's SHS lasts only three years as a result of the numerous education reforms. The three-year period for SHS was extended to four years in 2007; however, it was reversed to three years in 2009. The curriculum ends on a final examination known as the West African Senior School Certificate Examination (WASSCE), formerly called Senior Secondary School Certificate Examination (SSSCE) before 2007. The Ministry of Education (2010) has reported that the SHS structure demands that students study a core curriculum consisting of English Language, Integrated Science, Mathematics and Social Studies, in addition to choosing three or four Elective subjects from one of seven groups. Sakyi (2012) identified the core subjects under the current structure of SHS as Integrated Science, Core Mathematics, English Language, Social Studies and Physical Education.

The new four-year Senior High School curriculum commenced in the 2007/2008 academic year, and was devoted to the study of the Core Subjects. This basic knowledge was needed by the students to begin the specialization in their respective courses from the second year so as to adequately prepare them to pursue University, Polytechnic, Vocational, Teacher Training and other graduate tertiary education at globally competitive standards (Asihene, 2009).

□ Senior Secondary/High School Grading System

Until 2007, the Senior Secondary School ended with the Senior Secondary School Certificate Examination (SSSCE), which assessed student achievement with a grading system that ranged from A to E. In 2007, the SSSCE was replaced with the West African Secondary School Certificate Examination (WASSCE). These examinations are written nationwide in May and June every year and results are released in October of that same year. In WASSCE, a maximum of 24 points is generally required for SHS graduates to enter a Bachelor's degree programme at the university and students can also apply to Nursing Training Schools, Colleges of Education, Polytechnics and Technical Institutions. The West African Examinations Council (WAEC), a consortium of five Anglophone West African Countries (Nigeria, Sierra Leone, Gambia, Ghana and Liberia) is responsible for developing, administering, and grading this secondary school-leaving examination (GhanaWeb, 2012). The current WASSCE grading system is explained in Table 2.1.

Table 2.1: Current Senior High School (SHS) grading system

| WASSCE Grades Since 2007 | Description |
|---------------------------------|--------------------|
| A1=1 | Excellent |
| B2=2 | Very Good |
| B3=3 | Good |
| C4=4 | Credit |
| C5=5 | Credit |
| C6=6 | Credit |
| D7 | Pass |
| E8 | Pass |
| F9 | Fail |

Source: Fieldwork, 2014

2.3 Concept of Teaching

Different people over the years have described teaching in different ways but ultimately, they all seem to arrive at a destination where the teaching process brings about a change in attitude or behaviour of the learner. According to Numale and Buku (2009), teaching is made up of three main components: the teacher, the learner and the subject or discipline to be taught. The authors have suggested that the teacher should be ready to teach, the learner prepared to receive the knowledge to be imparted, and the subject matter should be available. Frimpong and Amissah (2009) believe that teaching is a means whereby an experienced member of a group guides and directs pupils in their total growth and development through planned activities. Schlecty (1993) as cited in Amissah et al. (2002) describes teaching as the art of inducing students to behave in such ways that are assumed to lead to learning. This process involves creating an environment to facilitate learning and motivating learners to have interest in what is being transmitted to them as stressed by (Tamakloe et al., 2005). It can be said that teaching and learning are causally tightly bound activities.

Farrant (1999) indicates that teaching and learning are opposite sides of the same coin. That is, a lesson is not taught until it has been learned and thus, teaching can be thought of as a process that facilitates learning. Therefore, teaching cannot be said to have occurred without the supposed learner. In relation to this assertion, Tomlinson and Mc-Tighe (2006) posit that teaching is judged by successful learning and that learners will inevitably and appropriately influence the effectiveness of the art teachers practice. However, Jackson (1986) as cited in Wilson and Peterson (2006) has established that one reason why the relationship between teaching and

learning remains elusive is that learning cannot be mandated since teachers cannot guarantee that a particular student will learn. Jackson (1986) has noted that a teacher may valiantly try to teach a student but whether the student learns something depends on many factors within and outside the teacher's control. This brings up such questions as: Is the student motivated? Did the teacher use the appropriate instructional strategy? Is the student interested? Are the classroom and school conditions conducive for learning? Are the student's parents supportive? Is there enough time to digest the ideas and practice new skills? Is there any peer pressure? Jackson believes that these questions when answered play a crucial role in learning.

2.4 Effective Teaching

The positive and negative behaviours exhibited by teachers determine to a great extent, their effectiveness in the classroom and ultimately, the impact they have on students' achievement. Generally, effective teaching can be seen as that which results in beneficial and goal-oriented student learning through the use of right procedures and the creation of situations in which appropriate learning occurs. Rice (2003) has defined effective teaching as the application of multiple sources of information to better understand our students' strengths and development areas so as to provide the most targeted and useful coaching as good teachers. To provide the right and proper learning atmosphere and experiences, a teacher must know the learner, how he grows, how and why he learns, and when he should learn what. Classroom interaction and the application of a variety of strategies are highly recommended. This in effect constitute what is termed as effective teaching.

Obi (2003) asserts that effective teaching is a process related to the teachers' consciousness of the individuality of each child, including his needs, strengths,

weaknesses, growth patterns and background of experiences. This implies that an effective teacher has to create an atmosphere for a wholesome teaching and learning. Inferences can be made here that effective teaching is one of the most important inschool factors that determine students' academic achievement. The teacher must therefore provide a democratic situation in the classroom for effective teaching and learning of each subject. This environment according to Amissah et al. (2002) creates conducive atmosphere for learners to enable them freely express their points of view and provide them the opportunities to have the best learning experiences to help construct their own knowledge. The authors add that the teacher must therefore focus on the use of learner-centered innovative pedagogical strategies such as demonstrations, discussions, peer teaching, brainstorming, discovery learning and role play during the teaching and learning process to foster active participation of learners in the classroom.

2.4.1 Characteristics of Effective Teaching

Every good teaching aims at effectiveness of the process. There cannot be effectiveness if the teacher does not put in what it takes for the teaching and learning objectives to be achieved (Numale & Buku, 2009). This is why classroom interaction and application of a variety of strategies are highly recommended.

There are certain elements that should also characterize good and effective teaching (Amissah et al., 2002). The authors assert that the teacher who aims at good and effective teaching should structure his or her teaching in relation to his sensibilities towards learners' abilities, interests and needs; curriculum, resources available as well as selecting appropriate teaching strategies. They conclude that a teacher in his bid to achieve results should have a sound knowledge of child development, teaching skills and motivational techniques to help learners understand what is taught.

Gurney (2007) also came up with what he called “Five Factors for Effective Teaching”. To Gurney, the key elements to effective teaching are teacher knowledge, enthusiasm and responsibility for learning, classroom activities that encourage learning, assessment activities that encourage learning through experience, effective feedback that establishes the learning processes in the classroom and effective interaction between the teacher and the students, creating an environment that respects, encourages and stimulates learning through experience. In effect, the teacher has to be open to new experiences so as to shape the environment which favours learning. He also has to have favourable attitudes towards individual differences, eschew sarcastic statements, ridicule and fault finding among the students he/she handles, have sympathy, understanding and compassion for all students especially those who have learning difficulties, by seeking to compensate for deprived children.

2.5 Teaching Methods and Strategies

In any classroom situation, the teacher must be aware that the students have different rates and capacity of absorption. Moreover, the diverse topics that are taught also have their own peculiarities and thus, require different approaches in their delivery.

It is therefore a challenge for teachers to work on effective ways of approaching selected topics.

Annor (1997) opines that the skillful teacher adopts several methods during the same lesson to avoid monotony. The selection of a particular teaching method may be dependent on factors such as the duration of the lesson, materials and equipment available to the teacher and the number of teachers delivering the lesson. Annor adds that the methods selected should be related to the stages of growth and development of learners. Among the teaching methods available are lecture, role play,

demonstration, inquiry-based learning, discussion and field trip. Irrespective of the teaching method that teachers adopt, they ought to set clear goals for themselves, put these goals into practice and share these goals with their students and also help them to clearly know the learning outcomes (Trek, 2000). In summary, teachers are required to know the students in order to identify their needs and capacities so that they can plan learning experiences that will help them.

2.5.1 Teaching Strategies for Mathematics

According to Anthony and Walshaw (2009), effective teaching of mathematics cannot be possible if the teacher does not have mastery over what he teaches, that is, he or she should have a strong content knowledge base, know the various learning theories and how to apply them and also have mastery of the various teaching strategies. However, Fredua-Kwarteng (2004) indicates that most teachers are usually interested in the answers that students give to mathematical questions at the end of instruction than the processes in solving the tasks to arrive at those answers during mathematics instruction in Ghana. To Fredua-Kwarteng, this makes attention shift from following systematic steps to arrive at answers; thus, adversely affecting understanding of mathematical concepts.

According to National Mathematics Advisory Panel Report (2008), four methods of instruction that show the most promise for successful mathematical teaching are:

- i. Systematic and explicit instruction:** This involves a detailed instructional approach in which teachers guide students through a defined instructional sequence. From this method, students learn to regularly apply strategies that effective learners use as a fundamental part of mastering concepts. Kroesbergen and Van Luit (2003) add that explicit instruction has been found to be especially successful when a learner has problems with a specific or isolated skill.

- ii. Self-instruction:** This refers to a variety of self-regulation strategies that students can use to manage themselves as learners and direct their own behaviour, including their attention (Graham, Harris & Reid, 1992). With this method, learning is essentially broken down into elements that contribute to success: setting goals, keeping on task, checking your work as you go, remembering to use a specific strategy, monitoring your own progress, being alert to distraction and taking corrective action and checking your answer to make sure it makes sense and that the math calculations were correctly done.
- iii. Peer tutoring:** This is an approach that involves pairing students to learn or practise an academic task. According to Kunsch, Jitendra and Sood (2007), peer tutoring works best when students of different ability levels work together. Research has also shown that a variety of peer-tutoring programmes are effective in teaching mathematics, including Classwide Peer Tutoring, Peer-Assisted Learning Strategies and Reciprocal Peer Tutoring (Barley et al., 2002).
- iv. Visual representation:** This requires the use of manipulatives, pictures, number lines, and graphs of functions and relationships to teach mathematical concepts. Visual representations bring research-based options, tools, and alternatives to bear in meeting the instructional challenge of mathematics education (Gersten et al., 2008). “Representation approaches to solving mathematical problems include pictorial (diagramming), concrete (manipulatives), verbal (linguistic training) and mapping instruction (schema-based)” (Xin & Jitendra, 1999:211).

Research has also explored the ways in which visual representations can be used in solving story problems (Walker & Poteet, 1989); learning basic math skills such as addition, subtraction, multiplication and division (Manalo, Bunnell & Stillman, 2000); and mastering fractions (Butler, Miller, Crehan, Babbitt &

Pierce, 2003) and algebra (Witzel, Mercer & Miller, 2003). Xavier (2012) also stipulates that in order to teach mathematics effectively, activity based learning, jigsaw method, think-pair-share and play-way method have been identified as some of the strategies that can be used.

It can be concluded from the discussions that mathematics teachers should adopt student-centered approach to teaching the subject to give more room for learners to systematically and logically interact, reason, discuss and brainstorm to arrive at answers.

2.5.2 Teaching Strategies for English

Quality Teaching (2003) has suggested that teachers are not receiving adequate professional development in effective strategies to address the English learners' literacy development. Thompson (2004) has stressed that classroom teachers urgently need to know more about effective strategies for teaching English learners. However, Adelabu and Nder (2013) opine that a number of methods such as Demonstration, Problem-solving, Vee-Mapping, Concept Mapping and Individualized Instruction, among others, are available for the effective teaching of English Language and Literature in English. The teaching strategies are:

- i. **Demonstration method:** The method involves the use of objects, pictures, diagrams and other visual images. It is most appropriate for learners who appreciate visual images more than oral discourse. The use of visual images enhances concentration and recall. The demonstration method can be more effective when complemented with oral discussion, and when the information or knowledge to be imparted ought to be systematically presented in steps for easier comprehension.

such as syntax, semantics, phonetics, morphology and phonology can be effectively taught for easy understanding of students. Piller and Skillings (2005) also include Choral Drill, Verbal Illustration, Association and Narration as some of the methods that can be employed for an English Language lesson.

In summary it can be emphasized that when these outlined strategies are employed effectively for the teaching of English Language, learners' will develop proficiency in conversation and develop thinking skills that ultimately will assist in improving academic achievement of learners in the subject.

2.5.3 Teaching Strategies for Integrated Science

Science when properly taught, can help schools fulfill the responsibilities of training students in observation, critical thinking, communication, mathematical reasoning and problem-solving skills because students can apply the knowledge and skills learned in the subject to solve practical problems that confront them. Balasubramanian, Wilson and Cios (2005) found guided-inquiry, simulation, collaborative problem-solving hands-on activities and inquiry-based teaching methods as some of the most effective teaching strategies for science-based subjects.

The strategies are:

- i. Inquiry-based teaching:** This requires highly structured instructional strategies and demands teachers who are knowledgeable about both scientific content and pedagogy (Cozzens, 1997). Jensen (1998) and Bransford et al. (2000) have reported that the inquiry-based teaching is an effective teaching and learning strategy in Science because it provides a deep foundational knowledge for students, while allowing them more opportunities to define learning goals and monitor their progress in achieving them.

- ii. **Simulation:** According to Baggott and Nichol (1998), simulation supports the learning of science by encouraging students to pose and investigate exploratory questions. Osborne and Hennessy (2003) contend that simulation offers idealized, dynamic and visual representations of physical phenomena and experiments which would be dangerous, costly or otherwise not feasible in a school laboratory. This method, according to Osborne and Hennessy, releases students from laborious manual processes, expedites work production and enables teachers and learners to focus on salient issues without distraction.

2.5.4 Teaching Strategies for Social Studies

Adeniji (2004) has suggested that teachers of Social Studies at all levels of education need to be familiar with the content and methods of teaching the subject in order to interpret the content of Social Studies correctly and encourage its learning. Adeniji adds that it is only when Social Studies content is related to instructional methods that students will be able to appreciate the importance of the subject and pass valid judgments on what it is. Therefore, Social Studies as an inter-disciplinary subject should be taught with a wide spectrum of instructional methods that will enhance active participation of students in the teaching and learning process. Some examples of engaging instructional methods in Social Studies, according to Driscoll (2005), include self-directed learning, problem-solving method, cooperative learning, role playing and technology.

- i. **Self-directed method:** This method involves getting students to unleash their imaginative and intuitive capacities through learning. Self-directed learning strategy is capable of promoting maximum interaction between and

among social studies students to enhance efficient decision making while discussing and analyzing social issue.

