UNIVERSITY FOR DEVELOPMENT STUDIES

EXAMINING THE DEFECTS OF THE WEST AFRICAN SECONDARY SCHOOL CERTIFICATE EXAMINATION LEAGUE TABLE GRADING SYSTEM: THE RELATIONSHIP BETWEEN SCHOOL INPUTS AND OUTPUT IN PUBLIC SENIOR HIGH SCHOOLS IN THE NORTHERN REGION OF GHANA

BY

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DECLARATION

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

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Supervisor's

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with guidelines on supervision of thesis laid down by the University for Development Studies.

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DEDICATION

I dedicate this work to my two wives (Hajia Sakinatu A. Yahaya and Hanana Nuntaa Abubakar) for their encouragement and my mother (Hajia Memuna Alhaj Mohammed) for her prayers.

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ABSTRACT

The purpose of the study was to examine the defects of the WASSCE League Grading System in relation to the effects of school inputs on the Academic Performance of Students (outputs).

Subsidiary to this purpose was to determine the relationship between the qualification and experience of teachers on the academic performance of students; to find the effects of the provision of school resources or school systems; to find the effects of student-related factors on students' academic performance. The reconstructed cohort method was used instead of the true cohort method to determine the coefficient of internal efficiency of Public Senior High Schools in the Northern Region of Ghana, multiplied by the weighted average scores of students using WASSCE results for 2019 to determine school performance. After which, multiple regression analysis was used to determine the influence of the independent variables on the dependent variable. Multistage sampling was used: A stratified random sampling technique was used since the population was not homogenous. The Purposive sampling technique was used to sample Head teachers to add to the selected classroom teachers by using systematic random sampling. The researcher used specially designed interview schedules and questionnaires to collect data after pilot testing in two schools that were not covered in the sample to establish a Cronbach Alpha coefficient of reliability of 0.75 to 0.91. It was found that there was no significant relationship between teacher professional qualification and experience and students' performance at the West African Secondary Certificate Examination (WASSCE). It was also found that there was no significant effect of school-related factors on students' performance at WASSCE. The study also did not find any change in the positions (ranking) of the schools after using the weighted average scores and even the combined weighted average scores-coefficient of efficiency approach, which requires further studies. The researcher made the following recommendations to guide policymakers, educational planners, and administrators: the provision of regular in-service training and incentives to teachers who are already professionally trained with adequate experience; the provision of school resources must go with other school inputs to attain desired results; as well as providing a supportive and conducive school environment for students who entered the school and not just limited to attending classes and or prior performance.

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CHAPTER ONE

INTRODUCTION

This chapter introduces the study by first discussing the background and its context, followed by the research problem, the research questions, objectives, the scope, significance, and the organisation of the study.

1.1 Background of the study

Academic performance is defined by (Amesi & Adorolo, 2021) as a product provided by students through grade and measurement of indicative and responsive abilities that evaluated what a person acquired as a result of the educational and training process (Lamas, 2015; Agarwal,2021). Achieving something is defined as "mastering a skill or body of information as a result of an individual's effort, training, and practice"(Lamas, 2015). But in this study, "school performance" refers to how the school mixes different inputs to produce a certain output level in terms of students' academic performance bearing in mind, the resource disparities. In other words, ‘school performance’ in this study refers to examination results of the students achieved at the West African Secondary School Certificate Examination (WASSCE) multiplied by the coefficient of the internal efficiency of the schools.

The characteristics or determinants of students' academic achievement have been the subject of several types of research fields (Bakari et al., 2014; Kumar, 2021; Lamas, 2015; Owolabi & Adedayo, 2012). The findings revealed a strong correlation between the teacher factors, school system factors, and student characteristics as independent variables on one side and the academic success of the students as the dependent variable on the other (Gbore et al., 2013).

According to Mccarthy et al. (2015), factors that affect students' academic achievement include their home environment, cognitive skills, self-esteem, study habits, and motivation to succeed. Other studies give a contrary view. According to Iheonunekwu & Ph, (n.d) if students are exposed to competent principals, teachers, and other school teams, their attributes, such as previous academic performance and demographics, may not have a substantial effect on their success in learning. Goe & Stickler (2008), on the other hand, emphasised the significance of teacher qualifications, traits, and classroom methods in enhancing students' academic achievement. (Harris, 2007) also discovered that teacher experience affects students' academic achievement.

Various studies have also been conducted on the effect of class attendance on the academic performance of students (Ajaja, 2012; Collett, 2007; Koshal et al., 2004). (Koshal et al., 2004) concluded that although resources or money were important for some improvement in the academic performance of students, student attendance at school together with its explanatory issues, such as parents' socioeconomic status and school location, were even more important. Their conclusion was in tandem with Hanushek et al., (2011) that money or resources were not a sufficient condition for sustained improvement in the academic performance of students. Chow, (2003); Collett, (2007); Ajaja, (2012) found a small but statistically significant effect of class attendance on students' academic performance.

Numerous additional learner traits, such as aptitude, school readiness, perseverance, and demographic factors that affect academic performance, were identified by Pangeni (2014). In addition, Hanushek et al. (2011) found that time allocated for school and homework as well as parental support, national standards, labour market demands, socio-cultural and religious factors, and peer effects all had an impact on academic performance (Yunus, 2014). Additionally,

enabling inputs; including teaching and learning materials, physical infrastructure and facilities, and human resources, were all contributory factors. For example, teaching and learning; encompass learning time, teaching techniques, assessment, and class size (Namale et al., 2021).

According to Goe's (2007) assessment, research frequently focuses on teacher qualifications at the expense of other quality indicators such as teacher characteristics, teacher effectiveness and teacher practices, failing to identify the precise variable that directly contributes to an increase in students' academic achievement. It is vital to note that, in addition to considering instructors' certifications, secondary schools also look at their transcripts to assess their level of subject-matter expertise and pedagogical orientation. This is in line with the suggestion made by Harris (2007). Other studies have also been conducted on teacher qualification and experience, as well as the effect of the student-teacher ratio on students' academic performance (Akinsolu, 2010; Kosgei et al., 2013; Yeboah-Appiagyei et al., 2014). In public secondary schools in Delta State, Nigeria, Akiri (2013) discovered that teacher competence in the classroom only has a small impact on student academic success. In other words, while the study found that efficacy had some bearing on students' academic performance, that impact was not statistically significant. This is because student academic performance is influenced by factors other than teacher efforts alone. Student characteristics, such as IQ, parental education, socioeconomic status, and personalities, which vary widely in the research area, can have a major impact on student academic success in public secondary schools. (Kosgei et al., 2013) indicated that there was no correlation between teacher qualifications and the academic achievement of students.

Several other studies have been conducted on the effects of teacher characteristics such as qualification and experience on students' academic performance. Some of the findings revealed

that student academic performance was significantly correlated with teacher training, experience, and student-teacher ratio. (Akinsolu, 2010; Ayodele & Florence, 2015; Pangeni, 2014; Sirait, 2016). Ewetan et al. (2015) also discovered that instructors' teaching experience and seven other variables greatly influenced students' academic achievement. Ewetan et al., showed that schools with a higher percentage of teachers with more than ten years of classroom experience outperformed those with a higher percentage of teachers with less than ten years. Bonney et al. (2015), however, reported that teachers' classroom effectiveness has only a minimal influence on the academic performance of pupils in public junior high schools in STMA in the Western Region of Ghana. (Yusuf & Dada, 2016) found that teachers are believed to have a two- to three times greater impact on student achievement on reading and math tests than any other school component, including services, facilities, and even leadership. Although Ekperi's study demonstrated a significant and positive correlation between the dependent variable (students' academic achievement) and all independent factors (teachers' subject-matter expertise and teaching methodology) (Ekperi, 2021). Other results revealed a significant correlation between teachers' traits and students' academic performance (Livumbaze & Geofrey, 2017).

On the effect of school input on students' academic performance, studies have been conducted on how teaching/learning resources affect students' academic achievement (Akomolafe, C. O. & Adesua, 2016; Bakari et al., 2014; Nascimento, 2008). Geofrey and Judith (2017) identified how teaching and learning resources such as library books, textbooks, and the use of technology affect students' performance. Websites and the Internet also affect student academic performance. The results of the study further indicate that there was no correlation between

teachers' qualifications and student academic achievement. They also discovered that student performance was not affected by earlier accomplishments (entrance grades).

1.2 Statement of the problem

Ghanaian senior high school student performance is assessed either on a school-based level or externally. Assessment is the methodical process of gathering empirical data on students' knowledge, skills, attitudes, and beliefs to evaluate programmes, improve learning outcomes, or certify individuals to support them in continuing their education or finding employment (Collett, 2007; Yasukawa et al., 2017). It is also seen as a continuous process that involves measurable and evident learning outcomes for students to provide them ample learning opportunities to achieve desired learning results.

School-based assessments are regular student evaluations that are organised and executed by teachers in numerous schools around the country (Longjohn & Audu, 2020). Scores on these exams are important in Ghana as they are weighted and added as continuous evaluation marks, allowing students to graduate or be chosen. Parents, teachers, and students often act on the findings to enhance instruction and learning (Chea & Ogawa, 2020). School-based assessments are very adaptable and reliable (Longjohn & Audu, 2020). The main challenge with school-based or intra- school assessments is that they are not applicable across schools. The alternative method of evaluating students in Ghana is through standardised tests, which are frequently administered by an examination body, in this case, the West African Examination Council (WAEC). However, using standardised tests to evaluate students' academic performance has several disadvantages (Application & 2014, 2014; Enquiry & 2000, 2000; Goldstein & Spiegelhalter, 1996; Leckie et al., 2010; Vidaver-Cohen, 2007). Mckeon (2022) explained that standardized testing is one of the factors that has marginalised students from low-income families for decades when it comes to

receiving equal opportunities in the classroom. For impoverished schools that teach students, schools have not offered equitable chances or resources. Furthermore, standardised testing has also had a significant negative influence on low-income students and has been very harmful to them (Mckeon, 2022). These exams Mckeon added, help to maintain the minority status that students from low-income families already hold. There are many problems with standardised testing, such as the fact that students who grew up in wealthy environments typically have access to more chances than those who did not. Other disadvantages of standardized testing are: Major stress may result from it. That is, students experience pressure when it comes to doing well on tests. Exam results might also impact a student's confidence. Students may then grow dissatisfied with education and have low self-esteem as a result of this. Besides, instead of helping students learn a subject more thoroughly, teachers can find themselves "teaching to the exam." This also results in a dull classroom environment, which might hinder a student's ability to learn because of boredom. Additionally, without taking into account outside circumstances, standardised test rates student achievement. The reality that some children are exceptionally intelligent but just perform poorly on standardised exams, as well as aspects of their home environment and test anxiety, are not taken into account. When evaluated, it simply takes into account one test performance, without regard to how a student grows in learning over the period (*Pros & Cons of Standardized Tests - GradePower Learning*, n.d.).

The calculation and use of the WASSCE League grading system, which often displays the subpar performance of most high schools in Ghana, has also recently attracted a lot of interest from stakeholders. WASSCE league table fails to mitigate the challenges of the standardised examination, since 70 percent of the calculation on the league table depends on students' performance at WASSCE, while 30 percent uses continuous assessment. In this study, the term

"league grading system" refers to the league table, commonly referred to as "score cards" or "institutional rankings" (Yasukawa et al., 2017).

It is therefore debatable whether Ghana's current system of assigning grades and using a league table to show senior high schools with high- or low-test scores is sufficient to determine which schools are top achievers and which schools are not. Many nations now calculate and use league tables to show how well schools are performing (Michael, 2017). Many stakeholders have been concerned about schools' poor performance based on the present approach of calculating and reporting school performance using league tables (Burgess, 2019). In addition to being misleading, Burgess believed that league tables were harmful.

The opponents of league tables further contend that by focusing solely on academic achievement, the league tables do not accurately represent everything that is happening in each school. Second, rankings do not indicate whether a child is safe and content, nor do they indicate whether the school's ethos is appropriate for all students. The third reason against using league tables is that, as a result of the pressure to perform, they force institutions to compromise their morals and may even start teaching exclusively to the test. The fourth argument against league tables is that schools near the bottom of the lists are given a variety of labels, including "poor performing" and "needing improvement," among others, which could cause schools to suffer various stigmatizations linked to pejorative labelling (Goldstein & Spiegelhalter, 1996; Michael, 2017; Yasukawa et al., (2017). The fifth drawback, and according to the researcher, the most serious of the criticisms, is that the assessment instrument (league table) does not account for the resource differences between the various schools when determining how well the schools are performing: it does not take into account disparities in the availability and qualifications of teachers, in the availability of school facilities, plant, and equipment, and, lastly, it does not take into account

differences in the characteristics of the students. Nascimento (2008) emphasised that the main critique of the EPF paradigm is that it does not consider the interactions between educational materials that enable students to attain desired results. And for educators, comprehending these relationships can be more crucial than just focusing on a straightforward link between resource availability and student achievement. This shortfall in the use of the EPFs explains why this study considers a combination of the calculation of weighted average scores and the coefficient of efficiency of education.

In all previous rankings, Ghana's northern region has continuously placed last or next to it. The performance of students at Senior High School in the Northern Region in the West African Secondary School Certificate Examination (WASSCE) from 2014 – 2018 is presented in table 1: Pass Rate of Public Senior High Schools in the Northern Region of Ghana

YEAR	**PASS RATE**
2014	4.6%
2015	4.3%
2016	7.9%
2017	4.9%
2018	3.8%

Source: Extracted from the national league table

Previous studies that measure students' academic performance using the education production function and the school-based model only used one or two of the school-based factors and thus failed to address the issue holistically. Examples; school-based variables (Akomolafe, C. O. & Adesua, 2016; E. A. Hanushek, 2020), teacher variables (Darkwa, 2016; Hanushek et al., 2011;

Kosgei et al., 2013), and student-related variables (Ajaja, 2012; Hanushek et al., 2011; Opanuga et al., 2019; Simba et al., 2016). In other words, there has been no study that deals holistically with the issue of school performance by considering the different levels of school endowments in their students' performance in Ghana.

The objective of this study, which aims to investigate the flaws in the model used to calculate the West African Secondary School Certificate Examination (WASSCE) for purposes of ranking schools in a league table, is to identify patterns of the effects of school inputs on students' academic performance in public senior high schools in the Northern Region of Ghana, by using a better and more integrated approach.

1.3 Research Questions

The following research questions have been asked to guide the study:

How do school-based factors or inputs such as adequate learning materials, infrastructure, equipment, students' characteristics, rules/regulations, and discipline influence student academic performance in public senior high schools?

1.3.1 Specific Research Questions

1. What is the relationship between the teacher factors (teacher qualification and experience) and students' academic performance in public senior high schools?

2. How do school system factors such as adequate learning materials, infrastructure, equipment, rules/regulations, and discipline affect student academic performance in public senior high schools in the northern region of Ghana?

3. How can we design a better and more integrated approach to measuring school performance?

1.4 Objectives of the Study

The following are the research objectives:

Main Research Objective:

To find out how the school-based factors or inputs such as adequate learning materials, infrastructure, equipment, students' characteristics rules/regulations, and discipline influence students' academic performance in selected Public Senior High Schools in the Northern Region of Ghana.