- ii. Problem-solving method:** This method requires students to think about a problem, try to understand the problem and finally evaluate information to find solutions to the problem identified. It uses scientific approach in the teaching and learning processes and directs learners to arrange, classify and interact with facts to find a logical answer to a specific problem.
- iii. Cooperative learning strategy:** This technique when adopted for small groups, ensure that students work together to maximize and gain from each other. Slavin (1995) has revealed that for this strategy, students are expected to help, discuss, argue and assess each other's current knowledge so as to fill gaps in their understanding. Stahl (1994) believes that it also enables students to learn, practice and live the attitudes and behaviour that reflect the goals of social studies education.
- iv. Project method:** These activities aid in the learning process which involves doing concrete things and it is self-motivated. Various projects are constructed, written, and dramatized. An individual student or a group of students may carry out a project(s). The teacher must see that the projects are purposeful and not mere activity.

From the above discussions, it can be concluded that when students are taught the core subjects with a variety of appropriate instructional methods, teachers will be able to attract their attention sustain their interest so as to ensure that they fully participate to better understand concepts in all the subjects.

2.6 Concept of Learning

Learning forms a major component of teaching and it is no surprise that when teaching is discussed, a discussion of learning is soon to follow. Darling-Hammond, Kim, Orcutt and Rosso (2001) have viewed learning as a matter of encoding and storing information in memory, processing, categorizing and clustering material, and later retrieving this information to be applied at the appropriate times and situations. This means that for learning to occur, facts, concepts and ideas must also be first stored, connected to other facts, concepts and ideas and then built upon. According to Chingos and Whitehurst (2012), student learning occurs primarily through interactions with people (teachers and peers) and instructional materials (textbooks, workbooks, instructional software, web-based content, homework, projects, quizzes and tests). The authors add that the contexts within which these interactions occur are of significant relevance to the outcome of the learning process.

Taking a different view, Atkinson, Atkinson, Smith and Bem (1993) describe learning as a relatively permanent change in behaviour that results from practice. Burns (1995) elaborates on the definition by Atkinson et al. (1993) by defining learning as a relatively permanent change in behaviour, with behaviour including being both observable activity and internal processes such as thinking, attitudes and emotions. Most often, educators want the knowledge and skills that are gained in school to apply generally in students' lives rather than being limited to the situations of the classroom where it is acquired. Effective learning can therefore be thought of as the process by which new knowledge, skills, values and behaviours are acquired, increased or modified through active involvement of the learner. Learning is not something you just do for a few years in college.

□ Learning Styles

The idea that people learn in a variety of ways has been explored by educational researchers. Kolb (n.d) found that individuals begin with their preferred style in the experiential learning cycle. Building on Kolb's work, McGill and Beaty (1995) as cited in Dunn (2002) identified four learning styles as the:

- i. Activist who enjoys the experience itself.
- ii. Reflector who spends a great deal of time and effort reflecting.
- iii. Theorist who is good at making connections and abstracting ideas from experience and
- iv. Pragmatist who enjoys the planning stage.

Numale and Buku (2009) also recognize three types of learners, namely; visual learners, auditory learners and kinesthetic, tactile or motor learners. The authors indicate that, visual learners prefer to use their eyes when learning; auditory learners learn best through hearing, while kinesthetic or hands-on learners understand what is taught best through experiencing or doing things with the hands. Honey and Mumford (n.d) have argued that there are strengths and weaknesses in each of these styles and that learning is enhanced when we think about our learning style so that we can build on the strengths and work towards minimizing weaknesses to improve the quality of our studies.

It is therefore very relevant for a student to learn how to learn, which includes learning how to identify his or her own need for learning and how to be a self-learner. This will enable students to continue learning with greater effectiveness, acquire the necessary skill and be well-equipped for the current explosion of knowledge and technology.

2.7 Learning Theories

According to Darling-Hammond, Austin, Orcutt and Rosso (2001), learning theories address key questions, for example, how does learning happen? How does motivation occur? and “What influences students’ development?” To a substantial extent, the most effective strategies for learning depend on what kind of learning is desired and toward what end.

Bransford, Vye, Stevens, Kuhl, Schwartz, Bell and Sabelli (2006) contend that there are several different learning theories which include the acquisition of skills, learning with understanding and its effects on schema formation and transfer. According to Owusu-Banahene (2007), some of the commonly known and well-established learning theories are behaviourism theory, cognitive theory, constructivism and humanism theory. These learning theories and their implication on teaching and learning have been discussed.

i. Behaviourism theory

Driscoll (2000) has established that behaviourism is the theory that describes learning due to an observable change in behaviour. Learning occurs when the learner observes the information, practises the information and then receives reinforcement through praise. The basic idea of the behaviourist perspective of learning, according to Dumont, Istance and Benavides (2010), is that learning consists of a change in behaviour based on the acquisition, strengthening and application of associations between stimuli from the environment and observable responses of the individual, so called “S-R bonds” or connections. Behaviorism is seen as a theory of learning that lays much emphasis on objectively observable behaviours. Behaviour theorists view learning as nothing more than the acquisition of new behaviour through observation.

Classroom implication of the behaviourist learning theory

Driscoll (2000) has highlighted some factors that teachers can consider when incorporating behaviourist principles into their teaching:

- Write observable and measurable behavioural learning outcomes.
- Providing feedback during the development of assignments, projects, essays or research.
- Reinforce accomplishments with appropriate feedback through praise and encouragement to motivate learners to learn harder and with enthusiasm.
- Specify the desired performances or learning outcomes in advance and verify learning with appropriate assessments.
- Emphasize performance and practice in an authentic context.
- Use a variety of instructional strategies to shape desired skills.
- Give learners the opportunity to practice with the skills, concepts and ideas learned so that there will be consolidation and mastery.

ii. Cognitive theories

Cognitive learning theories include constructivist learning theory, developmental learning theory and social learning theory. Kruse (2009) indicates that each of these theories emphasizes the role of active mental processes, with a focus on how students make meaning of new information and experience. This theory is interested in how people construct meaning and make sense of the world through coordinating structures, concepts and principles in schema (James, 2006). Bruner (n.d) advocates the use of discovery method in schools for instruction, in which students find things out for themselves rather than being told everything by the teacher. For discovery to be effective, Bruner says that the teacher must teach so well to reveal the basic elements of the subject matter, relate material to the child's level of cognitive

development, develop the learner's interest in the subject (motivation) and must ensure that the educational experience is satisfying (reinforcement).

Classroom implication of the cognitive learning theory (Haberkorn, 2010)

- Helping learners to control their own learning processes (metacognition).
- Assessing learners' performance and provide informative feedback.
- Assisting learners to recall prior knowledge and experiences.
- Facilitating and supporting cognitive processes for learning of the identified types of learning outcomes.
- Identifying types of learning outcome (memorization, conceptualization, application, problem solving, etc.).
- Assisting learners to perform self-assessment.
- Assisting learners to develop learning strategies.

iii. Constructivism theory

Basically, constructivism is a pedagogical approach that views learning as a personal act to fulfill one's potential. Driscoll (2000) specifies that constructivism is a theory of learning where humans construct meaning from current knowledge structures. In the constructivist learning, individuals construct new knowledge from their experiences; therefore, making learning an active social process. There is dynamic interaction between the task (learning), the teacher and the learner. The teachers are facilitators. This theory emphasizes hands-on approaches or "learning is by doing".

As regards the constructivist learning environments, Duit (1995) advises that the lesson should be structured to:

- Give learners opportunities for meaningful and self-directed working and for thoughts independent of teachers and other learners.
- Give the learners the opportunity to link their previous knowledge and their previous experiences with the subject matter to be newly learned.
- Give the learners the opportunity for interaction to negotiate meanings and find consensus.
- Give the pupils opportunities to experience learning as a process allowing them to solve problems they personally find difficult in order to enhance selfefficiency in a particular field.

iv. **Humanism theory**

According to Laird (1985), the basic premise of this theory is that learning will occur by the teacher acting as a facilitator by establishing an atmosphere in which learners feel comfortable to consider new ideas and are not threatened by external factors. A primary reason of humanism can also be described as the development of selfactualized or self-sufficient people. Currently, there is a shift toward constructive learning in which learners are given the chance and assistance to construct their own meaning from the information presented during lessons.

Suggestions for Teaching with the Humanism theory (Laird, 1985)

- Teachers should listen to learners, especially to their feelings.
- Teachers should be inclined to pay as much attention to their relationship with learners as to the content of the course.
- Learners must be apt to accept feedback, both positive and negative and to use it as constructive insight into themselves and their behaviour.

- Learners should be encouraged to take responsibility for their own learning and provide much of the input for the learning which occurs through their insights and experiences.

It can be emphasized that effective teaching requires teachers to produce and use, construct and reconstruct, expand and reject theories of teaching and learning based on these discussions. Moreover, teachers will have much capacity over their pedagogical choices when they make their theories clear and obvious and test them with knowledge of current research, classroom experience and colleagues' critiques since these theories are not instinctive knowledge or beliefs but painstakingly crafted lessons learned from years of experience and careful inquiry.

2.8 Conditions for Learning

A major challenge for school authorities aiming to improve teaching and learning in their organizations is to identify which factors in schools and classrooms have significant effects on student learning. Berger (2002) found that organizational structure of an institution (defined as the patterns and processes of behaviours exhibited by administrators on campus) has some amount of influence on students' learning. Again, Alfonso (2005) offers evidence of how institutions can organize their resources and create success-oriented cultures by explaining that effective institutional conditions and promising policies and practices can foster students' success. Alfonso opines that structural characteristics of institutions should include such features as size, sector, control, student-faculty ratio and structural diversity, that is, percentage of students from different racial and ethnic backgrounds.

Additionally, Glatthorn and Jailall (2000) have found that quality curriculum and instruction have considerable impact on student learning. Glatthorn and Jailall insist that curriculum should provide for individual differences, be gender-sensitive, closely coordinate and selectively integrate subject matter, while focusing on standards and targets for student learning.

According to UNICEF (2010), much discussion of educational quality centres on system inputs such as infrastructure, pupil-teacher ratios and curricular content. In recent years, however, more attention has been paid to educational processes, which refer to how teachers and administrators use inputs to frame meaningful learning experiences for students and teacher competencies. That is to say that teachers' mastery of subject matter, teacher competence and school efficiency as well as teacher feedback mechanisms contribute to better or low performance of students in schools.

- **Learning environment**

Carron and Chau (1996) contend that the positive learning outcomes generally sought by educational systems happen in quality learning environments. According to UNICEF (2010), learning environments are made up of physical, psychosocial and service delivery elements. These elements are described in the following sessions:

- a) **Physical elements**
 - i. Quality of school facilities

Physical learning environments range from relatively modern and well-equipped buildings to open-air gathering places (UNICEF, 2010). The quality of school facilities seems to have an indirect effect on learning; that is, an effect that is hard to

measure. Fuller (1999) has argued that empirical evidence is inconclusive as to whether the condition of school buildings is related to higher student achievement after taking into account students' background. Miske and Dowd (1998) have pointed out that such factors as on-site availability of clean water supply and lavatories, classroom maintenance, space and furniture availability have an impact on the critical learning factor of time on task. The authors opine that when pupils have to leave school and walk significant distances for clean drinking water, for example, they may not always return to class.

ii. Class size

Researchers and educators have debated the relationship between class size and student learning at length. Although many studies have found a relationship, Williams (2000) and Rutter (1979) as cited in Pennycuick (1993) maintain that class size has not consistently been linked to student achievement. To Pennycuick, this may be due to the fact that many schools and classrooms have not yet adopted the more demanding but higher quality student-centered learning practices. Moreover, Pennycuick contends that quantitative relationships between class sizes and academic achievement rarely take other key quality factors such as teachers' perceptions of working conditions and their sense of efficacy into account. However, Morrow (2007) as cited in Dorleku (2013), contends that teachers in overcrowded schools spend more time teaching the entire class rather than being able to individually attend to slower paced students.

b) Psychosocial elements

i. Safe and peaceful environment

A welcoming and non-discriminatory climate is critical to creating a quality learning environment within schools and classrooms. In addition, a peaceful and safe environment, especially for girls is also vital to academic success. In many countries, attitudes discouraging girls' participation in education have been significant barriers to providing quality education to all students (UNICEF, 2010). Furthermore, some teachers' behaviours can also affect safety and academic success of students. The threats that come in the form of unequal treatment, harsh punishments, bullying and undervaluing, especially girls, harm students in great and long-lasting ways. Comparative to both girls and boys, educators, parents and researchers express significant concerns about teachers who create unsafe environments for students. These teacher behaviours, according to Pigozzi (2000), affect the quality of the learning environment since learning cannot take place when the basic needs of survival and self-protection are threatened.

In summary, greater perceptual development and learning occur in environments that are rich with stimuli and provide efficient feedback in response to a learner's efforts to act upon the environment. The nature of the tasks encountered, the ways in which information is presented, and the expectations for the learner's involvement all affect the learning process. Moreover, the nature of the social environment, that is, whether and how learners have access to others who can describe, model or provide feedback shapes the learning process. The type of feedback from significant others and the nature of reinforcements from the environment can stimulate or undermine greater effort.

2.9 Motivation for Learning

Teachers have a lot to do with their students' motivational level. A student may arrive in class with a certain degree of motivation but the teacher's behaviour, teaching

style, structure of the course, nature of assignments and informal interactions with students can have much effect on student motivation. Educational psychology has identified two basic classifications of motivation; that is, intrinsic and extrinsic. Intrinsic motivation arises from a desire to learn a topic due to its inherent interests for self-fulfillment, enjoyment and achievement of a mastery of the subject. On the other hand, the desire to perform and succeed for the sake of accomplishing a specific result or outcome is extrinsic motivation (Afful-Broni, 2004). Students who are very grade-oriented are extrinsically motivated whereas students who seem to truly embrace their work and take a genuine interest in it are intrinsically motivated.

This implies that when intrinsically motivated, people engage in acts that interest them, and they do so freely with a full sense of volition and without the necessity of material rewards or constraints (Deci & Ryan, 1985). Intrinsically motivated behaviours represent the prototype of self-determination. They emanate from the self and are endorsed fully. Extrinsically motivated behaviours, on the other hand, are instrumental in nature, and are believed to be instrumental to some separable consequence but are not performed out of interest.

Students' motivation is explained by Marilena and George (2007) as a construct that is built out of individual learning activities and experiences, and varies from one context or situation to another. Ames (1990) notes that motivation to learn is characterized by long-term quality involvement in learning and commitment to the process of learning. Motivational strategies that can be adopted by teachers to enhance students' learning include creating learning activities around topics that are relevant to the students' lives, provide choices, reward success, discourage negative competition, use peer models, be supportive, establish a sense of belonging and

provide constructive and timely feedback. It is relevant to note that motivating learning is an important element of good teaching. Failure to adequately address student motivation has significant effects for students.