The specific objectives of the study are;

i. Determine the relationship between teacher factors such as qualification and experience and student academic performance in public senior high schools in the northern region of Ghana.
ii. To determine how the school system factors such as adequate learning materials, infrastructure, equipment, students' characteristics, rules/regulations, and discipline influence students' academic performance in sampled senior high schools.
iii. To recommend a better and more integrated and objective approach to measure performance across schools.

1.5 Hypothesis Testing

The following hypotheses have been formulated to guide the study:

i. Ho: There is no significant influence of teacher factors on students' performance at WASSCE.

ii. H1: There is a significant influence of Teacher Factors such as adequate learning materials, infrastructure, equipment, students' characteristics, rules/regulations, and discipline on students' performance at WASSCE.

iii. Ho: There is no significant influence of School Factors such as adequate learning materials, infrastructure, equipment, students' characteristics, rules/regulations, and discipline on students' performance at WASSCE

iv. H1: There is a significant influence of school factors such as adequate learning materials, infrastructure, equipment, rules/regulations, and discipline on student performance at WASSCE.

1.6 Significance of the Study

It will be extremely helpful to understand the shortcomings of the WASSCE grading system concerning the effects of educational inputs on students' academic performance in public senior high schools because education investment in Ghana is increasing daily, especially with the introduction of the Free Senior High School in the nation in opposition to the lack of resources. Determining the effects of increased resource flow to Ghana's northern region on the academic achievement of students would be very helpful for policymakers.

The study's conclusions and recommendations will assist decision-makers in addressing the problems in the WASSCE league grading system and give them knowledge of its shortcomings. The study's findings will be helpful for educational planners and administrators in deciding how to manage elements such as teacher training and experience, student characteristics, factors relating to the school system, and environment, as well as their combined influence on student performance.

1.7 The Organisation of the Thesis

Nine chapters form the structure of the thesis. The study's introduction, background, problem statement, research questions, aims, and significance, are all covered in the first chapter. The review of related literature is the main topic of Chapter 2, which also covers the study's philosophical foundations. The efficiency of the educational system, internal efficiency, the coefficient of efficiency, theories of

school performance, the influence of teacher-related factors or characteristics, and school-based resources or inputs (school system factors and student characteristics) on students' academic performance in senior high schools are all covered in this chapter. Another topic covered in this chapter is the theoretical and conceptual framework. The summary of the chapter is the last item.

The study methodology is described in Chapter Three. These include the study design, target population, sample size and sampling method, data collection technique, instrumentation, validity and reliability concerns, data processing strategy, ethical and logical considerations, and limitations of the study. The following topics are covered in Chapter Four: a brief history of high school education in the Northern Region of Ghana; contemporary challenges in teaching, learning, and student academic achievement in the Northern Region of Ghana; trends in school numbers, distribution and factors affecting those trends; school infrastructure status, types of endowment, and factors underlying those endowments; human resource positions, distribution, and factors underlying those positions; enrolment trends and pattern, quality of students, and student-teacher ratio, as well as school discipline. Background information is presented in Chapter 5 along with the study's findings regarding research objective one and a discussion of same. The findings and analysis of the data related to research objective two are the main topics of chapter six. The findings and analysis of the data related to the effects of students' characteristics are also presented in chapter six. Research objective three's findings and analysis are covered in Chapter seven; Multiple Linear Regression's findings and analysis from the primary research question's hypothesis testing are covered in Chapter eight. The summary, conclusions made from the results, and suggestions made in light of the results are all found in Chapter nine. Areas for further study have also been identified.

CHAPTER TWO

LITERATURE REVIEW

2.0 REVIEW OF RELATED LITERATURE

The philosophical foundation of the study is presented. The efficiency of the educational system, internal efficiency, the coefficient of efficiency, theories of school performance, the influence of teacher-related factors or characteristics, and school-based resources or inputs (school system factors and student characteristics) on students' academic performance in senior high schools are all covered in this chapter. Another topic covered in this chapter is the theoretical and conceptual framework. The summary of the chapter is the last item.

2.1 Philosophical Underpinnings

The Coleman Report (1966) revealed that family background and peer impacts were important predictors of students' academic success. The report's main conclusion was that school resources on their own had little or no impact on students' academic performance (Nascimento, 2008). Hanushek (1997) claims that the "Coleman Report" signalled the official beginning of the investigation into the effects of school inputs on students' academic performance (Hanushek, 1997).

Education Production Functions (EPFs) are metaphors used by economists to illustrate the connection between the learning process and the production process that occurs in a "firm." In this analogy, schools are viewed as firms where educational resources (teachers, books, classrooms, furniture, buildings, equipment, etc.) interact with students to produce output known as student outcomes or academic performance, which is typically expressed in terms of "test" scores (Nascimento, 2008, p.19). Nascimento indicated that economists calculate EPFs based on information about these inputs and outputs. He emphasised that the main critique of this

paradigm is that it does not consider the interactions between educational materials that enable students to attain desired results. And for educators, comprehending these relationships can be more crucial than just focusing on a straightforward link between resource availability and student achievement (Nascimento, 2008). This shortfall in the use of the EPFs explains why this study considers a combination of the calculation of weighted average scores and coefficient of efficiency of education.

Since the publication of the infamous Coleman Report in 1966 on the influence of school resources on students' performance, there has been little disagreement regarding the links between "family background with achievement" (Nascimento, 2008; Lee and Zuze, 2011), but the importance of educational resources as a predictor of student performance has been hotly debated in the EPF literature. Due to the controversy over the impact of school inputs on students' outcomes, (Hanushek, 1997, 1998) is frequently viewed as a significant author in the discussion. Hanushek's basic conclusion from his summaries and estimations of the literature, which has been that "more resources per se do not increase educational outcomes," has been supported by Nascimento's 2008 publication (Nascimento, 2008, P. 20). However, Hedges, Laine, and Greenwald, 1994 b; Hedges and Greenwald, 1996 (Nascimento 2008) were three (3) other authors who produced several influential papers, which attempted to show that Hanushek's "compilations and interpretation of the available studies were inappropriate" and that "meta-analysis shows a different picture" in which resource impact is significant. To these researchers, there were more research that favoured the favourable impacts of school resources on student achievement than those that did not, in general (for example, Vesgestegen and King, 1998).

Most other European EPF studies, mostly from Scandinavian countries, found minor resource effects, while some found strong, and others found no effects at all or even negative effects.

Some education production function (EFP) studies in the UK point to minor resource effects (Levacic and Vignoles, 2002; Nascimento, 2008a) which were focusing on class-size evidence.

Four well-designed studies that were finished in the early to mid-1990s and attempted to estimate the effects of school inputs using EPFs that gathered information specifically for that purpose are highlighted by Glewwe (2002). The first was published in 1992 by Harbinson and Hanushek, which found a beneficial effect of the school inputs. However, unlike the studies for developing countries that were highlighted, the estimated effects of school and teacher characteristics on the performance of primary school students in rural Northeast Brazil on reading (Portuguese) and mathematics tests administered in 1981, 1983, and 1985, writing materials, textbooks, and teacher salaries were relatively small.

The goal of this study is to investigate the flaws in the WASSCE league grading system in relation to how school input affects students' academic performance in public senior high schools in Ghana's northern region. The research goal was accomplished using a variety of research techniques. Multiple linear regression analysis was used in the descriptive and correlational designs of the study.

In order to comprehend the phenomenon, the researcher utilised a few open-ended questions: The quantitative approach assisted the researcher in either failing to confirm (by rejecting the null hypothesis) or confirming (by failing to reject the null hypotheses).

2.2 THE EFFICIENCY OF THE EDUCATION SYSTEM

Abdul Kareem et al. (2011), explain that the term "efficiency" has economic roots. They claimed that an effective educational system from within generates graduates without repetitions, dropouts, or wasted years of study. The system may be shown to be extremely externally inefficient if the graduates produced do not satisfy the needs of society, the economy, or higher degrees of education. In contrast, Yunus (2017), contends that an efficient educational system also has high graduation rates, high retention rates, and high transition rates. A system with a high dropout rate, poor retention, and transition rates, and low gross enrolment ratios is always inefficient and has a high risk of significant waste. Efficiency happens when, in accordance with Johnes et al. (2017), educational outcomes (such as test scores or value-added) are generated with the fewest resources possible.

Akinsolu (2011) adds that secondary schools, like any other institution, collect input from stakeholders, process it, and then release the results back into the environment where the inputs must have come from. He made the point that the resources given for the delivery of secondary school services were dependent on the availability of funding. In addition, he noted that there appeared to be significant internal inefficiency. Furthermore, Akinsolu pointed out that most secondary school students in Nigeria were failing their final secondary school examination, repeating subjects, or quitting out. The relationship between a system's inputs and outputs is known as its efficiency (Besong Besong, 2014). How resources are utilised to get desired results is also defined by the concept of efficiency. For instance, if greater educational outcomes can be achieved without deploying more resources, then an educational system is efficient (Department of Education, 2013). According to Hanushek et al., (2011) the cumulative economic research on education indicates that the way schools are currently run is very inefficient. And that class size,

teacher experience, and teacher education are frequently purchased inputs for schools but have little systematic relationship to student performance, suggesting that conventional input policies are unlikely to boost achievement.

2.3 INTERNAL EFFICIENCY AS A CONCEPT

Internal efficiency, according to Yunus (2017), describes the connections between an educational system's inputs and output. He continued by saying that an educational system is internally efficient if it produces graduates without losing any student years to dropouts or repeaters. This implies that the education system is more inefficient and wasteful the more dropouts and repeaters there are. In other words, when the waste is lower, and the educational system is more internally efficient the fewer dropouts and repeaters there are. The connection between inputs and a system's output is explained by Wasserman (2016) to mean efficiency. It also offered eight recommendations for using analytics to improve the efficiency of the educational system.

Academic success is one of the most significant indicators of quality of education, according to Rowe and Livesley (2002). By virtue of the promotion and repetition rates being directly correlated with student learning accomplishment, which in turn can be linked to school dropout, they illustrated how learning achievement is closely tied to school efficiency. As stated above, learning accomplishment is one of the most significant indicators, and Manno's statement that "when measuring educational quality, either we focus on how much money schools spend, or one of its variants, or we focus on what children accomplish, what they know, and what they are capable of is apt (p.24). This implies that a measure of schools' spending that combines two important approaches of gauging the quality of education by using the reconstructed method to assess internal efficiency and related to students' academic progress is even better.

Internal efficiency, according to Lockheed and Hanushek (1994), allows decision-makers to select tasks or alternate courses of action that will boost performance the most. For instance, "if a school has to choose between buying workbooks for children and hiring a part-time teacher to tutor individual students, the school will prefer to buy the workbooks if the school has the financial resources to do so." (Lockheed and Hanushek, 1994:5) This suggests that "the school should continue to buy the workbooks until the educational worth of the two choices become equal." All of the inputs that a school buy should follow this similar reasoning (Levin, 1976, as cited in Lockheed and Hanushek, 1994:5).

The ideal (optimal) number of pupil-years required (i.e., in the absence of repetition and dropout) to produce a given number of graduates from a given school cohort for a cycle or level of education expressed as a percentage of the actual number of pupil-years spent to produce the same is described as the coefficient of efficiency of education by the UNESCO Institute for Statistics (2009). Additionally, it stated that outcomes that are nearly hundred percent imply a high overall degree of internal efficiency in generating graduates and no wastage because of repetition and dropout. It must be noted that improved academic performance among students translates into less resource waste, greater internal efficiency, and invariably superior educational quality. Poor academic achievement, on the other hand, results in excessive resource waste, low internal efficiency, and invariably poor quality education.

The influence of repetition and dropout on the efficiency of the educational process in producing graduates is reflected when the coefficient is less than 100%. Since the reciprocal of the input-output ratio is one, any results greater than one are inefficient. Internal efficiency is negatively or positively affected by student variables, including previous academic performance and demography. Both testing and non-testing methods can be used to determine a student's prior

performance. Although non testing approaches include observation, interviews, and cumulative records, testing techniques will incorporate the formal examination outcomes. To "give clear information on the student's progress and performance in every field at all levels" is the essence of keeping track of students' accomplishments Yunus (2014), p 50.

Furthermore, Yunus (2014, p.50) stated that "students' prior success is a strong predictor of future performance". This implies that a variety of factors, including the internal efficiency of the school, influence achievement or student performance. Inherent and acquired skills, personality, learning styles, family, and geography are among the additional variables that affect students' accomplishment. Student variables, including prior academic performance and demography have a good or negative impact on internal efficiency. Past performances of students, Student demographics including "age, gender, and socioeconomic background" also have an impact on how well students succeed academically (World Bank; referenced in Yunus, 2014, p. 51). It is clear from Akolo's (1998) perspective and Hanushek's (2013) assessment of educational efficiency that as waste decreases, student academic achievement rises. For minimal waste, the opposite is true.

The efficiency of a school is based on how well it uses its facilities and meets the learning requirements of its students in terms of learning. Yunus (2014), claim is consistent with the conceptual framework of this study, which is based on the accessibility of resources including money, materials, infrastructure, personnel, students, and managerial effectiveness. According to Yunus, evaluating student performance while considering a variety of inputs and conditions allows one to determine the internal efficiency of an educational system. He went on to say that internally efficient schools exhibit traits related to their performance and are within the control of school administration. The number of teachers, the number of students enrolled, the types and

levels of convenience (furniture, equipment, etc.) and the accessibility of technology and its effect on students' performance.

The efficiency of a school is impacted by its size and rate of expansion, according to Yunus (2014). Because "in overcrowded classes, more intense discipline problems develop," he claimed, "school size is ultimately linked to students' learning outcomes." However, Hanushek, (2020) believed that there is no consistent relationship between class-size and students' academic performance.

Yunus (2014) went on to list the advantages and how technology, equipment, and facilities all contribute to internal efficiency. According to Yunus, if the school's structure, furnishings, technology, and other resources are not only made available but also used effectively, they will increase the school's internal efficiency by promoting the health and academic success of its pupils. In contrast, another study suggested that school resources per se have no or insignificant effect on students' academic performance (Hanushek, 1997: 2020).

Furthermore, Yunus (2014) added that the efficiency of a school is impacted by its size and rate of growth. He further stated that ultimately, the number of students in a school determines its size. The number of books that librarians make available to students, their enthusiasm to study, and their ability to complete assignments provided to them by their teachers are all fair measures of how often secondary school libraries are used, he continued. In general, the presence of facilities have a beneficial impact on exam pass rates, according to a World Bank (2016) report that mentioned research on Malawi's educational system. Yunus said that the survey found a correlation between amenities such as power, libraries, and restrooms.

As part of a school's characteristics, according to Yunus (2014:54), are "class and school size, student-teacher ratio, school location and funding, and shifts (morning/afternoon), educational

materials such as textbooks and supporting materials, other instructional materials, and facilities." Although Seiler et al. (2006:74 as cited in Yunus 2014:54) listed "staff, school size, infrastructure, technology, and community involvement," which supported Murzano's (2000) assertion that community involvement and student diversity are elements of schools' characteristics that affect students' learning outcomes.