Motivation is a combination of various different aspects that comprise a part of teachers' pedagogical knowledge. Teachers must realize that, to maintain and be successful with all of the instructional techniques at all times is impossible. Gaining experience and using some of these techniques will help any teacher feel a little better about the quality of his or her teaching (Mzokwan, 2008). As a professional educator, the teacher must realize that the quality of a learning experience lies in the teacher's ability to create that quality. While it is unlikely that one single event or agent will dramatically alter a student's motivation to learn, or will impact positively all of students, it is of significant value to admit that student motivation is dynamic.

Through the teacher's own behaviour, teaching practices and course design, he or she can create classroom conditions that encourage motivation and engagement to learn on a variety of levels. By implementing an array of strategies that fit teaching style and classroom environment, the teacher can greatly stimulate and sustain students' motivation to learn both in the classroom and within his/her overall subject matter.

2.10 Factors that Affect Students' Performance

According to Hamilton-Ekeke (2013), performance is how well an individual is able to demonstrate desired abilities. Though there could be many determinants to a student's academic achievement, there has always been a tendency in making a direct correlation between a student's academic achievement and intelligence level. Studies have shown that students' performance may depend on both internal and external

classroom factors. Examples of such internal classroom factors include students' competence in English Language, availability of textbooks, class test results, learning facilities, environment of the class, class size and schedules, complexity of the course material, teachers' role in the class and examination systems. External classroom factors include extracurricular activities, gender, age differences, work and finances, and family or social problems.

The following sections outline some of these factors that contribute to low or high academic achievement and how to manage them in the context of senior high school.

i. The role of teachers and school

Teachers and schools in general have direct effects on the students' personalities, inspirations and values that affect their academic achievement. Teachers are seen as the main source of learning in schools especially in ensuring students' success. Zainal, Haris and Ng (1991) found that 62% of drop-out students never consulted their teachers when they were encountering learning obstacles. Some of the students (14%) reported that their teachers were too fierce to approach. The study concluded that teachers who are not very supportive significantly affect students' academic performance. It is also acknowledged that students' performance is largely influenced by the teachers' pedagogical approach to teaching. Learning process should be enjoyable where the teaching approach used could attract the students' attention, develop interest in learning, and ensure full participation in the classroom. Since higher academic achievement can be attained if students are made aware of the learning objectives with clear instructions in a learning environment that is conducive, pedagogical approaches of teachers need to be well structured and systematic for effective learning to take place.

ii. Communication

Harb and El-Shaarawi (2006) have argued that the most important factor with positive effect on students' performance is students' competence in English. The authors assert that if the students have strong communication skills and have strong grip on English, it increases the performance of the students. It is thus possible to view communication as a variable which may be positively related to the performance of the student in open learning.

iii. Learning facilities

Karemera (2003) found that students' performance is significantly correlated with satisfaction with academic environment and the facilities of library, science laboratories and computer laboratory among others in the institution. Karemera continues that a study effort from students coupled with the proper use of the facilities provided by the institution to the student and a good match between students' learning style affect the student's performance positively. Young (1999) also emphasizes that student performances are directly linked with the use of library facilities and level of their parental education. Therefore, it is judicious for teachers and educators to instill the use of the library in all students.

iv. Teaching and Learning Materials

A learning material, according to Zyl (2012), is any object in the learning environment that complements or facilitates understanding. Onasanya (2004) opines that teaching and learning materials are used by practising and trainee teachers to present, illustrate, and elucidate teaching. Fianu (1999) explains that teaching and learning materials include visual materials and audio-visual materials such as charts, slides, real objects, videotapes and the internet.

Teaching and learning materials (TLMs) are required to create an appropriate environment for effective learning. TLMs provide the teacher with interesting and compelling platforms for transmitting information since they motivate students who want to learn more (Adekeye, 2008 as cited in Dorleku, 2013). Tamakloe et al. (2005) however, advise that when choosing these materials, teachers must make sure that they fulfill a function which is significant and when used, those materials must highlight particular points raised in the lesson more effectively than can be emphasized without those materials.

v. Proper guidance

Students face a lot of problems in developing positive study attitudes and habits especially at the high school level. Proper guidance is one of the factors through which a student can improve his or her study attitudes and habits. According to Noble (2006), students' academic achievements, perceptions of their coping strategies and positive attributions and background characteristics (such as family income, parents' level of education, guidance from parents and number of negative situations in the home) are related to their composite scores and academic achievement in high school. Zajacova, Lynch and Espenshade (2005) have stipulated that students who are properly guided by their parents perform well in examinations. Students' academic performance depends on proper guidance by both teachers and parents.

In summary, the social and economic development of the country is directly linked with student academic performance therefore educational institutions have no worth without students. Due to this, students' academic achievement plays a significant role in producing the best quality graduates who will become great leaders and

manpower responsible for the country's economic and social development. However, measuring of academic performance of students is challenging since students' performance is a product of socio-economic, psychological, environmental and personal factors. Though these factors strongly influence students' performance, they vary from country to country and person to person.

2.11 Models and Frameworks for Evaluating Academic Performance

Several models and conceptual frameworks have been designed for evaluating different factors that contribute to high academic achievements in various fields of education. Some of these models have been named after the model designers or the purpose for which they were made. Two of the most prominent examples of such models on which academic performance can be evaluated, according to Kyoshiba (2005), are the System's Theory Input-Output model advanced by Ludwig Von Bertalanffy in 1956 and Bloom's (1982) model of evaluation described as follows.

a. The Input-Output model

According to Acato (2006), this model is based on the belief that the quality of input invariably affects quality of output. Building on the work of Koontz and Wehrich (1988), Kyoshiba (2005) adopted and modified this model to show the linkage between different factors and academic performance as represented in the Figure 2.1.

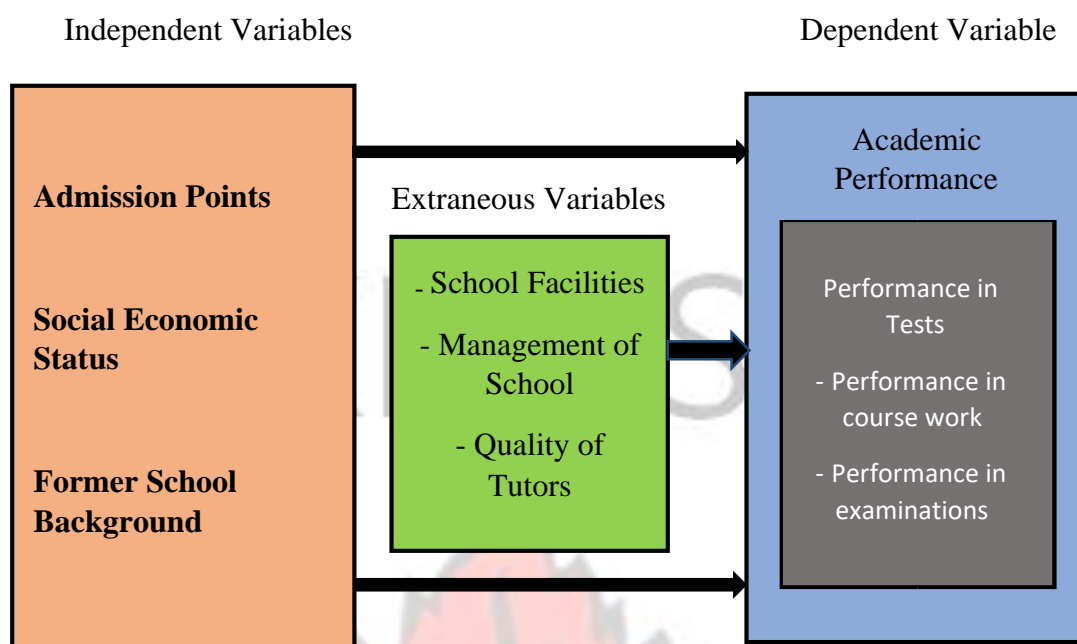


Figure 2.1: The Input-Output model adopted from Koontz and Weihrich (1988:12)

Source: Kyoshaba (2005)

From this model, Kyoshaba (2005) stipulates that academic performance as a dependent variable is linked to the independent variables of admission points, parents' social economic status and former school background of the student. According to the model, if the admission points of the students are high then the academic performance is likely to be high and vice versa. Staffolani and Bratti

(2002) and Geiser and Santelics (2007) also found that previous performance affects future performance. The model also shows that academic performance is dependent on parents' social economic status. That is, students from high social and economic backgrounds will perform better than their counterparts from low social economic backgrounds as discussed by Dills (2006) and Owens (1999).

The third dependent variable is the former school background of the student. This argument reflects Considine and Zappala's (2002) view that students from highclass schools are likely to perform well due to the fact that they attend those schools. This

means that the type of school a student attends is likely to contribute to their academic performance in future. Kyoshaba (2005) has also identified some extraneous variables like school management, facilities and the quality of teachers as factors which may affect academic achievement. These variables are part of the input and process explained in the Ludwig's Input-Output model, which plays a key role in bringing out the output, which is academic performance.

b. Bloom's Model of Evaluation

Bloom's model of evaluation (Fig. 2.2) was designed in 1982. This model is useful in examining the interdependence of variables - the teaching and learning process and students' performance in academic work. The model consists of three items:

Predictor variables, Mediating variables and Performance. According to Bloom (1982), predictor variables and mediating variables have great impact on students' performance. Bloom argues that if the predictor variables and mediating variables are of high quality, the teaching and learning process would yield good performance.

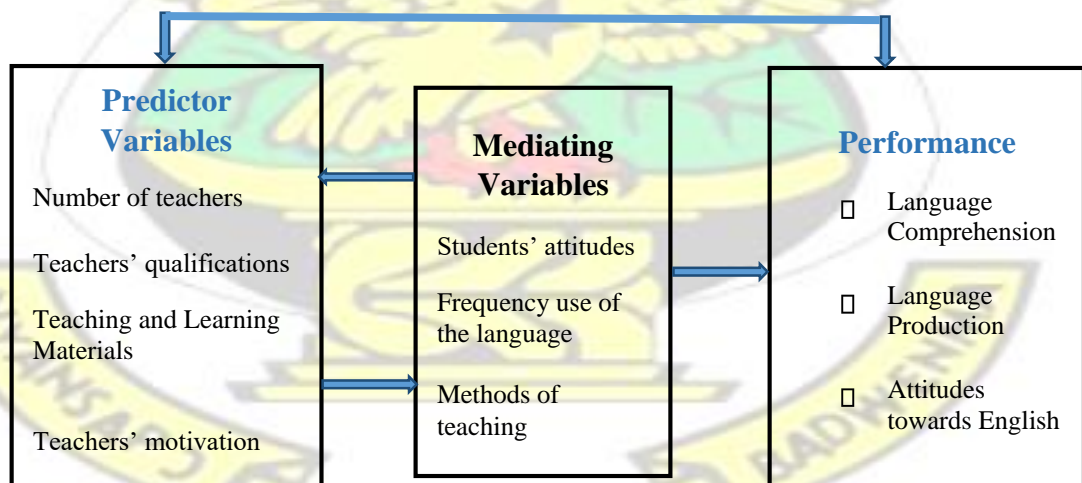


Figure 2.2: Bloom's Model of Evaluation *Source:* Mosha (2014).

Based on Bloom's Model of Evaluation, Mosha (2014) explained in her work that predictor variables such as number of teachers, teachers' quality, level of teachers' motivation and availability of teaching and learning materials, when linked with mediating variables like students' attitude towards the language they learn, frequency of use of the English language and methods of teaching, will result in good performance of students in language comprehension, language production and attitudes towards English (academic achievement).

The study by Mosha (2014) also assumes that if the school environment, especially classrooms and home environment, were conducive to students' learning, they would contribute to academic performance, not only in the English subject but also in other subjects taught in the English language, hence high school achievement.

2.11.1 Comparison of the Input-Output Model and Bloom's Model of Evaluation

Both the Input-Output Model and Bloom's Model of Evaluation explain that the quality of input invariably affects quality of output. The two models show the linkage between different factors and academic performance, with both placing academic performance as a dependent variable which is linked to independent variables. Though both models have three items, Bloom's model presents the items as Predictor variables, Mediating variables and Performance (the Dependent variable) while the Input-Output model has Independent variables, Extraneous variables and Dependent variable which represents "performance". However, Bloom and Ludwig both argue that the first two variables have direct links to the third and must therefore be of high quality so as to yield maximum results. This makes both models useful in examining

the interdependence of the variables teaching and learning process and students' performance in academic work.

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CHAPTER THREE

METHODOLOGY

3.1 Research Design

The qualitative research design was adopted for this study. Myers (2009) mentions that qualitative research is designed to help researchers understand people, and the social and cultural contexts within which they live. According to Domegan and Fleming (2007), qualitative research aims to explore and discover issues about the problem on hand, because very little is known about the problem. There are usually uncertainties about dimensions and characteristics of the problem. In qualitative research data is derived from written descriptions of people, events, opinions, attitudes and environments, or combinations of these. The strengths of using qualitative methods are that they generate rich and detailed data that leave the participants' perspectives intact and provide a context for their behaviour. Moreover, respondents provide their own explanations in a participatory exchange with

interviewers. Due to this, the researcher has the opportunity to explore participant's answers and clear up any ambiguity before analyzing and publishing the collected data.

□ Justification for Employing the Qualitative Research Design

The qualitative research design was purposely employed for this study to investigate and describe in detail the teaching processes that are adopted by teachers for teaching English Language, Mathematics, Integrated Science and Social Studies to Visual Arts and Non-Visual Arts students; the unique educational experiences of individuals in the complexity of a real classroom; the processes that influence these experiences and analyze the resulting data to evaluate their impact on students' academic achievements in the selected Senior High Schools.

Under the qualitative research, both Descriptive and Evaluation methods were adopted for the study.

3.1.1 Descriptive Research Method

Berg (2004) describes descriptive research method as the one that is set to describe the natural phenomena which occur within the data in question. The main aim of descriptive research is to provide an accurate and valid representation of the factors or variables that are relevant to the research questions. Descriptive research is concerned with the present and attempts to determine the status of the phenomenon under investigation. The most distinguishing feature of this method, according to Leedy and Ormrod (2007), is that the researcher has no control over the variables being studied since the state of affairs has to be described as it prevails at the time of the study.

□ Reasons for Employing the Descriptive Research Method

The study principally focused on the description of teaching and learning processes observed in the Senior High School Core Subjects in both Visual Arts and NonVisual Arts classrooms. The characteristics of the headmasters, students, head of departments and core subject teachers in the schools were also described.

3.1.2 Evaluation Research Method

MacDonald and Headlam (2009) have described the evaluation study as a form of research used to assess the value or effectiveness of social care interventions or programmes. Postlethwaite (2005) notes that the evaluation method involves the general weighing of the value or worth of things in terms of the objective(s) sought, or in comparison with other programmes, curricula or organizational schemes.

According to Clarke (2005), evaluation research has the following properties:

- i. Participants are equal partners in every aspect of the design, implementation, interpretation and resulting action.
- ii. Outcomes do not represent 'how things are' or 'how they work', rather they represent meaningful constructions which groups create to make sense of situations they find themselves in.
- iii. It is recognized that these constructions are shaped by the values of the constructors.
- iv. Evaluation of these constructions is highly dependent on the involvement and perspectives of the evaluators.

□ Reasons for Employing the Evaluation Research Method

The researcher used the evaluation research to specifically pass judgment on the effectiveness of the teaching processes by comparing and establishing the similarities and differences in the various teaching approaches of core subjects to Visual Arts and Non-Visual Arts students in the two Senior High Schools. It further helped to examine the impact of these processes on the academic achievement of Visual Arts, General Science and Business students in the schools.

3.2 Population for the Study

A research population is known as a well-defined collection of individuals or objects known to have similar characteristics. All individuals or objects within a certain population usually have common binding characteristics or traits. Fraenkel and Wallen (1996) assert that a population is the group to which the research findings are intended to apply. It consists of all the subjects one wants to study.

Thus, the population chosen for the study was the Visual Arts, General Science and Business students, HODs of the core subjects, core subject teachers and all heads in the two selected Senior High Schools in the Sunyani Municipality of the Brong Ahafo region of Ghana.

3.2.1 Target Population

The target population is “the entire aggregation of respondents that meet the designated set of criteria” (Burns & Grove, 1997:236). It is the group of individuals or objects to which researchers are interested in generalizing the conclusions (Explorable.com, 2009). The target population usually has varying characteristics

and it is also known as the theoretical population. In this study, the target population was made up of one second year class in each of the two schools offering the following courses; Visual Arts, Business and General Science. It also included all HODs, core subject teachers and the headmasters in charge of academic duties in the chosen schools. This is further explained in Table 3.1.

Table 3.1: Target Population for the Study

| School | Total No. of Students | No. of Core Subject Teachers | Headmasters | No. of HOD's (Core Subjects) |
|--------------|---|--|-------------|---|
| School A | Visual Arts = 43 Gen. Science = 52 <u>Business = 41</u> Total = 136 | Mathematics = 4 English = 3 Int. Science = 3 <u>Soc. Studies = 3</u> Total = 13 | 1 | Mathematics = 1 English = 1 Int. Science = 1 <u>Soc. Studies = 1</u> Total = 4 |
| School B | Visual Arts = 38 Gen. Science = 32 <u>Business = 28</u> Total = 98 | Mathematics = 3 English = 6 Int. Science = 4 <u>Soc. Studies = 2</u> Total = 15 | 1 | Mathematics = 1 English = 1 Int. Science = 1 <u>Soc. Studies = 1</u> Total = 4 |
| Total | 234 | 28 | 2 | 8 |

Hence, the target population for the study was $234 + 28 + 2 + 8 = 272$

3.2.2 Accessible Population

Accessible population, according to Hungler (1999), comprises all the cases that conform to the designated criteria and are readily accessible to the researcher as a pool of subjects for a study. This population is a subset of the target population and

it is also known as the study population. It is from the accessible population that researchers draw their samples, gather primary data for the study and can apply their conclusions. The target population for this study was maintained as the accessible population since the researcher was able to reach all the individuals within the target population.

3.3 Sample and Sampling

A sample is usually selected according to the needs of the study that is, from the target population and it consists of the units or elements that will be closely examined for the research. Coyne (1997) explains sample as specifically selected because they can teach us a lot about the issues that are of importance to the research. Sampling is also defined by Fraenkel and Wallen (2000) as the process of selecting a portion of the population to represent the entire population which enables the researcher to study and obtain data that are representative of the entire target population. Sampling is necessary in research because it is usually not practical to study an entire population.

3.3.1 Sampling Design

Saunders, Lewis and Thornhill (2007) opine that sampling designs are means that are used to select a sample from the population by reducing it to a more manageable size. Sampling designs take many forms which include simple random, systematic, cluster, stratified, convenience, quota, purposive and multi stage sampling (Zikmund, 2003). For the purpose of this research, the stratified random and purposive sampling techniques were adopted.

□ Stratified Random Sampling Technique

Kitambara (2009) opines that when conducting a survey and the target population shows sub-populations, it is highly recommended to use the stratified random sampling technique to design the sample. Stratified sampling techniques are generally used when the population is heterogeneous, and where certain homogeneous or similar sub-populations can be isolated. Stratified random sampling is when samples are taken from each stratum or sub-group of the population to represent the entire population (Leedy, 2005).

For the purpose of this study, this technique ensured that each subgroup of the larger population, that is, Visual Arts, Business and General Science students, core subject teachers and head teachers of the selected schools were equally represented in the sample. This is explained diagrammatically in Figure 3.1.

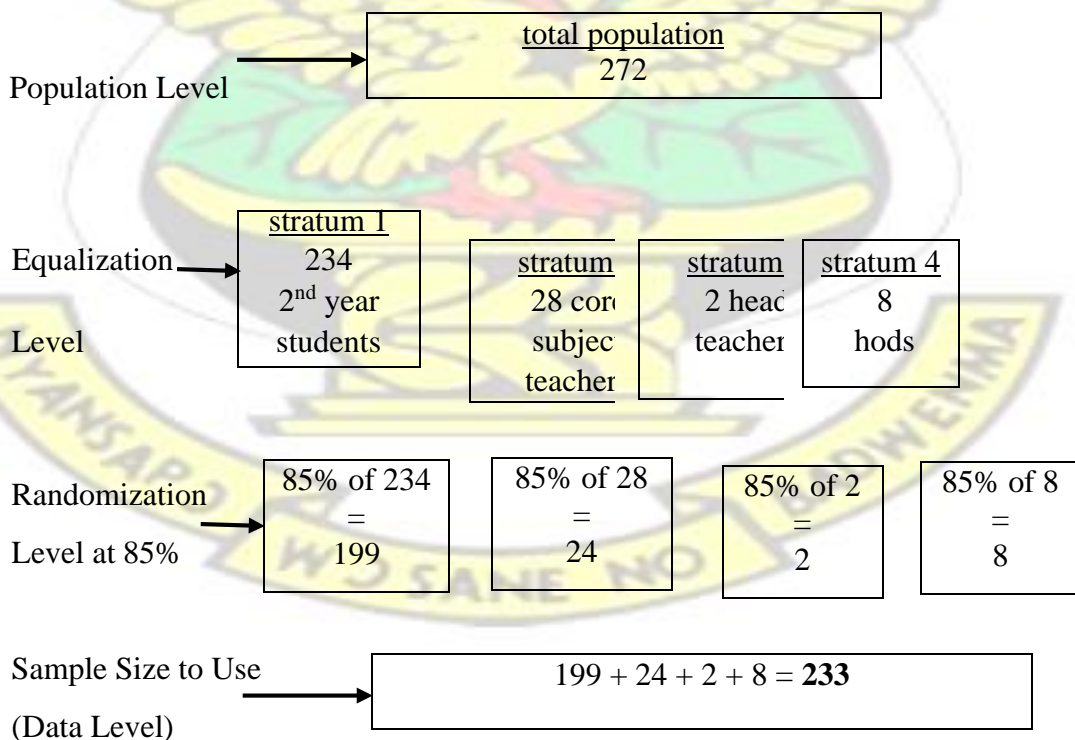


Figure 3.1: Graphical representation of the sampling design employed to achieve the sample size for the study.

□ **Purposive Sampling Technique**

In qualitative research, Patton and Cochran (2002) maintain that samples are usually purposive. This means that participants are selected because they are likely to generate useful data for the project. Oliver (2006) explains further that it is a sampling technique that is not based on probability but the researcher intentionally chooses people to include in a study based on the fact that such people have expert information that would be of immense benefit to the research.

The purposive sampling technique was adopted by the researcher to select Senior High Schools that offer programmes in Visual Arts, General Science and Business. This provided opportunity for the researcher to compare and contrast how each school manages the core subjects in the Visual Arts, Business and Science departments in the selected schools.

3.4 Data Collection Instruments

There are different sources of information when conducting a research, according to Yin (2003). These include questionnaires, documentations, tests, archival records and interviews. Data-collection techniques allow researchers to systematically collect information about the objects of study and the settings in which they occur. The various techniques employed in gathering the necessary data were questionnaire, interview and observation.

3.4.1 Questionnaire as a Tool for Data Collection

A questionnaire is simply a tool for gathering and recording information about a particular issue of interest. Kokoroko (2010) views questionnaire as a widely effective means of collecting information about practice and condition and enquiring into opinions and attitude of subjects. When properly constructed and responsibly administered, a questionnaire becomes a vital instrument by which statements can be made about specific groups or people. Questionnaires should always have a definite purpose that is related to the objectives of the research, and it needs to be clear from the onset how the findings will be used.

- Advantages and disadvantages of Questionnaire

Questionnaire is considered to be the most flexible of tools and possesses a unique advantage over others in collecting qualitative information. Questionnaire permits wide coverage and geographical area at a minimum expense of both money and effort. The major disadvantages of the questionnaire are that there is the possibility of the misinterpretation of the questions and difficulty in establishing rapport with the subject.

- Designing the Questionnaire

The open and closed forms of items were adopted. To improve the attractiveness of the instrument, it was given a title that was clear, concise, and descriptive of the research project; it was typed well, properly spaced out and easy to read. Questions that were of a similar nature were grouped together. The questionnaire for the study had 23 items and was administered to only students to gather data on how core subject teachers taught in their various classrooms. Drafted questions were vetted by colleagues and thesis supervisor to make them error free, after which corrections

were made. Answers to factors that affect teaching and learning, such as how teachers behaved towards students, teaching strategies and motivational techniques used by teachers during lessons, among others were what the questionnaire sought to discover.

□ Administration of Questionnaire

In all, on the 18th and 19th of February, 2015, the researcher personally sent 250 copies of the study questionnaire and were administered to the sampled student population as follows: 145 to School A and 105 to School B. Extra copies were added to each school to make up any lost or destroyed ones. The different days gave the researcher time to supervise and explain questions that students had difficulty in answering. This was to ensure that all the items in the questionnaire were correctly answered. Of the 250 questionnaire sent out, 251 (representing 86%) copies of the administered questionnaire were retrieved; 121 copies from School A and 94 copies from School B. The entire administration and collection of the copies of the questionnaire took one month.

3.4.2 Interview as a Tool for Data Collection

Interviews are methods of gathering information through oral quiz using a set of preplanned core questions (Patton & Cochran, 2002). Interviews resemble everyday conversations, although they are focused to a greater or lesser extent on the researcher's needs for data. They also differ from everyday conversation because they are conducted in the most rigorous way in order to ensure reliability and validity. The main advantages of interview as a method of data collection, according to Genise (2002), are that direct contact with the users often leads to specific, constructive suggestions which help to obtain rich and detailed information.

Interview provided opportunity to draw nearer to the Heads of Schools as well as the HODs of the core subjects. This allowed friendly relationship with the interviewees to clearly outline the objectives of the study to them. As a result, the researcher was massively assisted in collecting the needed information for the research.

□ **Design and Conduct of Interviews**

In this study, the interview guide designed to solicit for data had both structured and semi-structured questions. With the structured interview guide, the researcher used a set of predetermined questions that were short, clearly worded and closed ended. Therefore, this enabled the researcher to obtain precise answers in the form of a set of options read on paper. Questions on the interview schedule were submitted to the thesis supervisor for vetting and corrections. The researcher was punctual at all the appointed dates and times. All the two head teachers in charge of academic duties and HODs of the core subjects for the study were interviewed on the effective teaching of the subjects to both Visual and Non-Visual Arts students.

3.4.3 Observation as a Tool for Data Collection

Observation, according to Leedy and Ormrod (2005), involves retrieving information, data or impressions on the field of research with the use of the researcher's senses. These senses may include listening, smelling, looking, feeling, touching and any other in the quest to investigate a phenomenon. Observation is a way of gathering data by watching behaviour, events or noting physical characteristics in their natural setting. Observation is a powerful research instrument because in most cases it validates data gathered in an interview.

Some advantages of observation, according to Chaleunvong (2009), are that it permits collection of information on facts not mentioned in an interview and allows one to directly see what people do rather than relying on what people say they did.

On disadvantages of observation, Chaleunvong further outlined that ethical issues concerning confidentiality or privacy may arise while the presence of the data collector can also influence the situation observed.

In this study, the direct but non-participant observation was used to carefully watch the existing approaches of teaching SHS Core subjects to Visual and Non-Visual Arts students. Again, the researcher was able to explore how students learned - how they behaved towards the various subjects and subject teachers, what they did when they did not understand the material, as well as how the teachers went about their teaching duties in and out of the classroom. The observation also enabled the researcher to find out whether the existing infrastructure, resources, materials and equipment were adequate, supportive and appropriate for the teaching and learning processes in each school. All these were done because direct observation of behaviour is an important means of appraising the work of schools, students and teachers. Observations made in the schools started on the 3rd of March 2015 and ended on the 24th of March 2015.

3.5 Data Analysis Plan

The Microsoft Office Excel application was used to generate charts and tables representing the results in percentages. Data gathered from the classrooms of the selected schools through questionnaires, interviews and observations were transcribed into reports and compared. The gathered data were carefully compiled, synthesized, analyzed, interpreted and conclusions drawn from them. Based on the findings and conclusions, recommendations were made by the researcher.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF FINDINGS

4.1 Characteristics of Sampled Schools

To ensure confidentiality and good ethical practice of research the names of the senior high schools were replaced with the letters A and B from this section onwards.

i. Profile of School A

School A is one of the products of the Ghana Education Trust or government school that was founded in October 1960. This is a category 'A' school located at about 1,500 meters away from Sunyani and it is open to all JHS students from all over Ghana. It is a mixed school with a student population of 2,787 comprising 1,625 males and 1,162 females. The school has three classes each: SHS One to Three and it offers six programmes –Visual Arts, Home Economics, Agric, General Science, General Arts and Business. The school is headed by a headmistress and three assistant heads in charge of academics, administration and domestic duties. The teaching staff is made up of 72 males and 22 females making 94 teachers. The school has adequate classrooms for all the programmes that it offers and facilities which include a French language centre for students as well as staff bungalows. With regards to students' accommodation, the school also has boarding facilities for more than two-thirds of the student population, two dining halls, a canteen and portable water. Classes for all the programmes commence at 7:20am and end at 2:45pm.