Additionally, Yunus (2014) found that large schools in urban regions with 1200 students tend to have more disciplinary problems than small schools with an average enrolment of 443 students in rural locations. He asserted that: "As the size of the school expanded, so did problems with discipline." Schools with the necessary resources, personnel, and instructional support services are "reputable and have a beneficial impact on their efficiency," according to Yunus (2014:54). This interpretation of Yunus has been supported by Oyedeji (2000: p25), who categorised school facilities as "building and equipment" and noted that they had a good impact on students' comfort, safety, and academic achievement.

The internal efficiency of education is the ratio of learning, the nonmonetary result of education, to the price of educational inputs. According to educational economists, "cost-effectiveness" is the analysis method employed in this case. Internal worries about maximising academic results for a certain sum of funding (Lockheed and Hanushek, 1994, P.5).

Efficiency in resource usage is still regarded as crucial when it comes to education in developing nations, according to Lockheed and Hanushek (1994). They cited statistics showing that most emerging nations devote a large percentage of their national expenditures to educating their citizens. However, funding for education must compete with other purposes, drawing public scrutiny for the justification of such expenditure through the success of the school system; otherwise, the public may perceive it as a waste of resources, and some would urge for a

reduction in educational spending. In other words, excessive levels of waste and low internal efficiency are indicated by problems in the educational system, including repetition, dropouts, and failures. In addition, waste will be minimal, and internal efficiency will be high in areas with low repetition rates, dropouts, and failures.

According to Susan (2012), parents, educational administrators, planners, and policy makers are very concerned about the issue of educational waste at the secondary school level of education, which is demonstrated by the high proportion of failures in public examinations. According to Susan (2012), waste is a sign of internal efficiency and is noted when an investment fails to create a result that is deemed to be of lower value than the targeted outcome or fails to produce the expected benefit or output. In other words, excessive levels of waste and low internal efficiency are indicated by problems in the educational system, including repetition, dropouts, and failures. In addition, waste will be minimal and internal efficiency will be high in areas with low rates of repetition, dropouts, and failures.

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Internal efficiency was defined by (Pitan & Susan, 2012) as the degree to which educational institutions minimise costs and eliminate waste due to repetitions, dropouts, and failures. They emphasised how an effective educational system produces graduates without wasting any student

years. They assert that the standard and quantity of resources provided to a system of education, as well as the use made of those resources, determine the system's success or failure.

2.6 EFFICIENCY MEASURE USING COEFFICIENT OF EFFICIENCY

According to UNESCO (2009), coefficient of efficiency is the ratio between the ideal (optimal) number of student years needed (i.e., in the absence of repetition and dropout to produce a given school cohort's number of graduates) and the actual number of student years required to produce the same number of graduates. An alternative is frequently the input-output ratio, which is the reciprocal of coefficient of efficiency. Keep in mind that one student-year equals one school year that a student spends in a grade, multiplied by the actual number of student years required to produce the same number of graduates, then divided by 100. Utilizing enrolment and repeater data from two consecutive years, the reconstructed approach is used to calculate the efficiency coefficient.

Interpretation: Results that are close to 100% show a high level of internal efficiency in graduating students and minimal or little wastage due to repetition and dropout. The effect of repetition and dropout on the efficiency of the educational process in producing graduates is shown by coefficients below 100 percent. The ideal input-output ratio is one, while inefficiency results from any value more than one (UNESCO, 2009, p 11-15). However, because this indicator is typically obtained from cohort analysis models, which are frequently predicated on a number of assumptions, UNESCO (2009) advised against using it to interpret data. Furthermore, it stated that caution should be exercised when using the data to compare education systems, especially those of various nations, due to the synthetic character of this measure. The majority of students graduating within the allotted time for the educational cycle or level is ideal from an economic efficiency and resource utilisation standpoint, it was said, but this may not always

imply the accomplishment of the anticipated learning goals. Furthermore, early dropouts (i.e., from lower grades) can result in higher internal efficiency than late dropouts (i.e., from higher grades), according to UNESCO's calculation approach, Early dropouts, or those from lower grades, can have higher internal efficiency than late dropouts, or those from higher grades. This means that efficiency from an economic point of view can be at odds with educational goals, which aim to keep students in school until higher grades when they would have attained the desired knowledge and skills.

2.7 ACADEMIC PERFORMANCE THEORIES AND SCHOOL PERFORMANCE

Academic performance is complex from the moment it is conceptualised. Although it is often referred to as school performance, academic achievement, and preparation for school, the differences between these terms are typically only a matter of semantics because they are used as synonyms. It is accepted practise to use school performance in populations receiving traditional and alternative basic education, and academic achievement in groups attending universities (Lamas, 2015). Various writers give varied meanings to these terms: Martinez (2007) asserts that academic performance is "the output given by the students, and it is typically expressed through school grades" from a humanistic perspective (p. 34). Academic performance was defined by Pizarro (1985) as a measurement of the indicative and responsive skills that convey what a person has learned as a result of an educational or training process in an estimated manner (Martinez, 2007 and Pizarro, 1985 as cited in Lamas, 2015).

According to (Kumar, 2021) academic Performance is a phrase with many different interpretations, which accounts for the nuanced nature of its very meaning. However, school performance in this study refers to examination results of the students achieved at West African

Secondary School Certificate Examination (WASSCE) multiplied by the coefficient of the internal efficiency of the schools.

The will of the individual to "learn, grow and gain skills and knowledge and display competence in a school context, grounded in a motivation theory," has an impact on academic performance. (Brophy, 1987; Murphy & Alexander, 2000; Nicholls, 1984, as referenced in (Kumar, 2021). Self-efficacy, self-regulation, intrinsic and extrinsic motivation, interest in the work at hand, and other factors have also been identified as common components of motivation.

Academic performance could indicate that a student enrolled in a study programme has achieved the objectives, goals, and benchmarks established for that program (Lamas, 2015). According to Lamas, marks obtained from an evaluation that comprises passing or failing examinations, subjects, or courses convey the stated aims and/or objectives. He also defined academic performance as a measure of academic achievement that demonstrates a specific grade point average as an indicator of the level of knowledge attained in a subject or area when compared to a norm. In other words, a grade point average is used to measure achievement, which illustrates the degree of knowledge acquired throughout a study period—is used to gauge achievement. Lamas (2015) went on to say that several organic and environmental factors that affect skill and experience affect performance. According to Lamas, there are several variables that affect academic achievement, including intellectual ability, personality, motivation, skills, hobbies, study habits, self-esteem, and teacher-student connection.

Academic success and school performance have been compared in a number of research (Duckworth & Seligman, 2005; Luiselli et al., 2005; Njoroge et al., 2014). For example, some people place a higher priority on school success at the tertiary level while placing academic performance first in elementary and high school. However, this study views school performance

as being equal to the grades of students' academic performance times as a gauge of the system's internal efficiency. By doing this, we will ensure that the differences in school endowment have been considered. Different learners have different goal orientations, which affects how important goal setting is to them. Achievable objectives increase motivation and self-efficacy, influencing how much people value goals (Bandura, 1982; Schunk, 1992). Goal setting is said to be a motivational technique that boosts self-efficacy by achieving knowledge and abilities (Bandura, 1982).

Additional research has been done on various theories of learning and performance. The interaction of many psychological factors may have a favourable or negative impact on student's academic achievement (Usan, Salavera, and Teruel, 2019). The degree of motivation that the school has for the student is one such psychological factor. When viewed as a construct, the idea of motivation, according to Usan, Salavera, and Teruel, aids in explaining the "origin, direction, and perseverance of behaviour that is directed toward a particular academic aim and is centred on underlying concerns about the learning process, academic success or the self, social appraisal, or even an attempt to put off work (P. 878). Tus supports the previous theory regarding the impact of motivation on academic performance (2020). He claimed that academic achievement became a necessary component of high school education since high school students needed to perform well in order to enter college and take advantage of better possibilities in life. Tus proposed that a number of variables, including stress and motivation, affect academic achievement. According to Tus (2020), stress is "everything that challenges or threatens a person's well-being." He went on to say that stress has a negative impact on student's academic achievement. Tus also defined motivation as a person's readiness to carry out particular duties. Tus also stated that more motivation improves academic performance (Burisma, 2004, as cited

by Kori et al., 2016). Tus (2020) also covered the effects of self-concept, self-esteem, self-efficacy, and academic achievement.

Numerous studies have also been carried out to examine the effects of elements like student characteristics, school system factors, and teacher-related factors on students' academic achievement (Coleman, 1966; Hanushek, 1997; Hanushek, 2005; Susan, 2012). Other research has also been done into the area of achievement goals in order to clarify the distinctions between performance-approach goals, mastery goals, and goal avoidance strivings. Although some researchers believe that the achievement goal theory of performance has to be altered (Harackiewicz et al., 2002, Claver et al., 2020; Ntoumanis, 2001), others claim that the revision is unjustified (Midgly et al., 2001). The significance that was to be assigned to the performance approach from avoidance strivings was the first of three reasons, according to Harackiewicz et al. (2002), why the theory needed to be changed (Elliot, 1997; Elliot and Harackiewicz, 1996; Pinch, 2000c, as cited in Harackiewicz, 2002). The "unique positive potential of performance-approach objectives, relative to mastery goals" was the second justification given by Harackiewicz et al. for the goal theory (Harackiewicz et al., 1998, as cited). The finding of the relationship between performance-approach goals and mastery goals to encourage optional motivation was the final justification they provided (Barron and Harackiewicz, 2000, 2001; Pintrich, 2000b, as cited in Harackiewicz et al., 2002).

Finding the connection between performance-approach goals and mastery goals has attracted a lot of research interest. While some studies identified connections between the two (2), other research revealed no connections (Harackiewicz et al., 1998; Harackiewicz et al., 2002). According to Midgley et al. (2001), there may have been important interactions between the performance approach and mastery goals. In this sense, they recommended that more research be

done to determine which goals work best together to encourage motivation and achievement. Self-Determination Theory (SDT) was defined by Ryan and Deci (2020) as the idea that "need supports enhance intrinsic motivation and internalisation, which leads to higher achievement" and that "paradoxically, an attempt to directly control achievement outcomes through extrinsic rewards, sanctions, and evaluations generally backfires" leading to "lower quality motivation and performance" (Ryan and Deci, 2020; P.2). They defined extrinsic motivation as the want that refers to behaviour did or activity carried out for reasons other than their inherent satisfaction or gains, and they defined intrinsic motivation as desire that related to activities that persons carried out for inherent satisfaction. Some of the hypotheses of self-determination theory (SDT) concerning intrinsic and extrinsic motivations. Increasing "autonomous forms of motivation typically results in an enhancement of students' engagement, learning, and wellness," according to Ryan and Deci (2020), was one of the self-determination theory's (SDT) predictions regarding intrinsic and extrinsic incentives. As opposed to how "need thwarting reduces motivation, basic psychological support from both teachers and parents facilitates motivation." These raise other factors that affect students' success, including the role that teachers and parents play in this.

Studies have also been done to determine the connection between student performance or academic success and motivation. Whittington (2014) examined motivation using academic accomplishment and Vroom's Expectancy Theory (Vroom, 1964) and academic success. The levels of motivation were compared to the student's performance on the Illinois Mouse Assistant Training Competency Examination after the researcher employed Vroom's Expectancy ideas like "valence, Expectancy, and instrumentality to aid the study quantify motivation. According to Whittington, instructors would be given the knowledge that may help children perform better academically if they understood the value of motivation in the classroom.

Other studies have been done on motivation and how it affects learning or success. Some of these studies clarified the need to achieve (Whittington, 2014), while others investigated the concepts of individual competency in some tasks (Campbell, 2007). The need to succeed was discussed in some prior research (Whittington, 2014). Whittington said that motivation was a key element in determining academic success. Whittington also noted that intrinsic motivation was likened to an individual's personal desire to succeed, whereas extrinsic motivation was deemed from a palpable incentive arising from the expectation of external reward. Harackiewicz (2014) used intrinsic and extrinsic motivation to explain the effect of motivation on academic performance. This signifies that whether intrinsically or extrinsically, the person is motivated to want to succeed or feels the need to do so. Whittington concluded that although motivation and academic achievement were correlated, the relationship was not statistically significant. (Geiger & Cooper, 1996), on the other hand, broadly concurred that motivation impacts students' academic performance and also were quick to point out that this was true for different people in different ways due to individual differences. The motivation to learn refers to both the motivation underpinning the covert processes that take place during learning (Díaz-Morales & Escribano, 2015). A hidden process called task interest can be altered by intrinsic motivational factors (Bandura, 1982; Brophy, 1987; Linnenbrink &Pintrich, 2002; Murphy and Alexander, 2000, as cited in Morales, 2015).

Some studies have been done on the goal-setting theory of motivation and academic performance, in addition to employing Self-Determination Theory and Expectancy theories to explain the relationship between motivation and academic success by other researchers. The significance of the connection between goal-setting and academic success was thoroughly explored (Latham & Locke, 2018; management et al., 2011) suggested that the most productive

performance results from specified and difficult goals (Lunenburg, 2011; Whittington, 2020). Lunenburg went on to say that several moderators, including ability and self-efficacy, affect how motivating the effects of goals are. Researchers from diverse disciplines employed a range of motivation measurement techniques to determine the impact of motivation on students' academic performance. In a study published in 2004, Wolters explored the many elements of the achievement goal theory (AGT), their connections, and their effects on students' academic performance. The study found that there were consistent patterns among the different components, including performance approach goal structure, performance-avoidance, and goal orientation, consistent across all results. In other words, Wolter argued that there were not clear or consistent linkages between the various parts of the accomplishment target and the academic performance of the pupils. Even though the classical Goal Setting Theory claimed that "goal-task specificity was a precondition for improved performance," Schippers et al. (2020) asserted that it appeared that the most crucial aspect of goal setting was the process of writing about personal goals, regardless of the domain, as the quality and quantity of the goals were positively associated with improved academic performance. They went on to say that, even though personal goals may have been defined generically or even seem abstract, performance can be improved when there are clear plans and tactics for achieving the goals.

Tus (2019) looked at the impact of personality and self-efficacy on students' academic achievement and discovered that these elements had a minimal impact. A quality, a behaviour, or style of thinking that a person develops and exhibits toward others is what Tus called personality (Holzman, 2018 as cited in Tus, 2020, p. 92). Self-efficacy was also described by Tus as "the capacity to do well and the determination to carry out a particular activity successfully and to attain goals totally" (Ackerman, 2018 as cited in Tus 2020, p. 92). In the same way that self-

efficacy influences an individual's degree of motivation and behaviour, it also has an impact on their capacity to feel, think, and achieve (Bandura, 1982; Zimmerman, 2000). Additionally, it is thought that people's self-efficacy is dynamic rather than static (Linnenbrink & Pintrich, 2002, as cited in Morales, 2014). According to Bandura's theory from 1982, people with self-efficacy are more likely to try than their peers who fear they will not succeed in the task.

The overwhelming conclusion of several studies on motivation and academic success is that motivation affects academic achievement (Campell, 2007) motivated, skilled, and biologically capable humans engaging with a responsive environment leads to genuine "accomplishment and competence," according to a mathematical formula developed by Ford (1992, p. 70). Naturally, the motivational systems theory organises the prior theories into a single motivational construct or model rather than attempting to replace or supersede any of them. The three "major theories" are goal orientation, self-efficiency, and the impact of expectations. Campbell (2007), page 12, Ford's Motivational System theory suggests four (4) major criteria for efficient functioning, which Campbell emphasised as involving: First, the individual must possess the drive required to begin and continue an activity until the objective guiding the episode is realised. Next, the individual must possess the expertise required to plan and carry out an activity pattern that will result in the intended outcome. Third, the motivation and skill component must be able to function properly given the person's biological makeup and functioning. Finally, the individual needs the support of an accommodating environment that will promote development toward the goal. (Ford, 1992; Campbell, 2007; quoted by Ford).

There are as many different definitions of motivation as there are motivational ideas. Hull, for instance, defined motivation as "the commencement of learned, or regular patterns of movement of behaviour" in 1943, on page 226. Motivation, according to Megginson (1953, p. 15), is "the

study of why individuals do things; why they behave in a given pattern." "Motivation is broadly concerned with the contemporaneous determinations of choice, persistence, and vigour of goal-directed behaviour," noted Beck (1978, P. 24). While Albert Bandura (1991, p. 158) claimed that "motivation is a multifaceted phenomenon quantified in terms of the causes and influences of motivation," Last but not least, the individual needs the support of an accommodating environment that will promote development toward the goal (Ford, 1992; Campbell, 2007; quoted by Ford).

Ford (1992, p 3) described motivation as the "ordered patterning of three psychological functioning that serves to guide, energise, and regulate goal-directed activity: personal goals, emotional arousal processes, and personal agency beliefs" from the perspective of motivational system theory.

2.8 Discipline and Academic Performance

Time management skills between students and teachers have proved distinct to directly correlate with academic performance. Punctuality, which has to be observed by students, teachers, head teachers, and non-teaching staff, helps to improve academic performance (Ethiane, 2014). Ethiane further reported that success can only be achieved when teachers show good examples of time management. The efficient use of time by students and schools will usually increase academic performance (Nasrullah, 2015). Discipline is not only believed to help in improving academic performance but tends to make the student spend extra time studying, which itself strongly influences students' academic performance. In other words, (Oyuga, et al.,2016) concur with the view that discipline correlates with academic performance but added that when a student spends extra time studying, it has a strong influence on academic performance. When school rules and regulations are enforced, and students who violate these rules and regulations

according to (Oyuga et al., 2016), are particularly punished, the punishments are commensurate with the offences committed, which often results in improved academic performance.

2.8.1 Disciplinary Issues

2.8.2 Thesaurus Definitions of Discipline are control gained by enforcing obedience or order; the order or prescribed conduct or pattern of behaviour; self-control; punishment; training that corrects, moulds, or perfects the mental faculties or moral character; a field of study and a rule or system of rules governing conduct or activity.

Discipline, according to researchers, is a crucial element of human behaviour and is essential for an organisation to work well and achieve its objectives (N. Simba et al., n.d., 2016; N. O. Simba et al., 2016). A disciplined student is one whose acts, inactions, and behaviours in the setting of a school system are in accordance with the predetermined rules and regulations of the institution. (*Ali, A. A., Dada, I. T., Isiaka, G. A., & Salmon, S. A. (2014*). Discipline, however, should ideally encompass the learner's capacity for moral judgment, which goes beyond simply following rules and regulations (Gracious Mwale, 2015). There is widespread agreement that discipline is necessary to foster an environment in the classroom that supports students' ability to do well academically (McKevitt et al., n.d.). It is a prerequisite for effective teaching and learning in classrooms, and teachers are concerned about it (Practice & Gitome et al., 2014). Where there is good discipline, academic performance improves, claim Gitome et al. In other words, maintaining discipline is essential for a student's academic success (Foncha et al., 2017; Njoroge et al., 2014). Additionally, it is essential for efficient school administration and the achievement of its objectives (N. O. Simba et al., 2016). Indiscipline is the absence of discipline. Consequently, indiscipline can be defined as any behaviour that is incorrect and is not commonly

viewed as appropriate in a setting or culture (Omote, Thinguri, & Moenga, 2015, as cited in N. Simba et al., 2016, p.128).

2.8.3 Causes of Indiscipline in Senior High Schools

Indiscipline in secondary schools has been a significant and ongoing administrative issue in developing nations. (Ngwokabuenui, 2015) reported that Students engage in a variety of disciplinary violations, some of which include the following behaviours: skipping class, engaging in pornographic activities, lying to teachers, prefects, and administration, disrespecting them, rapping classmates, drinking alcohol, confronting teachers in the classroom, vandalism, arriving late to class, cultism, drug use, insulting/assaulting, stealing, and rioting, among others.

In senior high schools in Ghana's Northern Region, there are several reasons for indiscipline: First, some management decisions made by these institutions that teachers see as favouritism result in insubordination since those teachers refuse to fulfil some of their duties as a result. In a similar vein, indiscipline results from classroom management techniques used by teachers that students perceive to be in their favour. Second, a growing wave of indiscipline results from not enforcing norms and laws (Republic of Ghana, 2002). Third, unwholesome interactions exist between staff and management, staff and students, and management and students, which results in indiscipline (Salifu et al., 2015). The absence of intrinsic and extrinsic motivation is the fourth potential factor in indiscipline.

2.8.4 Effects of Indiscipline in Senior High Schools

Ayertey (2002) explained indiscipline as a kind of behaviour that deviates from the generally accepted norms, which he said permeates all facets of society, at home, in schools, in

government, and religious organisations. “The state of indiscipline does promote the environment for effective teaching and learning” (Republic of Ghana, 2002, p.178). Indiscipline activities such as drug abuse, disobedience to school authorities, breaking of school rules and regulations, late attendance to classes by students and teachers, absenteeism by both students and staff, truancy, delinquency, bullying, examination malpractices often result in several disruptions of academic work in the classrooms. These disruptions may lead to non-completion of the syllabus, or if students are involved, may lead to suspensions that adversely affect the academic performance of students in the school

(*Meeting the Challenges of Education in the Twenty-First Century: Report of the President’s Committee on Review of Education in Ghana*, 2002, p.178),

One noticeable effect of students’ indiscipline is the likelihood of them dropping out of school if they do not desist from habits that put them into trouble frequently for breaking one school rule after the other. In addition (*Closing the School Discipline Gap: Equitable Remedies for Excessive Exclusion - Google Books*, n.d.), another research findings corroborate those of research conducted by (*Zhao, R., & Kuo, Y. –L. (2015*) among Chinese 10th-grade students and by (Duckworth & Seligman, 2006) among selected Grade 8 students in the United States. According to the studies, self-discipline positively correlates with and accurately predicts students' academic achievement, demonstrating that discipline plays a significant role in how well students succeed academically. However, the results are at odds with those of (Zimmerman & Kitsantas, 2014), who among a sample of American high school students found that self-discipline does not predict students' academic success (N. O. Simba et al., 2016).

2.8.5 TEACHER CHARACTERISTICS OR FACTORS

The argument over which school-based resources have improved children's academic achievement the most has been made by a variety of scholars and educators (Darling-Harmond, 2000). According to Abe (2014), the main factor influencing pupils' academic success was the teacher's qualification. The impact of teacher professional certification on student academic achievement has been the subject of a few additional research. The academic achievement of the students and the professionalism of the teachers were found to be positively correlated, according to Yeboah-Appiagyei, Joseph, and Fentim (2014). According to the researchers, a professionally trained teacher or subject specialist is a person who has pursued a thorough formal, systematic study of a particular subject (Adenti, 2005). They also said that a professionally trained teacher serves as a stove house of crucial information with the necessary pedagogical prowess that enables him to help students study effectively. Buddy and Zamarro (2009, as reported in Yeboah-Appiagyei, Joseph, and Fentim, 2014, p. 84) stated that "teacher quality is a significant factor of student academic performance. The preceding discussion on the significance of professional qualification regarding students' academic achievement, according to Yeboah-Appiagyei, Joseph, and Fentim, was a confirmation of the idea that a school's quality cannot be higher than that of its teachers. Maphoso and Mnhio (2017) differed from the prior perspective on the beneficial impact of teacher qualification on students' academic achievement. They noted that there was no discernible variation in teacher qualifications between low and high-achieving schools. Therefore, it is important to note that researchers have provided inconsistent reports on the link between students' academic performance and professional development. Others disagreed with those who claimed a positive correlation existed between professional teacher training and student achievement (Yeboah-Appiagyei, Joseph, and Fentim, 2014(abstract); Buddi

and Zamarro, 2009; Sadoulet, and Jonvry, 2009; Adentim, 2005). According to a study by Khurshid (2008) on the topic, students who were taught by teachers with a B.A. or B.Sc. degree outperformed those who were taught by teachers with a degree in their field of expertise in terms of academic achievement. Yeboah-Appiagyei, Joseph, and Fentim (2014) concluded that the amount of experience financial accounting professors had affected their students' academic achievement in the course. Accordingly, a teacher's qualifications are a result of both his professional training and the amou3nt of classroom experience. A skilled and qualified teacher, according to Yeboah-Appiagyei, Joseph, and Fentim, "honed their pedagogical content understanding of individual learner needs. Therefore, a more seasoned Financial Accounting instructor can have a greater impact on student's academic achievement than a less seasoned Financial Accounting teacher."

The number of students to teachers at a particular educational level and in similar institutions is compared using the ratio of students to teachers, according to OECD (2011, p. 395). Internal efficiency is ultimately connected to the problem of resource allocation and usage, according to Gupta (2001). In other words, the ratio of students to teachers could be used to assess the internal efficiency of a school system. As the OECD indicated above, the teacher-to-student ratio is wider than the teacher ratio because staff may also include non-teaching employees. Despite this, the endowment of schools varies depending on staff-to-student or student-to-staff ratios. Since the 1920s, numerous studies have been done on attitude and how it affects how people behave. When he said, "it is all things to all men," Bain (1928) perfectly encapsulated the worldview of attitude. He went on to say that different speakers and writers interpreted attitudes differently. Normative, subjective, and/or value-based descriptions of attitude are possible. The responses, opinions, habits, vegetative processes, tendencies to act, impulses to act, inhibitive whims,

sentiments, wishes, values, motor sets, and other combinations of these are also known as attitudes, according to Bain. (Abstract). Regarding the study of Madukwe, Onwuka, and Nyerijime (2019) carried out on the impact of teachers' attitudes on students' academic performance and concluded that there was a significant positive relationship between teachers' attitudes and students' academic performance. Adediwura and Tayo (2007), Ad and Olatundun (2007), Lockhead and Komenan (1988), Schacter and Thum (2004), and Star (2002), as referenced in Akiri (2013), p. 106.

Fehintola (2014) investigated the impact of eight teacher characteristics, including academic qualification, professional qualification, content knowledge, instructional quality, evaluation procedures, work value, classroom attendance, and job satisfaction, on students' academic performance and discovered that the teachers' characteristics accounted for 54.6 per cent of the variation in students' academic performance. Fehintola suggested that teachers' content understanding and instructional qualities were more effective predictors of students' academic performance than professional teacher certification and job value (Adediwura and Tayo (2007; Ad and Olatundun (2007; Lockhead and Komenan 1988; Schacter and Thum 2004; and Star 2002; as referenced in Akiri, 2013, P. 106).

The effectiveness of teachers' and students' academic performance was found to be significantly correlated by Ugbe and Agim (2008). They also included students who were taught by qualified teachers, who performed much better than students who were taught by less qualified teachers.

The researchers' opinions on the impact of instructors' qualifications on students' academic achievement are divided. Kola and Sunday (2015) discovered a positive correlation between teacher characteristics and students' academic achievement. These characteristics included

subject matter expertise, pedagogical skill, professional development, and years of experience. However, they omitted to say whether the association was statistically significant. Adediwura and Tayo (2007) found a significant correlation between students' academic achievement and their perceptions of teachers' subject expertise, work ethic, and teaching abilities. The idea is that there is a link between teacher competency and student academic achievement owing to professional development and in-service training.

Ronke (2010) used a Fitted Multiple Regression Model and discovered statistical significance at the 0.05 level, demonstrating that education services (activities to enhance teacher quality and effectiveness) have a significant positive impact on student's academic performance. This idea was also supported by Ronke. Akinsolu (2010) noted a statistically significant association between instructors' credentials, experience, and teacher-student ratio. Thomas and Olugbenga (2012) backed up the previous influence of the instructor components. They quickly clarified that professional teaching credentials in a particular field of study were more important to the model than academic credentials. Another study defined teacher qualities as including teacher professional development and improved pedagogical prowess and indicated that these characteristics have a significant statistical relationship with student academic performance. Kosgei et al. (2012) believed teacher qualification was not having a statistically significant relationship with student's academic performance (Sirait, 2016).

In their study of the relationship between teachers' credentials and students' academic performance, Iheonunekwu, Anyanwu, and Okoro (2014) discovered that "teachers' credentials, experience, and the student-teacher ratio was strongly connected to students' academic performance" (Abstract).

According to Owude et al. (2015), only a teacher's credentials—not their level of experience—have a substantial impact on a student's academic achievement. A low student-teacher ratio was also found to have a positive impact on pupils' academic achievement. In addition, school resources including libraries, labs, textbooks, and teacher training were cited by Owoeye and Yara (2011) as important factors in agricultural science students in Ekiti State, Nigeria academic's success. Koshal and Gupta (2004), on the other hand, came to the opposite conclusion, concluding that while resources or money were necessary for some improvement in students' academic performance, students' attendance at school along with its explanatory issues, such as parents' socioeconomic status and the location of schools, was even more crucial. They stated that their findings were in line with Hanushek's (1997) assertion that having money or resources was not a prerequisite for success. Concerns from all parties involved have grown regarding the subpar academic performance of students in Nigeria's public senior high schools. It is believed that student academic success falls short of the financial and time commitment made by the state and parents.

Okoro, Anyanwu, and Iheonunekwu (2014). Students in Public Senior High Schools in Nigeria are not the only ones who are struggling academically; Sub-Saharan African nations, especially Ghana, are also experiencing this issue. Due to this, the Ministry of Education and Ghana Education Service decided to rank schools based on the number of quality passes (i.e., A1 to C6) that their pupils received on the West African Secondary School Certificate Examination (WASSCE). Deputy Minister of Education Dr. Osei Adu-Twum met with senior high school heads in Tamale In 2018, the College of Education said that the average quality pass for the country was between 20 and 25 percent and that the Upper East, Upper West, and Northern Regions of Ghana experienced the worst outcomes. A 25% quality pass rate, he continued,

means that 75% of senior high school pupils would not continue to postsecondary study. Dr. Osei claimed that these three regions alternated between being the eighth, ninth, and tenth-placed regions out of the ten. Additionally, he noted that the Northern Region was particularly struggling and urged all Heads to collaborate more closely with stakeholders to boost performance.