Sporting facilities such as a football field with running tracks, volley and basketball courts, hockey and handball pitches and changing rooms can be found in the school's

sports complex. Some of the notable achievements of the school over the years include winning the 48th National Independence Anniversary Debate held in Accra in 2005, winning the Business Quiz organized by the Ministry of Finance for secondcycle schools on two occasions (2008 and 2012), winning the Brong Ahafo @ 50 quiz competition organized for the senior high schools in the region in 2010 and attaining 100% pass in the 2009 WASSCE.

In spite of these achievements, the school faces challenges such as the need for a well-equipped Visual Arts block, additional boarding facilities and teacher's bungalows among others for the increasing student and teacher population.

ii. Profile of School B

School B is also a government of Ghana second cycle educational institution which was officially opened in December, 1986, in a serene town known as Odumase near Sunyani. It is also a mixed school with 1,087 male and female students who come from all the regions in Ghana. The school has a headmistress and 3 assistant heads with 61 teachers for all the programmes that are offered, which are General Arts, Business, Visual Arts, Home Economics, Agriculture and General Science. The school activities start from 7:30am to 2:30pm with morning and afternoon breaks. Additionally, the school has enough classrooms and teaching and learning facilities as well as starts from SHS One to Three. Other notable facilities in the school include a one hundred and twenty seating capacity staff common room, a dining hall for boarding students, two new five-room dormitory for both boys and girls, a portable water and a soccer pitch with running tracks and a volleyball pitch for respective sporting events.

In recent years, School B has witnessed a steady advancement in student enrolment and positive attitude towards learning, discipline and sporting activities. The Agriculture department has also seen remarkable improvement in their vegetable farming as well as poultry. Some of the major challenges that confront the school however, include lack of funds for tarring of roads and walling the entire compound of the school to prevent the townsfolk from encroaching on their land.

4.2 Activities Undertaken for Objective One

Objective One was to identify and describe the processes involved in the teaching of core subjects to Visual Arts and Non-Visual Arts students in the selected Senior High Schools.

In order to identify and describe the processes involved in the teaching of the core subjects to the students on the different fields of study, it is important to outline the SHS core curriculum and the underlying principles and aims of teaching those subjects as prepared by the Ministry of Education in 2012.

4.2.1 The Senior High School Core Curriculum

The Senior High School (SHS) Core curriculum comprises English Language, Integrated Science, Mathematics and Social Studies. All students who pass out of the SHS education are expected to write examinations under each of the subjects in the SHS core curriculum in addition to their respective elective subjects so as to enable them further their education in higher institutions (GhanaWeb, 2012). As a result, these subjects form an integral part of the SHS education and thus must be taken seriously by all school administrators, teachers and students. The rationale and general aims of each of the subjects are outlined in the following sessions.

□ Rationale and Aim of Teaching Mathematics

The main rationale for the mathematics syllabus is focused on attaining one crucial goal: to enable all Ghanaian young people to acquire the mathematical skills, insights, attitudes and values that they will need to be successful in their chosen careers and daily lives. The student is expected to develop the required mathematical competence to be able to use his or her knowledge in solving real life problems, be well equipped to enter into further study and associated vocations and build on knowledge at the JHS level (GES Teaching Syllabus for Mathematics at the SHS level, 2010).

□ Rationale and Aims of Teaching English Language

Since English Language is the principal medium for teaching and learning, for official work and for international discourse, it is thus, important for all students. They are expected to improve and gain confidence skills such as listening, reading, speaking and writing at this level. Some benefits are to reinforce and further develop language skills and competencies and communicate such knowledge through speaking and writing in English (GES Teaching Syllabus for English at the SHS level, 2010).

□ Rationale and Aims of Teaching Integrated Science

The study of Science assists us to understand the natural world and approach challenges in life and in the workplace in a systematic and logical manner, since we gain knowledge faster through the use of science and technology. It is important for students to be trained in the processes of seeking answers to problems through scientific investigations and experimentation (GES Teaching Syllabus for Integrated

Science at the SHS level, 2010).

□ **Rationale and Aims of Teaching Social Studies**

This subject basically prepares the individual to fit into society by equipping them with knowledge about the culture and ways of life of their society, its problems, values and hopes for the future. It helps students to investigate how their society functions. The aim is to develop students' ability to adapt to the developing and everchanging Ghanaian society and acquire positive attitudes and values towards individual and societal issues (GES Teaching Syllabus for Social Studies at the SHS level, 2010).

4.2.2 Teaching of Core Subjects at SHS

Since the core subjects form a very significant part of the SHS curriculum, teachers who handle these subjects should make all efforts to make the learning of the subjects very effective for all SHS students. Asihene (2009) has emphasized that teachers have to teach the core subjects well to make them understandable to all their students, irrespective of the programme they offer. They also have to teach basic information to start with, help the students to view the complex SHS material in the right perspective, and do their best to break what has to be taught into simplified forms for the students to understand. To help all students succeed in the various core subjects, the teachers handling the subjects should recognize individual differences in ability and competence among their students and should not compare the “weak” students to the “brilliant” ones (Asihene, 2009). The Core subject teachers also need to keep up the interest of the students in lessons by presenting easier and simpler materials to be followed by complex and difficult one, bearing in mind that each individual has an in-built pattern of growth and therefore the students' reaction, time,

co-ordination control and temperament are distinct to each individual. The core subject teachers must however, challenge all students to learn what they are taught.

4.2.3 Findings from the Teaching of Core Subjects in the study Schools

Identification and description of the teaching of the core subjects in both schools were based on the following pointers:

- a. school facilities used for teaching and learning
- b. methods or quality of teaching
- c. availability and usage of teaching/learning materials
- d. students and teachers attitudes towards Core subjects
- e. supervisory roles played by management in teaching and learning of Core subjects

a. School facilities

- i. Through observation, Schools 'A' and 'B' had adequate classrooms for all departments, averagely stocked library and computer laboratory with internet facilities; in addition to these School 'B' possessed a language laboratory, a projector room and an ultra-modern 2,000 capacity assembly/examination hall.
- ii. Interviews with the headmaster and HOD of Integrated Science in School 'A' revealed that the school lacked vital equipment and apparatus for practical lessons.

b. Methods or quality of teaching

i. Results from Observation

- Teachers and students in both schools use GES approved textbooks for the teaching of core subjects. They also use the GES teaching syllabi as a guide for teaching.
- Core subject teachers in the two schools were always punctual to classes and utilised all the time in the classroom for teaching. Allotted periods on the timetable seemed inadequate for all core subject lessons.
- Mathematics and Social Studies teachers in both schools prepared lesson plans for teaching which stated the objectives of the lessons.
- Lecture, discussion and brainstorming methods were used for teaching but students in School 'B' also had field trips and used group works. Students were assessed through questioning, exercises, assignments and tests in the schools.

ii. Results from Interviews

- In School 'A', the HODs for English, Mathematics and Social Studies had Master's degree (MA, MSc and MBA) while the HOD for Science programme had a bachelor's degree. All of them had two to ten years' teaching experience. In School 'B', all HODs had bachelor's degrees with four to seven years working experience.
- In both schools, the head teachers mentioned that different teachers teach core subjects to students in Visual Arts, General Science and Business but one teacher teaches one core subject each.
- The head teachers in both schools mentioned that core subject teachers attend at least one refresher course a year to improve their knowledge and skills in teaching and this was confirmed by the HODs and core subject teachers.

- The head teachers of both schools declared that assessment on the teaching and learning of core subjects were based on tests, internal examinations and yearly examinations by WASSCE. However, the headmaster and HODs articulated that the schools provide extra classes for all students but at a fee.

iii. Results from Questionnaire

- Eighty-one suggesting 66.9% of students testified that they were content with the instructional methods used by core subject teachers. They also stipulated that the teachers asked enough questions in class.
- But majority of respondents which is 84 or (70%) said that the teaching of core subjects did not include hands-on practical activities.
- On the issue of punctuality, 71 (59%) out of 121 respondents argued that core subject teachers attend classes on time and they use the entire time teaching.

c. Availability and usage of teaching/learning materials

- i. The researcher observed that TLMs for core subjects were non-existent in the classrooms; hence, none of the teachers used TLMs for teaching.
- ii. Out of 121 students questioned in School 'A', 108 (90%) said there were no TLMs for teaching core subjects whereas the remaining 13 (10%) who were General Science students answered in the affirmative. Also, in School 'B', 75% respondents suggested that there are no TLMs apart from those in the Integrated Science laboratory.
- iii. Two out of four making 50% HODs interviewed indicated that the school has adequate TLMs to supplement the teaching of core subjects whiles the remaining 50% said otherwise.

d. Students and teachers attitudes towards Core subjects

i. Results from observation

- Teachers in School 'B' had pleasant and cordial relationship with students but those in School 'A' had lukewarm attitude towards Visual Arts students.
- Ninety-seven percent and 95% respectively of students in both Schools 'A' and 'B' were punctual to the observed lessons and they showed positive attitudes towards all subjects.
- General Science students interacted and participated actively during Intergrated Science, Mathematics and Social Studies lessons; Business students were very active in all four core subjects; where as Visual Arts students were very active in Social Studies lessons followed by Intergrated Science but less active in Mathematics and English language.
- Students from the departments exhibited polite attitudes towards their teachers.
- The headmaster in charge of academics and two out of the four HODs said that some of the students, especially, from Visual Arts perceived the core subjects as difficult to learn.
- Majority of school heads, HODs and teachers perceived most of the students in Visual Arts as not serious, lazy, absentees and unintelligent.

e. Supervisory roles by management in the teaching and learning of Core subjects

- i. During observations, the research did not observe any form of supervision by the head teacher or HODs in both schools during teaching of the core subjects.
- ii. However, the head teachers and HODs in the schools claimed they supervise the teaching and learning of core subjects. In School 'A', the head and 3 out

of the 4 HODs, responded that they supervise weekly, monthly or quarterly since they have other teaching duties.

4.2.4 Analysis of Results from Observations, Interviews and Questionnaire from the Sampled Schools

□ English Language

In School 'A', the HOD and teachers agreed that the content of English Language is too broad for students at the SHS level to learn and better understand every topic, hence, teachers rush through the topics in order to save time which gives little room for interaction and participation by students. Meanwhile, teachers in the schools use the lecture, brainstorming and discussion methods of instruction, although School 'B' suggested that they sometimes adopt group work and field trips. This implies that the time for teaching English Language is not sufficient since students, especially, from Visual Arts and the subject teachers complained that some topics were difficult to teach and learn. And so in order to help weak students better comprehend the perceived 'difficult to learn topics', teachers were encouraged by the HOD to learn from colleagues who knew more than they did.

A General Science student in School 'A' stipulated that she found it difficult to understand English Language because it involves extensive reading. She said that since her programme of study is practical oriented, memorizing information was not an easy task to accomplish. Moreover, the interest and abilities of slow learners, especially, from Visual Arts were not considered since the teachers mentioned that they were not serious in class. It was realized that some of the Visual Arts students attended English Language classes regularly but did not concentrate because their teachers did not believe in them; and this made them lose interest in the subject. To buttress some Visual Arts students' displeasure, they failed to attend extra classes

organized by the schools to augment normal classroom activities. The Visual Arts students in School 'A' believed that the English teacher made lessons difficult for them since the teacher fails to break complex materials into simplified forms to help, especially, the slow learners among them understand what is being taught. In agreement to this, Thompson (2004) stresses that English Language teachers need to know more about effective strategies for teaching learners of English.

On the other hand, the teacher in School 'B' was seen to have good and friendly relationship with students in the different disciplines. He commented that most of the students were very good, co-operative and active participants in the classroom, though, some Visual Arts students had difficulty with vocabulary, expressing themselves, reading and memorizing concepts in English Language since they were comfortable with practical hands-on activities. They contended that some Visual Arts students failed to participate in class or write exercises and assignments. Students, on the other hand, attributed their low performance to the lack of teachers identifying and satisfying their learning needs such as adopting suitable strategies to arouse their interest and attention. The HOD of English in School A suggested that in order for teachers to develop students' proficiency in conversation and develop thinking skills that ultimately will assist in improving academic achievement of learners in the subject, the teachers should adopt methods such as role play and drama, among others.

On the matter of participation in class and scoring of good marks in School 'A', Business students recorded active participation followed by General Science and Visual Arts; but General Science students recorded high marks, while Business performed averagely with Visual Arts attaining low grades. The reasons teachers

assigned to the low performance of Visual Arts students was that they were known for speaking the local dialect (Twi) during and after classes.

□ **Mathematics**

Mathematics as a subject requires much concentration, continuous working of examples, and practicing the knowledge and skills that are taught so as to stay on top. Generally, teachers and HODs reported that students usually perceive Mathematics as a difficult subject. As a result, careful planning is required from students at each stage of development to ensure understanding before the next begins. Teaching must, thus, begin at the lowest level which will serve as a prerequisite for a higher level. As Kochhar (2004) articulates that teachers must engage students in tasks that are generally of low level difficulty to enable effective learning before the more difficult ones.

In both schools, the HODs and Mathematics teachers unanimously agreed that the General Science and Business students performed excellently and very good respectively in Mathematics whiles students who offered Visual Arts trailed. Observations revealed that since Business students are very good with calculations, class participation was very active. As a result, they were expected to do better than their colleagues in General Science, but the latter performed better than the former. This was because General Science students paid much attention, asked the right questions and answered questions posed by the teacher as well as did assignments and submitted works for marking and feedback. As a result, most of them made the effort to understand what was being taught since the competition was keen in their classrooms; hence, the teacher taught effectively by engaging and sustaining their attention and interest in class. A student in the General Science class expressed that

“we perform better since our teacher is very friendly and a helper who made sure we understand every concept that is taught”.

Again, the HODs and teachers in Schools ‘A’ and ‘B’ said that assignments, exercises and test scores of Visual Arts students proved that majority were always absent, lazy and exhibited the “I don’t care” attitude as compared to their colleagues in General Science and Business, although, there were few Visual Arts students who actively participated in class and perform very well. The teacher in School ‘B’ confirmed that, “some Visual Arts students compete vigorously during the teaching of mathematics and it showed when results of class exercises, assignments and examinations are released”. He indicated that, it is an assumption that all Visual Arts students are “unintelligent and non-serious” but some of them do well in his subject.

Nonetheless, the HOD mentioned that Visual Arts students are not intelligent since their grades fell short of the admission requirements. Teachers in both school confessed that they sometimes find it difficult teaching Visual Arts students in the schools. Students also remarked that since they cannot satisfy teachers by memorizing concepts and formulae to solve mathematical problems, teachers tag them as unintelligent. Some Visual Arts students who were weak in Mathematics shared their views by saying “I find it difficult to work out mathematical problems, maybe because I do not revise and attend extra classes”. Another postulated that “even though I pay attention in class and worked more examples on my own, I find it very difficult to memorize most of the formulae”. Rice (2003) stipulates that these weaknesses that were confessed by Visual Arts students can be solved if teachers better recognize and appreciate their students’ strengths by providing the right and proper learning atmosphere and experiences. He continued to say that, a teacher must know his/her learner, how he grows, how and why he learns and when he should

learn what in order to provide the most directed and suitable coaching as a good teacher.

Generally, the headmaster in School 'B' confessed that the greatest challenge that teachers and the school face in this subject was the fact that about 50% of the student population have weak understanding of mathematical concepts. Teachers are often compelled to teach "simple topics" in addition and multiplication so as to correct students' poor foundation in Mathematics.

□ **Integrated Science**

The HODs in the schools admitted that the Integrated Science syllabus likewise English Language was too broad as it comprises Chemistry, Physics, Biology and Agriculture. As a result, it required careful use of appropriate strategies of teaching this subject. Yet, Business and Visual Arts students in the schools were taught predominantly using the lecture method whereas their counterparts in General Science were taught at the Science laboratory. This evidently contributed to General Science students' excellent performance in class contributions, exercises and assignments as well as tests and examinations. Meanwhile, the teachers argued that the Visual Arts and Business students lacked interest in the subject. It is therefore necessary for teachers to note that availability and utilization of resources is also a major contributor to achieving good and effective teaching (Amissah et al., 2002).

When teachers deny both Business and Visual Arts students access to hold Integrated Science lessons in the Science Laboratory because they do not offer Science, then they will not be encouraged to participate in class since lessons taught will be abstract to understand, thus, they will only become passive listeners.

Their lack of involvement in the teaching of Science inadvertently made the teacher in School 'A' easily angry and as a result psychologically and verbally abused them.

Pigozzi (2000) believes that when teachers exhibit undesirable behaviour towards students, the quality of the learning environment is affected, hence, learning cannot take place when the basic needs of survival and self-protection are threatened.

□ Social Studies

In both schools, Visual Arts students, especially those in School 'A', showed much interest in Social Studies. Therefore, they were very attentive and also participated actively in class activities but the teacher insisted they do not perform well as compared to the others. It was found that, although students in Visual Arts were attracted to this subject, they complained that the teaching methods, which was predominantly lecture, was inappropriate to sustain their attention during teaching. The subject teacher however believed that the Visual Arts students perceived the subject to be cheap but could not articulate their views well with their lack of vocabulary, poor grammar and poor construction of sentences. As stipulated by Adeniji (2004), teachers of Social Studies at all levels of education need to be familiar with the content and methods of teaching the subject in order to interpret the content of Social Studies correctly and encourage its learning.

Again, it was detected that 80% of the students in School 'B' considered Social Studies as the "easiest" of all the core subjects since it consisted of everyday issues, though, the topics were too many to learn. The subject teacher in School 'B' resorted to asking questions as often as possible to sustain students' attention and interest. A Science student remarked that "it was much easier to answer questions in Social Studies because it deals with issues that are encountered daily".

Furthermore, the HOD and the teacher mentioned that majority of Business students in School A perceived the subject as being too difficult to learn because it involved too much reading and they are interested in calculations. To help solve this problem

with Business students, the teacher engaged in co-operative learning strategy by forming small groups to work together in order to share knowledge.

4.3 Activities Undertaken for Objective Two

Objective Two was to examine the similarities and differences in the various teaching approaches of core subjects to Visual Arts and Non-Visual Arts students in selected senior high schools.

From responses from questionnaire administered to students coupled with interviews with headmasters in charge of academic duties and HODs and the findings from observations of the lessons, the following similarities and differences in the overall processes of teaching core subjects to Visual Arts, Business and General Science students in the Senior High Schools selected for the study were identified.

4.3.1 Similarities and Differences in the Teaching Approaches of Core Subjects to Visual Arts, Business and General Science students in Schools A and B

a. School Facilities Employed for Teaching and Learning

□ Similarities

- i. Schools 'A' and 'B' possessed facilities such as libraries, dining halls, dormitories, computer laboratories and science laboratories to aid teaching and learning.

□ Differences

- i. School 'A' had a small computer laboratory, two big and spacious halls as the main libraries, well-equipped science laboratory which served as Science

Resource Center for other senior high schools in the region but it was restricted to students offering Business and Visual Arts in the school for lessons in Integrated Science.

- ii. In School B, the library which was small was stocked with prescribed textbooks; thus, students were encouraged to visit the library frequently, which cannot be said about students in School 'A'. Again, School 'B' proudly owned a well-equipped and modern ICT Centre and average Science laboratory which also denied Business and Visual Arts students to access it for Integrated Science.

b. Methods and Quality of Teaching

□ Similarities

- i. In both schools, core subject teachers including HODs were all specialist teachers with university degrees and they taught General Science, Business and Visual Arts students.
- ii. Core subject teachers in the two schools employed brainstorming and oral questioning to introduce topics to all students but adopted the lecture and discussion methods to teach topics for the day.
- iii. Core subject teachers making 96% in both schools 'A' and 'B' were punctual to Business, General Science and Visual Arts classrooms and taught till the end of the period.
- iv. There were no TLMs in the schools, therefore, core subjects teachers did not employ them to aid teaching, except that Integrated Science teachers in both schools taught practical lessons in Integrated Science to only General Science students at the Science laboratory.

This implies that Visual Arts students who learn best through visual and kinesthetic means were denied the opportunity to manipulate teaching learning materials and equipment for better understanding and retention of topics under core subjects, especially, Mathematics and Integrated Science.

- v. Ninety-five percent of core subject teachers in the sampled schools failed to state the objectives of the lessons taught to students. This defied the expectations stipulated in the approved GES teaching syllabi for teaching at the SHS level.
- vi. In order to complete teaching topics for the day, 80% of core teachers in the studied schools rushed through the teaching of most subjects in order to meet deadlines. This activity denied all students to actively participate and ask questions during teaching. As Oyibe and Mbang (2013) conclude that the use of the questioning method also heightens students' interest and promote understanding of issues.
- vii. All teachers in the schools used written exercises, tests, assignments and examinations to assess students' understanding of what is taught.
- viii. Majority of core subject teachers and HODs in the sampled schools did not motivate Visual Arts students to understand the subjects.
- ix. Almost all core subject teachers in both schools failed to consider students' interests, learning styles, abilities and needs, therefore, same instructional method were adapted for all subjects.
- x. Extra classes were organized for all students in the two schools but some Visual Arts students failed to attend due to truancy and practical assignment as claimed by them.

□ *Differences*

- i. General Science, Business and Visual Arts students in School 'A' were taught by different teachers in all the core subjects while the same core teachers taught all General Science, Business and Visual Arts students in School 'B'.
- ii. In Schools A, National Service Persons who were not professional teachers but had university degrees taught Mathematics and English Language to Visual Arts students while qualified teachers taught General Science and Business students.

c. Students and Teachers Attitudes towards Core Subject

□ *Similarities*

- i. Generally, students in the various programmes in the selected schools participated during the teaching of all the core subjects.
- ii. Test scores and marks of students in the various core subjects showed that in both schools, majority of the General Science students had very high marks in all the subjects.
- iii. Visual Arts students mentioned that majority of the head teachers, HODs, teachers and some Science students believe they are unintelligent and sometimes verbally abuse them; therefore, they are not motivated to do better.

□ *Differences*

- i. Specifically, General Science and Business students dominated in active participation, interactions as well as answering questions during the teaching of lessons in all the core subjects more than those in Visual Arts.

- ii. General Science and Business students in both schools had a serious and positive attitudes towards the extra classes offered to all students, though, at a fee. However, some Visual Arts students showed lackadaisical attitude or lack of interest in the studies. In some instances, these students slept in class while teaching was going on, with the excuse that they have stayed all night to do practical art assignments.

All HODs and Core subject teachers attribute these negative attitudes to nonseriousness of students, their low intelligence level, poor backgrounds as well as lack of interest in schooling.

d. Supervisory Roles Played by Management in the Teaching and Learning of Core Subjects

□ Similarities

- i. Supervision of teaching and learning of core subjects in the two schools by the head teachers and HODs were non-existent since they had enormous administrative responsibilities as well. This suggests that teachers and students in the schools were left to do what they liked. It was therefore, not surprising to see that some Visual Arts students refused to attend extra classes.

In summary, students in the various departments, namely, Visual Arts, Business and General Science as well as all core subject teachers and HODs in the two senior high schools exhibited similar characteristics and attitudes such as methods and quality of teaching but few differences in the teaching and learning processes involved in teaching core subjects.

4.4 Activities Undertaken for Objective Three

Objective Three was to evaluate the impact of the teaching of core subjects on the academic performance of both Visual Arts, Business and General Science students in the selected senior high schools.

4.4.1 Design Model for Measuring Academic Performance

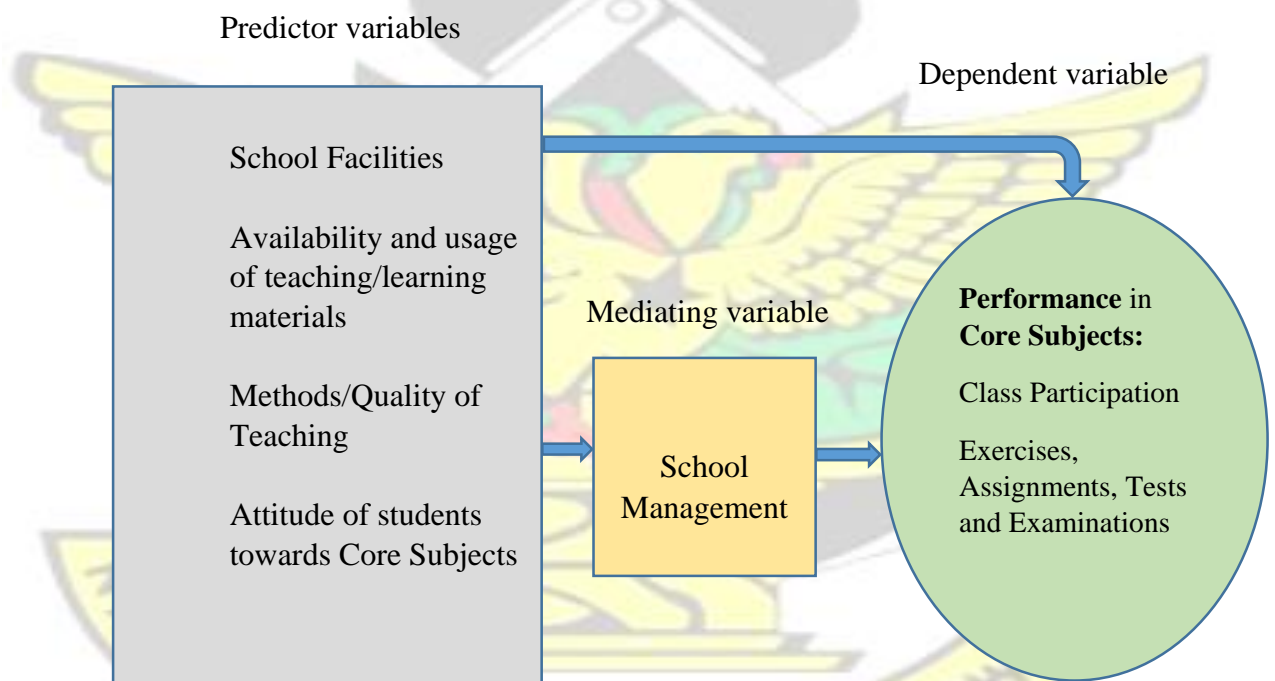
In order to measure the impact of teaching processes involved in teaching the core subjects to Visual Arts, Business and General Science students and make the results empirical, it was prudent to modify Bloom's (1982) model of evaluation to suit the conditions in the selected schools. This model was modified to examine the relationship between variables involved in the teaching and learning processes in the schools in relation to the students' academic performance in the core subjects as Ojoko (1987) as cited in Avwokeni (2004) believes that academic performance is a cardinal concept in education. It is also said by Ukeje as cited in Teacher's Registration Council of Nigeria (2008) that teachers directly influence the growth of the future of any nation than any member of other professions. Therefore, in order to achieve this, Alfonso (2005) accepts as true that schools should organize their resources and create success-oriented cultures.

Ojoko (1987) further submits that although there could be many determinants to students' academic achievement, there has always been a tendency in making a direct correlation between students' academic performance and intelligence level. Generally, the head teachers, HODs, core subject teachers and even students focus their attention on the fact that academic achievement of students regardless of the level depends on teaching and learning in the classroom, disregarding other important factors that Bloom's model refers to as "predictor" and "mediating"

variables. The model postulates that when “predictor variables” which are modified to consists of school facilities, methods and quality of teaching, availability and use of TLMs as well as students and teachers attitudes towards core subjects, likewise, “mediating variable” that is, supervisory roles by management are favourable, then academic performance of students in core subjects will improve and vice versa.

The evaluation was done using the end of term examination scores of the students in the two schools.

Fig. 4.1 is the modified tool for measuring academic performance of all students in the core subject known as “Performance-enhancing model”.



Source: adopted and modified from Mosha (2014)

Figure 4.1: The Performance-enhancing model for explaining factors contributing to students’ performance in core subjects based on Bloom’s Model of Evaluation

4.4.2 Examination Scores/Grades for Students in Schools A and B

Tables 4.1 to 4.4 show the examination scores of Visual Arts, Business and General Science students in Schools A and B in Integrated Science:

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Table 4.1: School A Visual Arts, Business and General Science students examination scores (%) in Integrated Science.