No educational system "may rise above the calibre of teachers," according to Iheonunekwu, Anyanwu, and Okoro (2014, p. 2). Blumende (2001), emphasised the necessity to concentrate on the suitability and capabilities of teachers to achieve the required societal transformation and growth, supported this viewpoint. This final viewpoint emphasises teachers' contribution to the external effects of education in providing the needed human resources for national development rather than only discussing them as input. The aforementioned highlights the importance of having teachers who are trained and experienced to guarantee students' performance on the West African Secondary School Certificate Examination (WASSCE).

Goe and Stickler (2008) emphasised the conclusion reached by many researchers that some teachers have a greater impact than others on their students' academic performance. They were quick to point out, however, that the researcher "has not been very successful at identifying the specific teacher qualifications, characteristics, and classroom practises that are most likely to improve student learning." This indicates that while there is little to no debate regarding the fact that the teacher is the single most important factor influencing a student's academic performance, little effort is put into determining the specific effects of the explanatory variables or markers of the teacher's effectiveness. These explanatory factors are teacher training, teacher traits, teacher classroom practises, and the performance of teachers.

The four categories of teacher quality indicators, according to Stickler (2008, p.2), who investigated "what makes a good teacher," were teacher qualifications, teacher traits, teacher practises, and teacher effectiveness. The four categories of teacher quality indicators were connected to specific definitions and examples of the indicators using what Goe called "lenses for examining teachers" as well. Goe noted, for instance, that the following constitute the elements of teacher qualifications: credentials, knowledge, and experiences that teachers bring to the classroom, such as course work, grades, subject-matter education, degrees, test scores, experience, certifications, and evidence of participation in ongoing learning (e.g., internships induction, supplemental training, and professional development). Goe added that among the qualities of a teacher are their dispositions and their capacity for action.

Goe (2007) also published some additional important findings about teacher qualifications that he noticed to be related to each teacher qualification variable, and they are as follows: (1) Subject-matter knowledge; he explained that the relationship between this teacher qualification variable and improved student achievement varies depending on the grade level. The association between younger students' achievement and their instructors' subject-area specialisation or content knowledge is relatively poor, in contrast to the greater correlations between secondary school student's achievement and their teachers' subject-area competence. (2) Comparing the number of wage incentives, the government provides to encourage teachers to pursue graduate degrees, Goe claimed that having a higher education was "counterintuitive."

For instance, in the Ghana Education Service, a master’s degree in a relevant field qualifies a teacher for promotion to the next higher grade in two years, as opposed to the four or more years required for a Ph.D. in the same field, which qualifies a teacher for promotion to the next higher grade in just one year. Goe (2007) cited several studies that demonstrated not only the lack of or

marginal benefit of Master's Degrees and beyond but also a potentially detrimental impact on their student's academic achievement (Clot felter, Ladd, and Vigetor, 2006; Monk, 1994; Rowan, Correnti, and Miller, 2002, P. 4); (3) Test results; (4) Undergraduate institution a teacher attends or the undergraduate university a teacher attends; (5) Certification; (6) Induction and mentoring; (7) Professional development; and (8) there is no proof that a teacher's prior education (undergraduate training) or academic aptitude affects their capacity to raise students' achievement (Harris and Sass, 2008). This viewpoint is very different from that of Goe (2007), who believed that education determines the relationship between greater subject-matter expertise and students' achievement. And that a deeper understanding of the subject matter was associated with higher academic accomplishment in secondary school children than in younger ones. Harris and Sass concurred with Goe's report, however, when they noted that while the majority of educationists and academics accept and concentrate on the need to improve teacher quality to boost students' academic achievement, there has been no consensus on it. In a similar vein to Goe (2007), Harris and Sass (2008) discovered that teacher experience affects students' academic achievement at all educational levels and that these effects fade over time.

Credentials, such as coursework and exam scores, are another crucial indicator or variable of teacher certification. A study on the effects of pre-service teacher preparation on students' academic achievement was published by Harris and Sass (2008, p.27). Their research revealed the effects of teachers with varied undergraduate majors, including various degrees in mathematics and English instruction. In middle school math, they showed that general education majors performed worse than non-math/non-education majors. They claimed, however, that English and language arts education majors were more productive than non-educational and non-

English majors. The qualifications, experience, and student-teacher ratio of teachers, according to Akinsolu (2010), have a substantial impact on pupils' academic achievement.

USAID Working Paper (2018) outlined the growing concern among governments around the world on the need to focus on the expansion of secondary education in their nations to equip students with the necessary knowledge and skills for national development. The research made evident the difference between a country's primary enrolment and secondary enrolment. For instance, Ghana's rates were 88 percent for primary education and 44 percent for secondary education in the World Bank Estimate of Selected Countries Primary and GER (Gross Enrolment) in 2005. The USAID report also highlighted the following: "As the government begins to seriously explore secondary growth, there will be a need to overcome the same restrictions faced in primary education, most prominently the lack of adequate space, resources, and teachers, while also taking into account the concerns with curricular relevance. While the literature expands on the issues of access, money, and curriculum, it does not properly discuss how to deal with the problem of finding enough teachers for secondary expansion. The most fundamental barrier to the extension of secondary education is not directly addressed in the literature:

"Will there be enough instructors, and if not, how will the educational systems deal with and support rising demand for secondary education?" (p.2).

Numerous other academics have looked into and provided reports on the impact of teachers' credentials and experience on pupils' academic achievement. In their study, Goldharder and Brewer (2000) discovered that teachers with standard certification performed significantly better on students' standardised tests than those with private certification or no certification. According to numerous previous research, instructor credentials significantly influence students'

performance (Abe, 2014; Rice, 2003). Since the ground breaking report by James Coleman in 1966, studies on the impact of teacher qualifications have been an ongoing topic. Coleman's research team came to the conclusion that the most crucial factor influencing a child's academic achievement was not the child's socioeconomic status after the results of his study on "equality of educational opportunity," now known as the Coleman Report, led his study team to the conclusion that the child's home or the family was the most significant predictor of a child's achievement in school, not the school facility or resources. Hanushek (2016) agreed with the Coleman Report when he stated that the Coleman Report's most significant contribution was its influence on how schools are evaluated in his article "what counts for student achievement: Updating Coleman on the influence of family and schools." Before Coleman, a school was judged on its "inputs," such as per-pupil spending, school size, curriculum, volumes of books per student in the library, and science lab facilities, among other factors. However, following Coleman, the evaluation of a good school shifted to its "outputs" or "outcomes," which include the amount of knowledge students in a school possess, the learning gains they each experience, the number of years graduates pursue further education, and their long-term employment and income prospects. If the inputs are used to produce the best outputs or outcomes, these measurements of a good school usually measure the internal and external efficiency of education.

2.8.6 THE INFLUENCE SCHOOL-BASED RESOURCES OR INPUTS HAVE ON STUDENTS' ACADEMIC PERFORMANCE

The research on the influence of resources or inputs provided by schools on students' academic achievement in senior high schools is reviewed in this part. The review focuses on teacher variables (teacher training and experience), school system factors (physical facilities like

classrooms and libraries, teaching/learning resources like textbooks and internet facilities), and student characteristics or factors (students' prior performance and attendance).

The Invitational Theory of Education can be used to examine school-based variables. It is a perspective on professional practise that takes into account the ideal setting and all the connections made in educational organisations. According to an inviting educational philosophy, everything and everyone in and around the school either contributes to or detracts from the process of being a helpful presence in the lives of people (students), depending on the messages they send to the students. The school environment is made up of five variables, according to Maaka and Likpa (1996). People, Places, Policies, Programmes, and Processes make up the school environment. They continued by saying that these school-related environmental aspects ought to be so welcoming as to foster an atmosphere in which every student is warmly encouraged to advance in their academic, social, physical, psychological, and spiritual growth. They also stated that invitational education offers doable solutions for creating the friendliest classroom environment possible. The idea aided in investigating how individuals (school personnel and students), places (the physical environment of the school), policies (rules and regulations), programmes (school curricula), and processes interact (Methods used to come up with a better school).

Studies investigating how teaching/learning resources affect students' academic achievement have been conducted in numerous ways. In some of these studies, teaching and learning resources were thought to include books from the library, textbooks, and the use of technology like websites and the internet (UNESCO, 2015). Geofrey and Judith (2017) looked into how teaching and learning resources affected secondary school student's academic achievement. They discovered that student performance was unaffected by earlier accomplishments (entrance

grades). Because they were not sufficiently supplied and made available, teaching and learning resources had little impact on student achievement. This study could not determine whether or not a lack of sufficient amounts was the likely cause of the lack of a meaningful impact from teaching/learning resources. The numerous elements influencing pupils' academic performance have been the subject of several pieces of research. According to Asamoah (2018)'s research on the causes of pupils' poor performance, school environmental problems such as a lack of adequate teaching and learning resources (core mathematics textbooks) were a key impact. In other words, if these resources had been effectively made available, student academic performance would have increased. Asamoah's perspective slightly differs from Hanushek's (2006) claim that resource policies in and of themselves or their availability do not considerably enhance students' academic achievement. Ashong (2010) said that the lackluster performance of rural senior high schools in the Ga-West District of Ghana could be attributed to a lack of educational resources such as classrooms, libraries, and other physical facilities.

Although Pitan & Susan (2012) and Graddy & Stevens (2005) disagreed on the magnitude of the association between school inputs and academic success, they did agree that there is one. There is no statistically significant link between resource endowment and academic achievement, claim the Coleman Committee Report and Hanushek (E. A. Hanushek, 2020). This opinion seems to be supported by the rankings created by the Ghanaian government.

Ashong, however, could not demonstrate whether or not these facilities had a statistically significant impact. In their respective studies, Asamoah (2018) and Biney (2018) both noted that students' traits like tardiness and absenteeism, poor intrinsic motivation for learning in the classroom, and poor attitude toward studies lead to low interest in a subject, low self-esteem, and poor attitude toward studies. Biney went on to say that elements associated with the teachers,

such as their training, experience, and ability to teach using the right methods successfully, have a big impact on how well their pupils achieve academically. Buhari and Abra (2017) analysed senior high schools in public and private sectors about variables influencing students' academic achievement. They discovered that public senior high schools outperformed their private counterparts because they had more qualified, experienced, and motivated teachers. On the other hand, Sabitu, Babatunde, and Oluwole (2012) discovered variances in the senior secondary facilities between public and private schools but could not link these changes to variations in academic achievement.

The academic performance of students was statistically significantly predicted by gender, parental educational attainment, housing type, ethnicity, age, and unexplained absences from school (truancy), according to Considine and Zapala (2002). Unaccounted for absences have been linked to poor academic achievement, according to Sparkes (1999, as reported in Considine & Zapala, 2002, p. 133). Other research has discovered that parental participation and education are important explanatory factors for students' academic performance (Amponsah etal., 2018).

In his thesis abstract, Olafunmilayo (2012) found that the following integrated factors—teachers, societal, economic, governmental, parental, peer group, and individual students factors—positively impacted students' academic achievement in the order of magnitudes. According to the earlier conclusion of Olufunmilayo's research, individual traits may not have a significant impact on a student's performance provided all other stakeholders carry out their responsibilities correctly and efficiently. However, Owude et al. (2015) found that "student-related characteristics that influence students' academic achievement are low family poverty, weak entry behaviour, and student absenteeism." They clarified how the student-related variables adversely

impacted pupils' performance. The study concludes that increased student attendance rates will have a favourable impact on academic success, just as high entry behaviour will.

According to certain research, students' academic achievement is positively correlated with a school's location (rural, peri-urban, or urban). For instance, Opoku- Asare and Siaw (2015) discovered that senior high schools in urban areas outperformed those in peri-urban and rural areas. They proposed that the performance gap resulted from variations in the calibre of students admitted into the schools, the calibre of the teachers, and the endowment in terms of infrastructure. The inequalities accounted for why the current study aims to utilise a combined strategy that compares each school's internal efficiency to the weighted average student scores to measure school success rather than only the performance of students at WASSCE. By comparing the mean scores of the schools in the senior secondary school certificate test, Adepoju & Oluchukwu (2011) discovered that there was a significant gap between the academic performance of pupils in urban and rural schools.

According to Farook et al. (2011), socioeconomic status and parents' educational attainment have a considerable impact on student's academic achievement. The researchers agreed that a variety of factors affect how well adolescents perform academically, but they chose to focus on the effects of socioeconomic status, parents' educational attainment, and students' gender. The current study, however, focused on three key elements that influence pupils' academic success. That is related to teachers (variables like teacher training and experience), school systems (factors like teaching and learning materials), and other factors (Examples include students' BECE past performance and their attendance in class).

Mushtaq and Khan (2012) discovered that while family stress hurt academic achievement, student communication skills, learning environments, and proper mentoring had favourable

effects. It was not made clear, nevertheless, whether or not these associations were statistically significant.

Oguntuase, Awe, and Ajayi (2013) discovered a negative correlation between students' academic performance and the availability of physical resources such as laboratories and instructional materials (P. 6). The researchers did not make it obvious, nevertheless, whether the facilities and reaching/learning materials were sufficient and had little to no impact. They only stated that the resources contributed 2.4% of academic success, yet they nevertheless advocated for additional funding. However, Bukari & Abra (2017) asserted that schools with better facilities outperformed those with subpar or insufficient physical and instructional resources. The question of whether the schools with superior results meant that these resources had a statistically meaningful impact on kids' academic achievement was left out by Bakari and Abra.

Concerns concerning pupils' subpar performance in the West African Secondary School Certificate Examination (WASSCE), which is administered by the West African Examination Council, have also grown (WAEC). Many people have attempted to place the growing underperformance of students on the shoulders of various societal groups. The West African Secondary School Certificate Examination (WASSCE) performance of students is calculated by WAEC using percentages. The use of percentages to gauge academic performance, however, has been criticised for several drawbacks. First, the use of percentage ranking does not provide a fair representation of the performance of schools in that I the performance of a student who received six passes is equated to a student who received eight passes, which is unfair; and (ii) the grades A, B, C, D, and E, are all combined and interpreted to be the same. Second, the percentage of pupils does not account for how many students are present for the exam. The overall contribution of the schools to the development of human capital is not considered by this metric, however,

School B generated 488 pupils who earned School A contributed 381, whereas School B contributes six to eight passes and may have contributed more to human growth, making School A the superior school. (Amakyi, 2017, p 184; 185).

We may compare the top-performing school in Ghana's Northern Region to the national average by using the 2017 West African Secondary School Certificate Examination (WASSCE) results to identify the top senior high schools.

68.38 percent on average at Ghana Senior High School

Baptist Boys of Accra 82.22%

Area in Ashanti 92.52%

The junior seminary at St. Francis Xavier scored 94.19 percent.

Notre Dame Seminary Senior U/E/R: 81.29 %

B/A Region James Seminary Senior High School 99.22 percent

Wesley Senior High School for Girls in the Central Region 90.00 percent

Girls Senior High School at W/R Archbishop Porter

· V/R Prestigious Herman Senior High School 65.02%

· E/R St Peters Senior High School 87.45%.

The average performance of the best performing schools in nine regions apart from the Northern Region.

= 85.66%

The average pass rate of the nine -performing Schools in Ghana was 85.66%, while the best performing School in the Northern Region was 68.38% in 2017. The difference between 85.66% and 68.38 is significant.

Amakyi (2017) believed that this was an insufficient depiction of pupils' academic performance in the classroom. As a result, he recommended using "weighted averages". However, even using the weighted average does not fully account for all the so-called performance-related elements, including student characteristics, school-related variables, and instructor characteristics (Wanjiku, 2009).

Advocates for using external exams like WASSCE to create the league table contend that; first, league tables are used by political authorities to hold schools and teachers accountable, raising the bar; and second, league tables also provide parents with information on how the schools their children are interested in attending are doing. The opposition claims, however, that the league tables' primary concentration on academic achievement prevents them from providing a comprehensive picture of all that occurs in each school. Second, league tables do not demonstrate whether a school's ethos is appropriate for each child, nor do they demonstrate whether a child is secure and content. The third justification for not utilising league tables is because they influence education due to the pressure to perform, they could give up their morals

and start teaching simply to test. The fourth argument against league tables is that schools at the bottom are labelled as "poor performing" and "needing improvement," which could cause the schools to experience stigmatisation because of the negative designations (Thompson, 2017). Finally, the fifth restriction—and according to the researcher, the strongest reason against it—is that the league table's calculation of the instrument used to measure schools' performance does not account for resource discrepancies among the various schools. It doesn't consider the variations in the accessibility and expertise of teachers; it also does not consider variations in student characteristics. Finally, it does not account for variations in the accessibility of school infrastructure, plant, and equipment.

The persistently poor academic performance of students in public secondary schools, according to Olufunmilayo (2012), "can be regarded as a serious social problem because numerous scholars, stakeholders in education, school administrators, and public commentators have concluded that students' academic performance in public secondary schools falls short of the defined standard." In Ghana right now, the situation is identical to the one described above. In response, educational officials created a league table for all senior high schools based on their results in the West African Secondary School Certificate Examination (WASSCE) for a specific year. The rankings of the nation's major regions are also based on these results. For the past few years, the Northern Region has held down the tenth-place position. For instance, the Northern (Northern, North East, and Savanna) areas were 10th for the past three years with the following quality passes (A1 – C6): 2016 (6.8%), 2017 (5.0%), and 2018. (4.2 percent). In the 2018 WASSCE, students' overall performance was 23.8 percent. Accordingly, out of every 100 students who took the WASSCE in 2018, 24 pupils earned quality passes (A1–C6) in six disciplines, comprising four core subjects and two electives. Additionally, just 24 out of every

100 students would be able to continue university studies in 2018. There is benefit in determining whether According to Olafunmilayo (2012), this kind of performance merits discussion from academics, stakeholders, school officials, and members of the public.

According to Ajila and Olutola (2002, as cited in Olafunmilayo, 2012, P. 152), the causes and solutions of poor student performance in WASSCE from 1986 to the present were "attributed to teachers, inadequate facilities in schools, students-parental causal influence, and government policies and funding of education."

It was noted that the integrated elements that have an impact on any entity, such as a particular student, are referred to as being both internal and external. For instance, the environment is thought of as a system that absorbs and distributes materials that have varied effects on the individual entities in it. Additionally, it was noted that the interrelationship between the environment and students concerning students' academic performance then serves as an indicator of the degree to which students can navigate the difficult impacts of the home, institutional, government, and peer group among others, which form the perceived integrated socio-economic, political, and institutional elements that could have a significant impact on the student's academic performance (Olafunmilayo, 2012).

Every year, chief examiners of the many topics that students take for the West African Senior School Certificate Examination (WASSCE) provide a report on the candidates' relative performance as compared to previous years. For instance, the Chief Examiners noted in 2014 that "performance was said to have slightly improved in Social studies 2, Music 3A and Music 3B, while the Chief Examiners for Islamic Studies 2, Christian Religious 2, Geography 2, Geography 3, History 2, and Economics 2 all reported that candidates' performance was better than the previous years." While poor performance in Social Studies 2 and Music 2 was indicated

in the 2016 Chief Examiners report. This suggests that a senior high school's success might be constrained. This means that a senior high school's performance may be limited to or defined by how well its pupils perform on the West African Senior School Certificate Examination (WASSCE). The school will be considered successful if pupils score well in three of their main topics as well as at least six other disciplines ranging from A1 to C6.

Regarding the information requirements of principals or headmasters, Villanueva (2003) stated that to understand the dimensions and grade levels at which the school is advancing with comparable schools and all schools in the school district (p.14). The relative performance, he continued, is the most important yardstick for comparison to be aware of the school's size and the grade levels at which it is progressing in comparison to other schools in the district and similar schools (p.14). The relative achievement of his or her school in contrast to other schools, he continued, is the most important benchmark.

(Savasci & Tomul, 2013) assert that comparing a school's mean scores on the precise parameters to those of other comparable schools in the same school district or elsewhere can be used to create a relative measure of performance. 'Similar schools,' according to Villanueva, are those that "serve pupils from the same kind of socioeconomic background, have the same standard of staff and equipment, and teach the same curriculum" (p.15). It suggests that pupils' academic performance in urban and rural schools should be compared. Some Northern schools were designated as Secondary Education Improvement Project (SEIP) schools by the Ministry of Education because they were underfunded or underperforming. Other institutions are categorised as Non-Secondary Education Improvement Project (SEIP) schools, in contrast. The numerous variables that affect performance or wastage in senior high schools in the Northern Region of

Ghana could be compared between these schools. Additionally, there might be comparisons between rural or only-in-ban schools.

Table 1 displays student achievement in the Northern Region's Senior High School during the West African Secondary School Certificate Examination (WASSCE) from 2014 to 2018.

PASS RATE BY YEAR

2014 was 4.6%

4.3 percent in 2015

7.9 percent in 2016

4.9 percent in 2017

2018 was 3.8%

This contrasts with the 25 percent annual national average.

Bramley (1995) divided school performance indicators into three categories: compliance monitoring models, diagnostic monitoring models, and school evaluation models. Compliance monitoring models help determine whether schools are operating in accordance with some predetermined, externally exposed standards, placing an emphasis on "inputs" (i.e., resources available) rather than performance; diagnostic monitoring models, on the other hand, are more concerned with student improvement and primarily rely on criterion-referenced pre- and post-testing patterns. Additionally, they are most formative and concentrate on how identified student

needs are being met; performance monitoring models, which primarily concentrate on non-referenced achievement exams often given in the fourth, eighth, and tenth grades. They are summative and made to make it possible to compare schools and districts both now and over time.

Following Bramley's (1995:6) argument, society has given schools a wide range of obligations. In light of the ambiguous nature of the following, any "construct of efficacy or performance" must take all of them into account: “the passing down to the next generation of the knowledge, abilities, and comprehension that are necessary for each child's integration into society as an adult citizen to ensure that each child can participate and contribute completely to society, it is important to encourage self-control, self-esteem, and confidence in them. Growth of each child's intellect, feelings, morals, aesthetic sense, and body. To provide each youngster with concepts and opportunities that might not be present in their surrounding area.

Numerous research has been done on the influence of educational system elements like physical buildings (classrooms, libraries, and science labs), instructional materials, and more (textbooks, websites, internet, climate of the school, and discipline). In a survey, Stanley (2014) discovered that more than 70% of participants agreed that children's academic performance was positively impacted by school punishment. Physical amenities and students' academic achievement are significantly correlated, according to Akomolafe & Adesua (2016) and Asano et al (2021). According to Asano et al. (2021), using and providing high-quality teaching and learning resources in conjunction with an effective teaching strategy had a favourable impact on learning results Academic performance and student indiscipline have a negative correlation.

Numerous research has been done to determine how the environment or educational system affects senior high school student's academic performance. Teaching and learning resources like

textbooks, physical facilities like classrooms, libraries, science labs, restrooms, and school atmosphere elements like leadership and discipline are all part of the school system or environment.

The following were listed as school environmental elements by Osehimese, Omoike, and Andrew (2016, abstract): classroom, school location, school facilities, climate, and use of technology. The environment has a significant impact on everyone's life, whether they are a teacher or a student, an employer, or an employee, according to Chkwemeka (2013). Environmental perceptions reveal how students interpret and provide meaning to their school, classroom, and teacher experiences, which has an impact motivation of students (Ames, 1992; Siegle & McCoach, 2001). Environmental elements that are impacted by the instructor and have an impact on students' ability to succeed include academic assignments, classroom activities, teacher evaluations, authority distribution, and teacher-assigned obligations (Ames, 1992, Boren, Callahan, & Peugh, 2010, as cited in Morales, 2014, p.43).

2.9. THEORITICAL FRAMEWORK

This essay is grounded in Njoroge et al. production theory (2014). According to the production theory, a corporation behaves as an open system that decides what resources and quantities to use to generate certain amounts. The three components of the production model are the inputs, the processing, and the outputs that are created when the inputs are moulded. Both external elements existing in the environment where the inputs are derived, and internal ones present within the company during processing have an impact on the process of transforming the inputs into the desired output. The firm's outputs would be 100% if all other variables were maintained constant; all inputs would be transformed into the required products. However, because of

outside causes where inputs were during processing, depending on the strength of the external and internal elements, the number of outputs will decrease below 100%. Like a company, a school is an open system. Students are the inputs. It is necessary to transform the pupils for them to generate outputs; this process includes mentoring, modelling, coaching, and teaching.

The number of students that successfully finish their coursework, perform well, and boost transitional rates to the following level is examples of outputs. Several factors influence how inputs are converted into outputs, which leads to internal inefficiencies in terms of suspension, repetition, and dropout (Njoroge et al., 2014).

The theory of Education Production Function serves as the theoretical foundation for this study (EPF). The general production function theory, which describes how a firm's inputs and outputs are related, is where the EPF theory gets its name. According to the EPF hypothesis, numerous inputs put into the educational process determine the educational outcome (WASSCE results). The inputs include the number and calibre of teachers hired into the educational system, the availability of financial and material resources, such as the cost per student and teaching and learning materials, such as textbooks, and the innate abilities of students and their commitment to studies, as shown by their demographic traits, socioeconomic backgrounds, prior performance, and attendance rates. Akinsolu p. 41 cites several academics who employed this theory of education production function, including Ezekwesili (2006; Winkler and Sondagard 2008; Agbola and Adeyemi 2012; Durosaro 2012; Hanushek & Rivkin, 2010), who accepted the education production function from the Coleman report 1966, approved this approach and Wambui (2012) also embraced it. p 10.

According to the notion of the "Education Production Function," variations in students' academic achievement are caused by the calibre and quantity of educational inputs used throughout the teaching process. Wanjiku, November 2009, p. The EPF is stated mathematically as follows:

St= f (T, B, E,)

Where

St represents student progress at time t.

T = Experience and credentials of teachers

B= Textbooks, educational materials, and other learning materials

E = Attendance rates and BECE admission grades for the student.

Sf= St (WA)*Ce while

Where:

Sf = General academic performance

St stands for pupils' school performance.

Weighted Averages, or WA,

Ce is the efficiency coefficient.

The study suggests using the Weighted Average Scores-Coefficient of Efficiency Approach to measure school performance as a better and more comprehensive measure of whole school performance, rather than focusing on individual performance, to connect the theory to the study. The researcher points out that relying solely on the WASSCE results displayed in the current league table, whether calculated by the West African Examination Council (WAEC) using percentages of students' raw scores or by Amakyi (August 2017) using weighted averages, should be viewed as a necessary but insufficient condition for determining whole school performance. The Weighted Averages - Internal Efficiency Approach analyses how well schools

perform about the impact of school inputs on their outputs. Compared to how the league table analyses school achievement, the model the study suggests is more equal in evaluating school success. The league table does not account for resource differences among the different schools as does the weighted averages-internal efficiency approach.

2.9.2. CONCEPTUAL FRAMEWORK

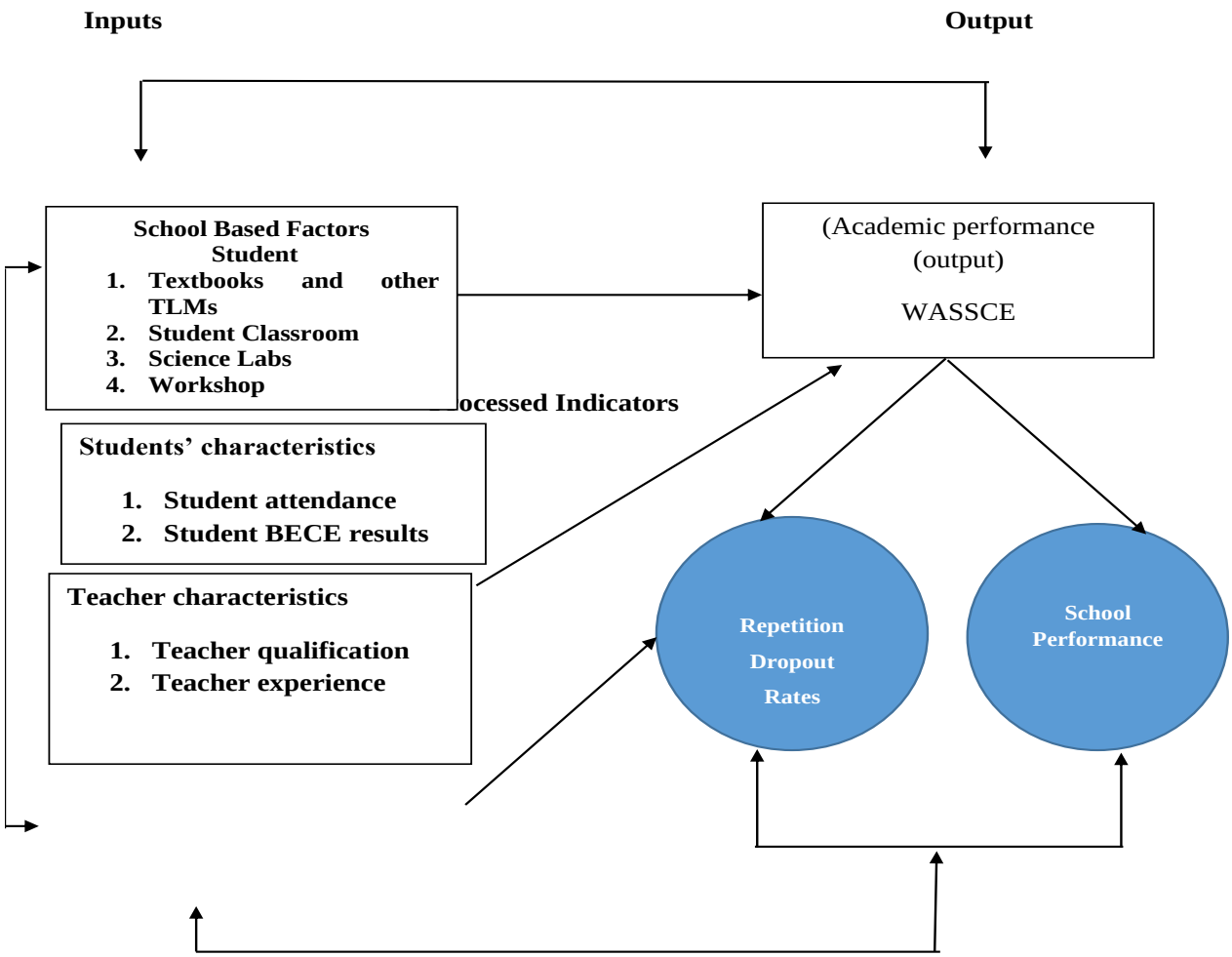
The theoretical framework, which is far larger than the conceptual framework, includes it. The paradigm of the research is another name for the conceptual framework. This is demonstrated in figure 1 below, where school inputs are shown as independent variables and academic success, or output is shown as a dependent variable. Both of these variables are related to the processed inputs, such as; repetition rate, dropout rate, and completion rate all of have an impact on how well schools perform. To quantify the impact of processed inputs on both student performance in the classroom and school performance as a whole, this study proposes to multiply the coefficient of efficiency by the results of the weighted averages. The reason the study thinks this is significant is that it seems that using students' academic performance alone, regardless of how it is calculated (percentages based on raw scores or weighted averages), only sums up individual student performances to compare with other individual performances in other schools, without considering the influence of the school system. It is for this reason that the study recommends using the internal efficiency-weighted averages technique, which mixes weighted averages with effects to be more inclusive of the processed inputs.