□ Scores for Integrated Science in School A

| Visual Arts | | | Business | | | General Science | | |
|-------------|-------------|-------|----------|-------------|-------|-----------------|-------------|-------|
| % Score | No. of Stds | % | % Score | No. of Stds | % | % Score | No. of Stds | % |
| 0-29 | 6 | 13.9% | 0-29 | 2 | 4.9% | 0-29 | 0 | 0% |
| 30-49 | 22 | 51.2% | 30-49 | 10 | 24.4% | 30-49 | 6 | 11.5% |
| 50-69 | 11 | 25.6% | 50-69 | 16 | 39% | 50-69 | 12 | 23.1% |
| 70-89 | 4 | 9.3% | 70-89 | 13 | 31.7% | 70-89 | 25 | 48.1% |
| 90-100 | 0 | 0% | 90-100 | 0 | 0% | 90-100 | 9 | 17.3% |
| Total | 43 | 100% | Total | 41 | 100% | Total | 52 | 100% |

Table 4.2: School B Visual Arts, Business and General Science students examination scores (%) in Integrated Science.

□ Scores for Integrated Science in School B

| Visual Arts | | | Business | | | General Science | | |
|-------------|-------------|-------|----------|-------------|-------|-----------------|-------------|-------|
| % Score | No. of Stds | % | % Score | No. of Stds | % | % Score | No. of Stds | % |
| 0-29 | 6 | 15.8% | 0-29 | 3 | 10.7% | 0-29 | 1 | 3.1% |
| 30-49 | 19 | 50% | 30-49 | 5 | 17.8% | 30-49 | 1 | 3.1% |
| 50-69 | 9 | 21.1% | 50-69 | 7 | 25% | 50-69 | 5 | 15.6% |
| 70-89 | 4 | 10.5% | 70-89 | 12 | 42.8% | 70-89 | 19 | 59.4% |
| 90-100 | 0 | 0% | 90-100 | 1 | 3.6% | 90-100 | 6 | 18.8% |
| Total | 38 | 100% | Total | 28 | 100% | Total | 32 | 100% |

4.4.3 Analysis of Teaching on Students Performance in Integrated Science in Both Schools Using the Performance-enhancing Model of Evaluation It is evident from Tables 4.1 and 4.2 that in both schools, the General Science students had very good grades in Integrated Science as 34 out of 52 students in School A, representing 65.4% attained scores between 70% - 100% and 25 out of 32 students (78.2%) in School B scored marks between 70% - 100%. With regards to the Business students, 13 out of the total 41 students in School A had marks ranging

from 70% - 89% while 13 students or 46.4% from a total of 28 students in School B also got marks within the range of 70% - 100%. On the contrary, the Visual Arts students in both schools are noticed to have obtained scores that fall short of the expected standards, as 39 out of 43 students representing 90.7% in School A and 34 students or 89.5% in School B scored below 70%. Most alarmingly, 22 students out of a total 43 making 51.2% and 19 students or 50% from a total of 38 in School A and B respectively failed the subject since they all achieved marks below 50%.

This excellent performance of the General Science students in both schools compared to the rather abysmal performance of majority of the Visual Arts students and some of the Business students from both schools can be linked to the inadequate use of science equipment and laboratories during teaching and learning of the subject as found by the study. It needs noting that Objectives One and Two of this study highlights that although both schools have laboratories for Integrated Science, only the General Science students were often taken there to have extra practical lessons aside the classroom processes. This practice served as an added advantage to this group of students who already have most of their elective subjects (Biology, Chemistry, and Physics) embedded in the Integrated Science subject. Ango (1986) has found that laboratory work stimulates learners' interests as they are made to personally engage in useful scientific activities and experimentation. He added that knowledge obtained through laboratory work promotes long term memory. Hence, the low performance of the Visual Arts and Business students in Integrated Science can therefore be linked to lack of students' involvement in laboratory work, which fails to maintain and arouse their interests in the subject. Also, it leads to difficulty in transfer of knowledge and facts for a good performance in exercises and examinations as well as the inadequacy of textbooks at the libraries of the schools as reference materials.

A close examination of the teaching strategies of the Integrated Science teachers in both schools coupled with the lack and use of appropriate TLMs to all students is an indication that the methods were inappropriate. Discussions, practical activities and brainstorming techniques that create an enabling environment and ensure that individual differences of learners are taken care of were a rare sight in Schools A and B as the lecture method dominated. Costello (1991) contends that the lecture method is ineffective since it turns the learners into passive participants in the learning process. Balasubramanian, Wilson and Cios (2005; 2007) have also found that science-based teaching method such as Guided-inquiry, Simulation, Collaborative problem-solving, Hands-on activities and Inquiry-based teaching methods enhance students' self-worth and confidence and consequently improves their school-wide academic achievement. In similar vein, Chiode and Russell (2006) indicate that students have more interest in Science topics when a variety of teaching methods are employed by the teacher. The absence of these proven methods all negatively affected the performance most of the Visual Arts students who are practically oriented since they had less opportunities to actively participate in lessons.

Moreover, Mwamwenda (1995) argues that the achievement of students in a subject is also determined by their attitudes rather than inability to study. Haimowitz (1989) further indicates the cause of most students failures in schools might not be due to insufficient or inadequate instruction but by active resistance by the learners. As a result of this, the low performance of students, especially those in the Visual Arts class can be attributed to the fact that these students show lack of interest towards the study of the subject. Nonetheless, it is also believed that teachers who teach the subject also play roles that lead to students despising the subject as HODs confirmed

that most teachers are often discouraged to teach some classes especially, the Visual arts students whom they refer to as “non-serious or unintelligent”. This invariably influence the academic achievement of these students as they shift much attention to the study of electives subjects that they find interesting and encouraged by the teachers who teach them.

Lastly, conclusions can be made that lessons in both schools, to some extent were not taught effectively because of reasons such as lateness and absenteeism of both teachers and students, especially Visual Arts students. All these are the possible effects of lack of supervision of the teaching and learning processes in both schools on the part of heads and HODs. The core subject teachers in both schools confirmed that this contributed to the low performance of these students, since the lateness and absenteeism often result in them not partaking in class exercises, assignments and tests. Zajacova, Lynch & Espenshade (2005) have stipulated that students who are properly guided by their teachers have performed well in examinations. It is therefore believed that the supervisory roles of heads and HODs in areas like lesson plans and notes preparation, use of appropriate instructional methods and teaching aids and checking students’ attendance and attitudes towards lessons will all consequently impact positively on the academic achievement of all students, especially the Visual Arts students.

Again, Tables 4.3 to 4.4 show the examination scores of Visual Arts, Business and General Science students in Schools A and B in Mathematics:

Table 4.3: School A Visual Arts, Business and General Science students examination scores (%) in Mathematics.

□ Scores for Mathematics in School A

| Visual Arts | | | Business | | | General Science | | |
|-------------|-------------|-------|----------|-------------|-------|-----------------|-------------|-------|
| % Score | No. of Stds | % | % Score | No. of Stds | % | % Score | No. of Stds | % |
| 0-29 | 1 | 2.3% | 0-29 | 0 | 0% | 0-29 | 2 | 3.8% |
| 30-49 | 24 | 55.8% | 30-49 | 7 | 17.1% | 30-49 | 4 | 7.7% |
| 50-69 | 15 | 34.9% | 50-69 | 19 | 46.3% | 50-69 | 11 | 21.2% |
| 70-89 | 3 | 7% | 70-89 | 12 | 29.3% | 70-89 | 22 | 42.3% |
| 90-100 | 0 | 0% | 90-100 | 3 | 7.3% | 90-100 | 13 | 25% |
| Total | 43 | 100% | Total | 41 | 100% | Total | 52 | 100% |

Table 4.4: School B Visual Arts, Business and General Science students examination scores (%) in Mathematics.

□ Scores for Mathematics in School B

| Visual Arts | Business | General Science |
|-------------|----------|-----------------|
|-------------|----------|-----------------|

| % Score | No. of Stds | % | % Score | No. of Stds | % | % Score | No. of Stds | % |
|---------|-------------|-------|---------|-------------|-------|---------|-------------|-------|
| 0-29 | 7 | 18.4% | 0-29 | 4 | 14.3% | 0-29 | 2 | 6.3% |
| 30-49 | 19 | 50% | 30-49 | 4 | 14.3% | 30-49 | 3 | 9.4% |
| 50-69 | 8 | 21.1% | 50-69 | 8 | 28.6% | 50-69 | 5 | 15.6% |
| 70-89 | 4 | 10.5% | 70-89 | 9 | 32.1% | 70-89 | 17 | 53.1% |
| 90-100 | 0 | 0% | 90-100 | 3 | 10.7% | 90-100 | 5 | 15.6% |
| Total | 38 | 100% | Total | 28 | 100% | Total | 32 | 100% |

4.4.4 Analysis of Teaching on Students' Performance in Mathematics in Both Schools

Again, it can be deduced from tables 4.4 and 4.5 that General Science students recorded excellent performance as 35 out of 52 students representing 87.3% scored between 70%-100% in school A and 22 students or 68.7% from a total of 32 also attained between the grades 70%-100% in school B. On the other hand, out of 43 and 38 Visual Arts students in Schools A and B, only 3 making 7% and 4 (10.5%) respectively attained marks between 70% and 89%. Business students performed on the average with 12 (42.8%) out of 28 students and 15 (36.6%) from 41 students achieving grades from 70% to 100%. This implies that General Science students in both schools performed excellently in Mathematics, whereas Business and Visual Arts students trailed in that order.

Even though, both schools boast of good school facilities, graduates who teach mathematics, and claim to use most appropriate methods for teaching, there are concerns as far as the effectiveness of the schools resources and their usage to

enhance teaching and learning are concerned. This implies that, these disparities were as a result of inadequate provision and usage of the schools' educational resources. It was realized from Objectives One and Two that, a university graduate doing his National Service with less than two years teaching experience taught Mathematics to Visual Arts students in School A while the subject teacher in School B who was a qualified and experienced teacher taught Science and Business students. Hence, it is believed that the former performed poorly because he was not a professional, even though, other factors such as lack of interest, lateness and trauncy on the part of most Visual Arts students as well as teachers negative attitudes towards students also contributed to their failure. Conversely, the qualified teacher for General Science and Business classes brought his experiences to bear on his teaching, coupled with the serious-minded attitudes of the students.

On the issue of methods and quality of teaching, it is suggested that quality teaching and learning would have been attained if teachers, especially, the one who taught Visual Arts students adopted appropriate methods of teaching in class. Mereku (2003) propounds that mathematics education in Ghana lacks adequate and most appropriate teaching and learning resources and methods that make its instruction very effective. Therefore, the National Mathematics Advisory Panel Report (2008) postulates that the most suitable and effective instructional methods for mathematics include peer-tutoring, demonstration and visual representation (manipulatives, pictures, number lines, and graphs) since Visual Arts students have the ability and interest to use their hands. Hence, teachers should identify the strengths and weaknesses in each of the methods available and choose appropriately to build on the strengths and work towards minimizing weaknesses to improve the quality of teaching.

4.5 Using the ‘Performance-enhancing’ Model to Measure the Impact of Teaching on Students’ Academic Performance

Using the “Performance-enhancing model to evaluate students performance based on the schools resources available to teach Integrated Science and Mathematics to Visual Arts, Business and General Science students, the impact of the variables on students’ academic achievement was inadequate since the school failed to teach effectively for majority of Visual Arts students to understand Mathematical concepts better, as a result they had low grades in the subjects. Meanwhile, the teaching approaches impacted positively on students pursuing General Science and Business, although Business students could have performed better since they are skilled in calculation and they participated actively in class than their colleagues.

To conclude, the study conducted in the schools showed that relationships exist between predictor, mediating and dependent variable, hence, the predictor and mediating variables impact positively or negatively on overall students academic performance irrespective of their backgrounds. The study showed that the variables impacted positively on academic performance of General Science students, averagely on Business students and poorly on Visual Arts students. Karemera (2003) enhances this conclusion by adding that students' academic achievement is significantly correlated with satisfaction with academic environment and facilities such as libraries, science laboratories, computer laboratories, supervision and attitudes of teachers and students among them and in what is being taught.

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CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

This research was aimed at identifying and examining the systematic series of activities involved in the teaching of core subjects to both Visual Arts and Non-Visual Arts students and evaluate their impact on excellent students' academic achievements or otherwise in two Senior High Schools in the Sunyani Municipality in Brong Ahafo Region of Ghana. The objectives that guided the research were to find out the processes involved in the teaching of core subjects to Visual Arts and Non-Visual Arts students, examine the similarities and differences in these teaching

approaches and evaluate the impact of the teaching of the core subjects on the academic performance. The research was carried out qualitatively using descriptive and evaluation methods with questionnaires, interviews and observations as research instruments to gather data for analysis.

□ Main Findings

The research identified school facilities such as libraries for reference and studying, Science and computer laboratories in both school. It was found that the schools resources did not adequately support the teaching and learning of core subjects to Visual Arts, General Science and Business students in the schools. This made it difficult for especially, Visual Arts students to achieve academic success in all the subjects.

The teaching methods used to teach core subjects to the different groups of students in the schools were Lecture, Discussion and Brainstorming, hence, their' needs, abilities, backgrounds and learning styles were not factored into the teaching of all the core subjects, though, they used the prescribed syllabus and teachers guides during teaching and learning.

The teaching and learning materials were not available for use in the teaching and learning of core subjects in the schools. This made majority of Visual Arts students attain low or poor scores in the subjects; suggesting that learning of concepts in the core subjects were difficult especially, for Visual Arts students because the approaches used did not involve hands-on activities.

Visual Arts students in Schools A and B mostly exhibited lack or little interest in the core subjects. The head teachers, HODs, core subject teachers and some students in

the other programmes showed negative attitudes towards Visual Arts students and this discouraged majority of them from understanding concepts in core subjects.

There were no supervision in the schools, thereby, teachers taught core subjects to students in the different disciplines without direction and management and this culminated in the low and poor performance of most of the Visual Arts students.

The head teachers, HODs and core subject teachers perceived students pursuing Visual Arts as unintelligent, truants, non-serious and lazy and those in General Science and Business as serious in learning Mathematics, English Language, Integrated Science and Social Studies.

5.2 Conclusions

The study conducted in the two SHS in the Sunyani Municipality on the teaching processes of core subjects and its impact students' outcome concluded that:

Although, both schools had good libraries for reference and studying, Science and computer laboratories for improved understanding of the natural world as well as computer skills, the heads of schools, HODs, core subject teachers and students did not maximize their use to help achieve academic success, even though, students offering Science performed excellently in the core subjects while Visual Arts students trailed.

The methods of teaching employed for the schools which were Lecture, Discussion and Brainstorming for teaching the different groups of students did not consider their students' abilities, backgrounds, competence and learning differences in teaching.

This means that, the high quality of teaching that are sought by schools could not be fully achieved since the schools used the same processes of teaching core subjects.

The unavailability and usage of teaching and learning materials for teaching and learning core subjects in the two schools made majority of Visual Arts students attain low or poor scores which implies that majority of them did not understand the teaching of core subjects in the schools since teaching did not involve hands-on activities.