In other words, since education is a service, the idea of academic achievement (output) in education is considered a product. Additionally, the industry model used in education means that inputs are processed to produce output in the production function. Figure 1 depicts this using Ezekwesili's conceptual framework: In contrast to the student's academic performance (output),

which is the dependent variable, the independent variables are the teachers' qualities, the school's characteristics (textbooks and other material resources), and the characteristics of the students. A conceptual framework, according to Swaen (2020), demonstrates the correlation or cause-and-effect relationship between variables. Additionally, "a box" depicts the independent and dependent variables, while "a line" depicts the correlation between them.

The relationship between them is depicted by "an arrow." The arrow, according to Swaen, begins at the independent variable(s) and moves toward the dependent variable. The paradigm that the researcher uses in this study demonstrates how the numerous school inputs are processed to produce the outcome. The researcher, therefore, places more emphasis on the second component and uses the Ezekwesili Conceptual Framework Diagram, as shown in figure 1. In this diagram, the independent variables (teacher factors, school characteristics, and student characteristics) are taken through processed inputs (promotion, repetition, dropout rates), which help to assess the internal efficiency of the process rather than simply relating to the dependent variable (academic performance). Various conceptual frameworks include taxonomy, visual representation, and mathematics.

Emans' description of the phenomenon (1971). A mathematical representation is used in a larger framework known as the theoretical framework to illustrate the relationship between school inputs and the academic performance (output) of students in public senior high schools in the Northern Region of Ghana. The researcher uses all three at different stages of the development of the conceptual framework. Taxonomy and visual representation are used to illustrate the conceptual framework itself.



Adapted Ezekwesili's conceptual framework diagram

CHAPTER THREE

METHODOLOGY

The research design, population, sampling strategy, data collection instruments, data collection procedures, pilot testing, data analysis strategy, and ethical considerations are all covered in this chapter.

3.1 RESEARCH DESIGN

Descriptive and correlational designs were used in the study. Simple descriptions of the desirable traits of the sample under research are made possible by descriptive study designs. Similar to a cross-sectional survey, a descriptive study may also attempt to extrapolate the results from a representative sample to a wider target population. The only thing all descriptive study designs have in common is that there is only one sample and no control group (Omair, 2015).

Although some qualitative approaches were used to analyse the opinions on the effects of school inputs on students' academic achievement, a quantitative research methodology was predominantly employed. Quantitative research produces results about the population that are statistically significant by analysing a representative sample of the population (Lowhorn, 2007). An objective measure is applied to numerical data using the quantitative approach to demonstrate the links between school-based resources or inputs and students' academic performance (Asamoah, 2014). Descriptive statistics like means, percentages, and weighted averages were computed. According to (Hidyat, 2015), descriptive research entails the identification of characteristics of a specific event such as the impacts of school inputs on students' academic achievement in this study. The goal of the descriptive research design was to characterise, compare, categorise, analyse, and interpret the data regarding internal efficiency and weighted average scores. For the researcher to determine the coefficient of efficiency, the study gathered

information on enrolment, repeaters, dropouts, and transferred students. The correlational design, in contrast, involved applying multiple linear regression to analyse the survey data.

3.2 THE POPULATION

In academic research, the target population may be seen as the group of individuals or objects that the researcher is interested in studying and it may vary depending on the type of research being conducted. The target population helps the researcher to determine the appropriate sampling method, the size of the sample needed, the methods of data collection and analysis that will be effective in the addressing the research questions. For this study "Examining the Defects of West African Secondary School Certificate Examination League Table Grading System: The Relationship Between School Inputs and Output in Public Senior High Schools in The Northern Region of Ghana", the researcher target population is the SHS in Northern Region. The reason why the researcher is using The Northern Region of Ghana is that, the region is known to have the lowest levels of educational attainment and quality in the country. According to UNESCO (2012; 2015), the Northern region has one of the lowest literacy rates in Ghana, with a literacy rate of only 31.4% compared to the national average of 62%. The region also faces unique challenges such as inadequate infrastructure, inadequate qualified teachers, and poverty among others. These challenges can negatively impact students' academic performance and contribute to poor school outcomes. Therefore, by targeting the schools in the Northern Region will enable policymakers to provide the needed support and resources to address these challenges and improve academic performance as well as educational quality.

The target population consists of every student enrolled in one of Ghana's 29 public senior high schools in the Northern Region. Headmasters, the headmistress, faculty, teachers and students make up the target population. Students and teachers from public senior high schools in the

Northern Region participated in this study. The performance of students of Senior High School in the Northern Region in the West African Secondary School Certificate Examination (WASSCE) from 2014 – 2018 is presented in table 1 in chapter one shows that Northern region schools perform poorly in spite of the support they receive from government in terms free boarding grants, even before the introduction of the free senior high school policy. The foregoing explains why the Northern was purposively selected for this study. 850 teachers and 7799 students made up the entire population. The study approach and/or design are often thought to influence an acceptable sample. The goal of the study, the size of the population, and the degree of precision anticipated from the study all influence the optimal or suitable sample size, according to other researchers (health & 2008, 2008; Omair, 2015; Stehman, 2012).

The summary of the population of Headmasters and Headmistress, Teachers, and Students are as follows:

· Number of Public Senior High Schools in the Northern Region= 29

· Number of Headmasters and Headmistresses =29

· Number of Teachers = 850

· Number of Students = 7799

Source- Regional Education Office (Northern Region).

3.2.1 Sample Size (n) Calculation

$$n = N \times \frac{\frac{z^2 \times p \times (1-p)}{e^2}}{\frac{[N-1+Z^2 \times P \times (1-P)}{e^2}}$$

Where:

N = sample size

Z = Z-score, Critical Value = 1.96

P = Standard Deviation = 0.5

e = margin of error = 0.05

Ns = Population of Students = 7799

3.2.2 Sample Size of Students

$$N = \frac{(1.96)2 \times 0.5 \times 0.5 \times 7799}{(0.05)2}$$

$$7799 - 1 + \frac{1.96 \times 0.5 \times 0.5}{(0.05)2}$$

$$= \frac{7799 \times 384.16}{7799 - 1 + 384.16}$$

$$= \frac{7799 \times 384.16}{7798} = 7799 \times 0.04695 = 384.16$$

$$= 7799 \times 0.04695 = 366$$

3.2.3 Sample Size of Teachers

$$N = 850 \times \frac{384.16}{850 - 1 + 384.16}$$

$$= \frac{850 \times 384.16}{849 + 384.16}$$

$$= \frac{850 \times 384.16}{1{,}233.16}$$

$$= 850 \times 0.31152$$

$$= 264.79 = 265$$

Note: Teacher population is 840 plus 10 Heads of Schools

Selected:

Table 1: Sample Size of Students and Teachers in the Selected Public Senior High Schools

S/N	NAME OF SCHOOL	STUDENTS			TEACHERS		
			%	Sample		%	Sample
1	Dagbon State STHS (NS1)	889	11.39	41	85	10.00	27
2	Ghana SHS (NS2)	1,311	16.80	61	108	12.71	34
3	Saint Charles (NS3)	142	1.82	7	51	6.00	16
4	Pong-Tamale SHS (S7)	1,278	16.38	60	116	13.65	36
5	KUMBUNGU SHS (S8)	1,530	19.61	72	138	16.24	43
6	Gushiegu SHS (S9)	968	12.41	45	93	10.94	29
7	E/P Saboba SHS (NS4)	345	4.42	16	49	5.76	15
8	Karaga SHS (S10)	365	4.68	17	69	8.12	22
9	Tamale Girls SHS (NS5)	470	6.26	23	82	9.65	26
10	Presbyterian SHS (NS6)	501	6.42	24	59	6.94	18
11	Total	7799	100.10	366	850	100	265

The study's sample size is displayed in Table 1. It demonstrates that there were 850 teachers and 7799 students overall in the ten senior high schools. Table 1 displays the sample sizes that the researcher determined to be 265 for teachers and 366 for students, respectively. Table 1 further shows that the sample size for each chosen school was appropriate for its enrolment. While S stands for SEIP School, NS stands for non-SEIP School. According to Table 1, there were four SEIP schools and six non-SEIP schools.

3.3 SAMPLE SIZE DETERMINATION

The Sample for the study was 10 out of 29 Public Senior High Schools, which constituted 34% of the population. A sample must be representative enough, according to (health & 2008, 2008). The number required for data analysis should also be considered when determining sample size. Any sample size will do if descriptive statistics, like means and frequencies, are to be employed. On the other hand, multiple regression requires a good size sample, such as 200–500 (health & 2008, 2008; Naing, 2003; Simeon & Nana, 2020). How representative the population of interest sample will depend on the sampling method used. A representative sample not only reflects the demographics of the population, such as age, socioeconomic status, education, gender, and marital status but also ensures that each person has a statistically equal probability of being chosen (Bird, 2009).

3.4 SAMPLING PROCEDURE

Sampling procedure is a process of selecting a subset of individuals or items from a larger population to make inferences about the characteristics of the population. This is done in research, where it may be impractical or impossible to collect data from every member of a population of interest, therefore, a representative subset or sample is chosen instead (Creswell, 2014). The researcher used different types of sampling procedures which included:

Purposive sampling involves selecting samples based on some specific purpose or criteria. In purposive sampling, the researcher selects a sample that is specifically chosen to meet the research objectives (Creswell, 2014; Sharma, 2016; Lohr, 2019). The purposive sampling was use to select Headmasters / Headmistresses from a population of 29 to get a sample of 10 Headmasters / Headmistresses for the study. The researcher solicited information from Headmaster's/Headmistresses/ of Public Senior High Schools in the Northern Region of Ghana

on the defects of WASSCE System: An examination of inputs and academic performance in senior high schools in the northern region which included on number of teachers, Sex and qualification of teachers; WASSCE results of students; BECE results, enrolment, repetition, transfer, death of students, school infrastructure and among others.

Purposive sampling was employed to include Headmasters and Headmistresses in the sample while multi-stage sampling was utilised to choose the schools, students, and teachers. Secondary education improvement project (SEIP) schools were used as a stand-in for rural schools in the study, and non-secondary education improvement projects (Non-SEIP schools) were used as a stand-in for urban schools.

The number of students and teachers in each school is shown in Table 1.

3.4.1 Stage 1

The researcher divided the 29 Public Senior High Schools into Secondary Education Improvement Project (SEIP) schools and Non-SEIP schools to use the cluster method. Using the lottery method, simple random sampling was used to select the schools under study. Therefore, there were 19 Non-SEIP schools and 10 SEIP schools in the Northern Region of Ghana. 35 per cent of SEIP schools (i.e., 0.35 X 10 = 3.5=4), and 33 per cent of Non SEIP schools (i.e., 0.33 X1 9 =6.27=6) and that was four and six schools SEIP and non SEIP schools respectively. Simple random sampling allows the sampling units to have an equal chance of being selected and the units are independent of each other (Cresswell, 2012). Additionally, a simple random sampling technique is also appropriate as the study population in this research is similar in characteristics of interest (Asamoah, 2018).

3.4.2 SAMPLING OF TEACHERS

Systematic random sampling involves selecting participants at regular intervals from a randomly selected starting point. In systematic random sampling, the population is first listed and a starting point is selected at random, after which every nth individual is selected to be included in the sample. The suitable data collection method for systematic random sampling is through the use of a systematic selection method, such as selecting every nth individual from a list or using a random starting point to select individuals from a population (Creswell, 2014; Sharma, 2016; Lohr, 2019). The researcher used this sampling technique to select teachers from a population of 840 to the sample of 265 teachers for the study. The data that the researcher took from teachers included their Sex, students behaviours towards teaching and learning, students' performance in class exercises, tests, quizzes, assignments and terminal / semester examinations, factors that affect academic performance, how to improve academic performance and among others.

The total number of teachers (850) in all the senior high schools (29) attendance records in the Northern Region served as the sampling frame for instructors. But because the study was conducted in schools, a population sample size of 265 was determined. Each school's teacher population was then estimated as a percentage of the overall population after collecting the sample size for the entire northern region. The quantity was then stratified into male and female students for each school. The number of teachers in the school was then chosen using staff registration and the systematic random sampling approach. The equiprobability method was applied, beginning with the second male instructor, and continuing every tenth person until the desired percentage of male teachers was reached. The same procedure was used to count the number of female teachers until the total was known for that school. Using the list, the Assistant

Headmaster next gave the questionnaire to the chosen teachers. This made up 19% of the target population because Gay (1992, as referenced in Wambui, 2014) advised using a minimum sample size of 10% when doing survey research on a sizable community.

3.4.3 SAMPLING OF STUDENTS

Stratified sampling is a statistical sampling technique used in academic studies to ensure that a representative sample of a population is selected for study. In stratified sampling, the population is first divided into subgroups called strata based on a specific characteristic such as age, gender, education level, geographic location among others. Random sample is taken from each stratum in proportion to its size in the overall population to ensure that the sample accurately represents the characteristics of the population as a whole. This ensures that the sample accurately reflects the diversity of the population and helps to reduce sampling bias. Stratified sampling may help increase the precision and accuracy of a study, and also make it easier to generalize the results to the larger population. The goal of stratified sampling is to reduce sampling error and improve the precision of the results (Creswell, 2014; Sharma, 2016; Lohr, 2019). Based on the above reasons, the researcher used stratified sampling technique to sample a population of 7799 students in ten (10) Public SHSs using the Form two (SHS 2) students. The students were divided into ten (10) strata and random sample was taken from each stratum in proportion to the number of students in each school to give a sample size of 366 students. The SHS 2 students were chosen for the study as a result of the COVID-19 pandemic. Due to the difficulties of the COVID-19 pandemic, the Government mandated that only SHS2 students should be in school from October 5, 2020, to December 2020, when schools close until the following year, and this made up the sampling frame of the students. The signed list of all SHS2 students who were present in school from October to December 2020 made up the sampling frame of the students. The 366 pupils thus

represented 5% of the SHS2 students for the 10 chosen Public Senior High Schools. The data that the researcher took from students included their Sex, how they perceived academic performance in school, factors that affect academic performance, how to improve academic performance and among others.