The Visual Arts students lack or little interest in the core subjects and teachers negative attitudes, even though, they were qualified discouraged majority of them and these affected their academic performance in the subjects as compared to the average and brilliant scores achieved by Business and General Science students respectively.

The lack of interest and use of distasteful comments to Visual Arts students contributed to the low or poor academic performance by them and the friendly and cordial relationship that existed between General Science and Business students in the schools motivated them to perform excellently and averagely in core subjects.

The non-existence of supervision in the schools gave core subject teachers the opportunity to teach how they deemed right and this made importantly, Visual Arts students lazy, late or absent to core subject classes. These led to low and poor academic performance recorded by Visual Arts students in core subjects.

The impact of the model of measurement of teaching which comprised processes school facilities, methods and quality of teaching, supervision and attitude of teachers and students towards core subjects on academic performance of students were positive for mostly General Science, averagely for Business and poorly for Visual Arts students.

5.3 Recommendations

The Ministry of Education, Ghana Education Service and importantly, the Senior High Schools should design systems that will provide and accurately utilise school facilities and TLMs as well as supervise teachers to ensure that the most appropriate strategies of teaching are adopted to teach under friendly environments in order to achieve success in the core subjects.

Core subject teachers must employ the proven teaching strategies appropriate for the teaching of all the core subjects to all groups of students as this will ensure that their abilities, backgrounds, competences and learning differences are all taken care of in order for schools to fully achieve high quality teaching and learning of the SHS core subjects.

Management and teachers of SHS should see to it that appropriate teaching and learning materials are adequately provided and used for the teaching and learning of core subjects since this will help improve the understanding of students, especially Visual Arts students and ultimately improve their performance in the various core subjects.

Core subject teachers at Senior High Schools, most importantly, teachers of science and mathematics should be taught on how to develop simple TLMs at Universities, during in-service training sessions and workshops by GES or NGOs to help in resourcing them to teach the subjects effectively in the schools.

The core subject teachers should relate cordially to students, avoid the use of distasteful comments and show positive attitudes towards all students, especially the Visual Arts students as this will encourage them to develop greater interest in the

learning of the subjects to enable them perform excellently in the subjects like their colleagues in the Business and General Science classes.

School heads and HODs should intensify their supervisory activities during teaching and learning of the core subjects to ensure that laziness, truancy and absenteeism on the part of both teachers and students are reduced or eliminated to enable all students achieve high academic excellence in the SHS core subjects.



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APPENDICES

Appendix A

INTERVIEW GUIDE FOR HEADMASTERS ON TEACHING OF CORE SUBJECTS TO VISUAL AND NON VISUAL ARTS STUDENTS INSELECTED SENIOR HIGH SCHOOLS IN THE SUNYANI MUNICIPALITY

1. Name of school.
2. When was this school established?
3. How long have you been in charge of your position?
1 – 5 yrs. 5 – 10 yrs. 10 – 15 yrs. 15 yrs. Or more
4. Are you still teaching aside your duties as head? If yes, what subject?
5. Which core subject do students perform very well in? please give reasons?
6. What has been the overall performance of students in the various core subjects?
 - a. Visual Arts Excellent Very Good Good Average Poor Very Poor
 - b. Science Excellent Very Good Good Average Poor Very Poor
 - c. Business Excellent Very Good Good Average Poor Very Poor
 - d. Technical Excellent Very Good Good Average Poor Very Poor
7. Which core subject do students usually underperform or fail in?
 - a. English b. Maths c. Science d. Social Studies Please Give reasons?
8. Which group of students do well in all the core subjects?
English Maths Science Social Studies
9. Which group of students usually underperforms in all the core subjects?
 - a. Visual Arts b. Science c. Business d. Technical
10. Do you have plans for students who perform poorly in the subjects during lessons?

11. How do you think core subject teachers perceive the various core subjects?
- | | | | | |
|----------------|--------------|---------|--------------|-------------------|
| Mathematics | a. Very Easy | b. Easy | c. Difficult | d. Very Difficult |
| Science | a. Very Easy | b. Easy | c. Difficult | d. Very Difficult |
| Social Studies | a. Very Easy | b. Easy | c. Difficult | d. Very Difficult |
| English | a. Very Easy | b. Easy | c. Difficult | d. Very Difficult |
12. How do think students perceive the various core subjects?
- | | | | | |
|----------------|--------------|---------|--------------|-------------------|
| Mathematics | a. Very Easy | b. Easy | c. Difficult | d. Very Difficult |
| Science | a. Very Easy | b. Easy | c. Difficult | d. Very Difficult |
| Social studies | a. Very Easy | b. Easy | c. Difficult | d. Very Difficult |
| English | a. Very Easy | b. Easy | c. Difficult | d. Very Difficult |

How do you encourage teachers to help slow and advanced learners in the same class?

13. Which group of core subject teachers do you find it difficult working with? Why?

14. Has your school got adequate facilities needed to effectively deliver lessons in these core subjects (TLM's, course materials, labs, studios etc.?)

15. Does your school have enough core subject teachers in:

| | | | | | |
|---------|-----|----|--------|-----|----|
| English | Yes | No | Maths | Yes | No |
| Science | Yes | No | Social | Yes | No |

16. Do your school have specialized core subject teachers in:

| | | | | | |
|---------|-----|----|--------|-----|----|
| English | Yes | No | Maths | Yes | No |
| Science | Yes | No | Social | Yes | No |

17. What is the minimum qualification of the teachers handling the various core subjects?

18. How do students in the classes affect the performance of teachers and students in the various subjects?

19. Do core subject teachers in your school attend refresher courses? Yes No

20. How often do teachers of core subjects attend courses to refresh themselves?

21. Do you supervise core subject teachers in your school? Yes No

22. How often do you supervise core subject teachers when they are teaching?

23. What teaching method(s) have you observed from the teaching of the core subjects?

24. What means do you employ to assess the teaching of core subjects in your school?

25. How effective are the teachers concerning the teaching of the subjects?

26. Do you receive complaints from students on how teachers under you teach the subject?

27. Do you receive complaints from teachers on student's behaviour towards the subject when they are teaching? If yes, please state some of them

28. Do you believe the assertion that academically poor students are selected for certain courses? Yes No If yes, which students? Give reasons.

29. Why do you think students Visual Arts students perform well in their elective subject and yet underperform or fail the core subjects?

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Appendix B

INTERVIEW GUIDE FOR CORE SUBJECTS HODs ON TEACHING OF CORE SUBJECTS TO VISUAL AND NON VISUAL ARTS STUDENTS IN SELECTED SENIOR HIGH SCHOOLS IN THE SUNYANI MUNICIPALITY

1. How long have you been in charge of the department?
2. What is your highest qualification?
3. Are you a teaching Head of Department?
4. What class do you teach?
 - a. Do you prefer teaching a particular group of students to others? Why?
5. What has been students' performance in the subject under your headship?
6. Which group of students usually performs excellently in the subject?
7. Which group of students usually underperforms/fails the subject in the subject?
8. Do you have plans or give attention to students who perform poorly?
9. How do you treat slow and advanced learners in the same class?
10. Does your school have enough course materials to for teaching core subjects?
11. Do you supervise teachers under your field?
12. How often do you supervise teachers when they are teaching the subject?
13. How do teachers feel/ behave when they are being supervised by you?
14. How do teachers perform during supervision?
15. How do you evaluate the teachers during supervision?
16. How often do you and your teachers attend refresher courses to upgrade yourselves?
17. What are the qualifications of the teachers teaching the subject?
18. Do you select teachers with certain level of qualification for particular class/group of students?
19. Do teachers teach according to the syllabus?

20. How do teachers perceive the subject? 21. How do students perceive the subject?
22. Which teaching method(s)/strategies do your teachers to use?
23. Do you receive complaints from students on how teachers teach the subject?
24. Do you receive complaints from teachers on student's behaviour in class?
25. What are the greatest challenges you face as HOD concerning the teaching and learning of the subject?

Appendix C

A CHECKLIST FOR OBSERVING THE TEACHING OF CORE SUBJECTS TO VISUAL AND NON-VISUAL ARTS STUDENTS IN SELECTED SENIOR HIGH SCHOOLS IN THE SUNYANI MUNICIPALITY

SCHOOL.....

CLASS.....

SUBJECT.....

SCHOOL FACILITIES

1. Infrastructure
 - a. School facilities.....
 - b. Social amenities.....
2. Resources, materials and equipment
 - a. Availability of appropriate teaching and learning materials.....
 - b. Availability of appropriate textbooks for teaching the subject (current books)...
 - c. Availability of exercise/graph/workbooks for the subject.....

STUDENTS

1. Class size a. Very large b. Large c. Small d. Very small
2. Participation in lesson a. Very active b. Active c. Inactive d. Very Inactive
3. Attitude towards lesson/subject a. Positive b. Negative c. Lukewarm
4. Attitude and behaviour towards teacher.....
5. Interest in lesson a. Highly Interested b. Fairly Interested c. Disinterested
6. Use of language i. Local ii. English iii. French iv. Other

- a. Fluency of students i. Very fluent ii. Quite fluent iii. Not fluent
- b. Problem with grammar
- c. Problem with pronunciation
- 7. Classroom environment
 - a. Sitting arrangement i. Linear ii. Circular iii. Horse-shoe
 - b. Lighting system i. Very good ii. Good iii. Bad iv. Very bad v. Poor
 - c. Ventilation i. Very good ii. Good iii. Bad iv. Very bad v. Poor
- 8. Classroom management (students' general behaviour)

TEACHERS

- 1. Punctuality a. Always on time b. Always late
- 2. General Preparation
 - a. Is the teacher prepared to teach? i. Yes ii. No
 - b. Is the teacher ready to teach the class? i. Yes ii. No
 - c. Has the teacher got a lesson plan? i. Yes ii. No
 - d. Has the teacher got clear objectives for the lesson? i. Yes ii. No
- 3. Instructional time management
 - a. Does the teacher exhaust the time allotted for teaching? Yes No
 - b. Does the teacher waste time when teaching the subject? Yes No
- 4. Availability of materials appropriate for the lesson (projectors, reading materials).
- 5. Teacher uses a variety of teaching methods (lecture, group work, demonstration, role play, presentation, discussion, brainstorming, field trips, combination of many)
- 6. Effective communication
 - a. Choice of language for teaching the subject i. Good ii. Bad
 - b. Teacher uses appropriate language for students' understanding.....
 - c. Teacher's language is at the level of the students. i. Yes ii. No
 - d. Frequency of teacher-student eye contact when talking to class.....
 - e. Does teacher asks questions frequently during teaching? i. Yes ii. No
How do teacher ask questions?
 - f. Do students respond or answer questions? i. Yes ii. No
How do students answer questions?
- 7. Teachers' attitudes towards students (mean, friendly, employs jokes, body language)
- 8. Classroom management (class control, students' behaviour, discipline)
- 9. Motivational techniques adopted (rewards, praise, applauds)

7. Do your teachers come to class on time to teach the core subject?

| | | | | | | |
|---------|-----|--------------------------|----|--------------------------|-----------|--------------------------|
| English | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |
| Maths | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |
| Science | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |
| Social | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |

8. Do your teachers leave the classroom before the period is over?

| | | | | | | |
|---------|-----|--------------------------|----|--------------------------|-----------|--------------------------|
| English | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |
| Maths | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |
| Science | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |
| Social | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |

9. Do teachers ask questions in class during teaching? English Yes No

| | | | |
|-----------|------------------------------|-----------------------------|------------------------------------|
| Sometimes | <input type="checkbox"/> | <input type="checkbox"/> | |
| Maths | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Sometimes <input type="checkbox"/> |
| Science | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Sometimes <input type="checkbox"/> |
| Social | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Sometimes <input type="checkbox"/> |

10. Do you ask questions or make contributions when you do not understand an aspect of what is taught in class?

| | | | | | | |
|---------|-----|--------------------------|----|--------------------------|-----------|--------------------------|
| English | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |
| Maths | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |
| Science | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |
| Social | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |

11. Do your teachers pay attention to your needs when you do not understand something?

| | | | | | | |
|---------|-----|--------------------------|----|--------------------------|-----------|--------------------------|
| English | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |
| Maths | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |
| Science | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |
| Social | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |

12. Do your teachers shout or embarrass you in class when you give a wrong answer?

| | | | | | | |
|---------|-----|--------------------------|----|--------------------------|-----------|--------------------------|
| English | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |
| Maths | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |
| Science | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |
| Social | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |

13. Do your teachers give enough exercises to check your understanding of what is taught?

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English Yes No Sometimes
 Maths Yes No Sometimes
 Science Yes No Sometimes
 Social Yes No Sometimes

14. Are you provided with feedback on exercises and tests after marking?

English Yes No Maths Yes No
 Science Yes No Social Yes No

15. Do your teachers discuss solutions to class exercises and tests after marking them?

English Yes No Maths Yes No
 Science Yes No Social Yes No

16. Are you motivated by your core subject teachers during teaching and learning processes?

English Yes No Maths Yes No
 Science Yes No Social Yes No

17. Do you have adequate materials to support your learning of the subject?

English Yes No Maths Yes No
 Science Yes No Social Yes No

18. Do you visit the lab or studio in lessons that involve practical or hands-on activities?

Yes No

19. How would you grade your teachers who teach the various core subjects? Please tick

a. English i. excellent ii. Very good iii. Good iv. Average v. poor
 b. Maths i. excellent ii. Very good iii. Good iv. Average v. poor
 c. Soc. Studies i. excellent ii. Very good iii. Good iv. Average v. poor
 d. Int. Science i. excellent ii. Very good iii. Good iv. Average v. poor

20. What is the attitude of core subject teachers towards you in class?

English: a. Polite b. Mean c. Encouraging d.
 Insulting
 Maths: a. Polite b. Mean c. Encouraging d.
 Insulting
 Social: a. Polite b. Mean c. Encouraging d. Insulting
 Int. Science: a. Polite b. Mean c. Encouraging d. Insulting

21. Does your core subject teacher see your class as very intelligent and serious students?

- | | | | | | | |
|---------|-----|--------------------------|----|--------------------------|-----------|--------------------------|
| English | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |
| Maths | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |
| Science | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |
| Social | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | Sometimes | <input type="checkbox"/> |

22. Which core subject do you dislike/despise most in school and why?

- i. Teacher is mean in class
- ii. There is too much competition in the class
- iii. Because I don't have interest in the subject
- iv. Because the subject(s) are difficult
- v. Because the teacher gets angry easily

23. List core subjects according to favourite to least favourite.

Absolute confidentiality is assured.

Thank You