3.4.4 Stage 3

Cluster sampling involves dividing the population into clusters and then selecting a sample of clusters to represent the population. The suitable data collection method for cluster sampling is through the use of a cluster random sampling technique where clusters are randomly selected and all individuals in the selected cluster are included in the sample (Creswell, 2014; Sharma, 2016; Lohr, 2019). The researcher used cluster sampling to select SEIP and Non SEIP Schools from a population of 29 schools to get the sample of 10 schools for the study.

The enrolment of each school to the overall enrolment of the sampled schools is based on the proportions of students and teachers that were used in each school, as shown in table 2, after using cluster sampling to select the senior high schools based on whether they were SEIP or Non-SEIP schools. To identify the students who should be included in the survey, the corresponding percentage was multiplied by the school's enrolment. The students were then stratified into groups of boys and girls based on their relative proportions, and the Assistant Headmasters randomly chose some of them to fill out the questionnaire. For schools with smaller enrolments (200 to 500 students), systematic random sampling was used, starting with every second name, and continuing from every tenth name and 20th name for institutions with a higher student body (500 to 1500).

Table 2: Sample Size and Sampling Technique

Category	Population	Sample	Percentage	Sampling Technique
SEIP and Non SEIP Schools	29	10	35	Cluster Sampling
SEIP Schools	10	4	35	Simple random
Non SEIP	19	6	35	Simple random
Headmaster/Headmistress	29	10	35	Purposive Sampling
Teachers	840	265	32	Systematic random sampling
Students	7799	366	6	Stratified

Table 2 shows the multistage sampling technique that was adopted by the study. It shows the sample sizes for the sampled schools in terms of SEIP and Non SEIP/ while four SEIP schools were sampled, six Non SEIP schools were selected. The table also shows the sample sizes of the participants-teachers and students. Whereas 265 teachers were selected, 366 students were sampled for the study.

$$n = N \times \frac{\frac{z^2 \times p \times (1-p)}{e^2}}{\frac{[N-1+Z^2 \times P \times (1-P)}{e^2}}$$

Where:

n= sample size

N= Population size=29 for schools and school Heads

Z= Critical value at 95%confidence level=1.96

P= Sample proportion, which is assumed to be 5%=0.05

E= Margin of Error (e) =5%=0.05

3.5.0 DATA COLLECTION PROCEDURE

Data collection procedure refers to the methods and techniques used to gather data for a research study and analysis. The researcher used various types of data collection procedures, including: **Questionnaires** – the most common method of data collection, which involve asking participants to respond to a set of questions about a specific topic or issue which can be administered online, or in-person (Creswell, 2014; Sharma, 2016; Lohr, 2019). The questionnaires the researcher used to gather information on academic performance from Headmasters / Headmistresses, Teachers and Students (participants) for the study were:

Structured Questionnaires: These questionnaires have a fixed set of questions that are asked in a specific order. The questions were often closed-ended and asked participants to choose from a set of predetermined response options of academic performance.

Unstructured Questionnaires: These questionnaires have open-ended questions that allow participants to answer in their own words. This type of questionnaire was often used when the researcher wanted to gather in-depth information about academic performance.

Semi-Structured Questionnaires: These questionnaires have a combination of structured and unstructured questions. The researcher used this type of questionnaire to provide a balance

between the standardization of structured questionnaires and the flexibility of unstructured questionnaires.

Likert Scale Questionnaires: These questionnaires ask participants to rate their level of agreement or disagreement with a statement using a 5-point scale on academic performance.

Interviews: These involve asking participants a series of questions to gather information on a specific topic (Creswell, 2014; Sharma, 2016; Lohr, 2019). The researcher conducted in-person interviews to participants to get more information on academic performance.

Secondary data analysis: Secondary data analysis involves using existing data sources, such as government statistics, research reports, or organizational data, to answer research questions (Creswell, 2014; Sharma, 2016; Lohr, 2019). The researcher took some secondary data analysis from Schools, Education Directorates and other organizations on academic performance.

The Assistant Headmasters were given the task of assisting the researcher in gathering information from the schools after the researcher physically visited the schools to set up an appointment with the Headmasters and Headmistresses. For teachers to answer, 265 questionnaires on the effects of school inputs and their perceived association with student academic attainment were delivered to the schools. Using questionnaires (five-point Likert scale and a few open-ended questions) for Headmasters or Headmistresses, Teachers, and Students of Public Senior High Schools sampled, the Primary data was collected. The secondary data was also collected from school records on enrolment, transfers, and repeated students to complete the specially designed interview schedules or guides.

3.5.1 THE RESEARCH INSTRUMENT

A research instrument is a tool or technique used by researchers to collect data in a systematic and objective way. Research instruments can take various forms, such as questionnaires, interviews, observation checklists, rating scales, and tests among others. These instruments are designed to measure or record data on specific variables or factors that are relevant to a research study. Also, it helps researchers to gather accurate and reliable data, and to measure various variables related to the study (Creswell, 2014; Sharma, 2016; Lohr, 2019). The common research instruments the researcher used in this study to find out academic performance in schools were: Questionnaires, Interviews, Secondary data and among others.

To gather primary data from schools, teachers, and students, structured questionnaires were used. The study used purposive sampling to include all Headmasters or Headmistresses and Principals (s) in the collection of the primary data because of their deep understanding of issues affecting students' academic performance in public senior high schools. The rest of the 265 questionnaires were administered to randomly selected teachers to complete. 366 students also randomly completed the questionnaires.

Additionally, information on student enrolment, repeaters, dropouts, school test results (WASSCE), and teacher qualification in 2019 was gathered using specialised interview schedules or guidelines. To triangulate the data obtained from the main sources through the questionnaire, the study used specially created schedules. A few open-ended questions and closed-ended questions using the Likert scale were included in the survey. The questionnaires helped the study gather a lot of data that was relevant to the investigation. Additionally, to strengthen the validity of the research report, the information provided by Headmasters and teachers was triangulated and verified using specially devised interview schedules.

3.5.2 DATA COLLECTION CHALLENGES AND SOLUTIONS

In every academic research, some data collection challenges may be encountered by the researcher and some possible solutions to overcome these challenges. Some of the data collection challenges that the researcher encountered and the solution to overcome them in this study included:

Difficult access to participants: It was very difficult to get access participants as a results of COVID - 19, and to overcome this challenge, the researcher followed all the strict COVID – 19 protocols to get the needed data from participants.

Limited data in the Schools: Sometimes, not all the data needed for the study were found in the schools. In such cases, the researcher had to depend on the Municipal / District and Regional Education Directorates to get the needed data for the study.

Doubt of data quality: It was the doubt that participants might give incomplete or inaccurate data and data collectors might also collect poor quality data looking at the nature of the study. To ensure data quality, the researcher used reliable and valid measurement tools, pre-test data collection instruments, and well trained data collectors on how to collect data accurately.

Time constraints of participants: All the participants were very busy in their academic coursework, administrative work and alongside with the pressure of COVID – 19 and so they did not want any other pressure to be added to them. To overcome this challenge, the researcher had to explain very well to participants to understand to the importance of the study and also planned very well in advance to contact each participant at the right time that will not affect them on their busy schedules.

3.5.3 VALIDITY AND RELIABILITY OF THE RESEARCH INSTRUMENTS

Before the carefully prepared schedules and the questionnaire were created, some more seasoned lecturers, in particular researcher's supervisors, had their thoughts solicited. This was done to guarantee the reliability of the study's findings.

Two senior high schools that were not even included in the study's sample took a pilot test. This testing made sure that any unclear or confusing questions were eliminated (Aung et al., 2021).

The obtained reliability indices ranged from 0.71 to 0.93, exceeding the 0.70 Cronbach value. For social science research, a Cronbach coefficient of 0.70 is acceptable. When determining dependability for objective and essay-style questions, Cronbach alpha was utilised, according to Fraenkel and Wallen (2003, as reported in Ngesu, 2017, P.58). When calculating school performance, the researcher multiplied the weighted average of the scores by the coefficient of efficiency, which was used to gauge internal school efficiency. To ascertain the impact of school inputs on students' performance, the weighted average scores (student performance) were utilised as a correlation against teacher-related factors, school-based factors, and students' related factors (school inputs).

3.5.4 PILOT TESTING

The instruments were pilot tested in Northern Region senior high schools that were not included in the sample. To reduce, if not eliminate the acceptance of fabricated work, the researcher used Pilot Testing to prove the study's validity based on the expert knowledge of other researchers in the field. It made sure that unclear questions were eliminated, and that appropriate language was used for teachers and students. Additionally, it offered insightful criticism that allowed the researcher to amend and enhance the thesis before submitting it for review and potential publication.

3.7 DATA ANALYSIS PLAN

Following the research questions, summary statistics were presented in tables.

The relationship between school-based resources or inputs of public senior high schools and students' academic performance in the northern area of Ghana was evaluated by the researcher using the Spearman rho correlation approach.

The information was gathered, edited, coded, and arranged according to the variables to address the study questions after the researcher had tested the multiple linear regression hypotheses, the study also used multiple linear regression analysis to ascertain the contribution of each independent variable (teacher factors, school factors, and student factors) to the dependent variable (student academic performance).

The study used the Statistical Package for Social Sciences (SPSS) programme to compute the data from the various indicators before using the aggregated data to do correlational analysis. IBM SPSS was also used for descriptive statistics, correlational analysis, and regression analysis of the three main research questions. A Two-Tailed T-Test was used to test the three hypotheses at a 0.05 significance level. i.e., Critical value ($P<0.05$). The study is a two-tailed T-Test because of the way the null hypothesis had been formulated, ‘there is no significant effect of school inputs on students’ performance at WASSCE.’ Therefore, if the computed alpha value (P) is less than 0.05, the null hypothesis will be rejected, but if the alpha value (P) is more significant than 0.05, the study will fail to reject the null hypothesis.

The reliability index was 0.71 to 0.93, which is higher than the standard for social science research of 0.70 Cronbach coefficients.

3.7 Ethical and Logical Considerations

An introduction letter from the University for Development Studies-Wa Campus was issued to the chosen senior high schools together with written approval from the Northern Region's Regional Director of Education. The researcher then went to the schools in person to seek the Headmasters' and Headmistresses' permission, and they permitted their assistants to assist the researcher in gathering data from primary and secondary sources.

Before giving the respondents the questionnaire to complete, the researcher obtained their permission. The researcher additionally guaranteed respondents' anonymity and secrecy, and that the information gathered would only be used for the investigation.

3.8 Limitations of the study

By using the results of the West Africa Secondary School Certificate Examination (WASSCE) as a proxy, the researcher aims to identify the flaws in the WASSCE system and assess the impacts of effective use of educational inputs on the academic performance of students in public senior high schools.

The different senior high schools in Ghana's Northern Region are dispersed throughout the area and far apart. To cover all the schools, data collection from various schools necessitates quite a significant quantity of material and financial resources. As a result, the researcher was unable to conduct the study at all 29 senior high/technical schools. Even with the ten chosen schools, it took the researcher numerous visits to several of them before data could be collected.

Due to the effects of COVID-19 on schools reopening, the researcher couldn't collect a sample from the whole student body. Furthermore, only second-year students were enrolled at the time

of data collection. Therefore, before the assistant headmasters of the chosen schools administered the surveys, a stratified selection of pupils by sex was conducted.

Because of practical considerations, the researcher chose to utilise the reconstructed technique rather than the true cohort approach, which is excellent for calculating the coefficient of internal efficiency of education. Another possible problem with this study is that its aim may appear overly broad given that it seeks to identify the flaws in the WASSCE system, while also looking into how school resources or inputs affect students' academic success.

CHAPTER FOUR

PUBLIC SENIOR HIGH SCHOOLS AND SCHOOL-REOURCES OR INPUTS IN THE NORTHERN REGION.

4.1.0 HISTORY OF EDUCATION IN THE NORTHERN TERRITORIES

4.1.1 History of Education in the Northern Territories of the Gold Coast (Ghana)

Education is a condition and structure that leads to enlightening society and human resource development, leading to social transformation and economic progress ((Asare et al., 2014). Education is usually considered the main vehicle for promoting social equality and social mobility (Yusif et al., 2010). It is also an economic issue since poor education leads to considerable social costs in the form of lower societal income and economic growth, lower tax revenues, and higher costs of public services such as health and criminal justice (Levin et al., 2007).

According to (Gronenborn, n.d.), researchers in history have reported that King John of Portugal commanded his representatives in Elmina in the year 1529 to provide reading, writing, and religious teaching to Africans. These activities (reading, writing, and religious teaching) marked the beginning of formal education in Ghana. Educational developments were sporadic, short-lived, and confined to coastal towns as they remained the subsidiary function of the trading companies (Aboagye, 2021). British Colonial Authorities established publicly funded schools after 1821, and a new phase of educational expansion began in the third decade of the nineteenth century with the arrival of Basel Missionaries in 1828 and the Wesleyans in 1835. Vigorous missionary activities resulted in establishing some mission schools that eventually absorbed the government schools. The idea behind the introduction of education to the people of the Gold Coast, current Ghana by the Europeans, was initially to promote Christian evangelism and

educate the mullatos born by the European traders. Later, it was meant to sustain the then government machinery in the colonial era (Dunne et al., 2007).

About 380 years after introducing formal education in Elmina in the year 1529, the first government Primary School was the Tamale School, which was established in Northern Ghana in 1909. The first secondary school, which was called the government secondary school, was established in 1951 in Tamale, now called Tamale Secondary School (Asare-Bediako, 2014). Primary education was then extended to other towns in Northern Ghana and reached Gambaga in 1912, Wa in 1917, Lawra in 1919, and Salaga in 1923. As of 1944, there was only one Middle School serving all of the Northern Territories. However, the number of children in Primary and Middle Schools in Northern Ghana increased from 2,218 in 1945 to 23,340 in 1957. This figure was about 10% of school-going children compared with 60% of children in Southern Ghana who were in school (McWilliam and Kwamena-Po, 1975, as referenced in Yusif et al., 2010, p. 83). Throughout the colonial era, Northern Ghana trailed behind the South in terms of the number of schools, total enrolment, and educational attainment of its population (Aboagye, 2021). There were also significant gender gaps in enrolment rates throughout the colonial era, and in 1950, 35% of boys but only 12% of girls were enrolled in primary school (Akyeampong and Fofack 2014; Lee and Lee 2016).

Meanwhile, Aboagye (2021) stated that, in the Northern Territories, the colonial government was relatively active from the early twentieth century and pursued a special policy of free schooling, special courses, and other incentives to encourage parents to send their children to school and still the demand for education remained low. However, significant overall educational expansion was followed by gross primary school enrolment surging from above 9% in 1935 to 24% a decade later and peaked at 44% in 1955 (Aboagye, 2021; (Cogneau et al., n.d.) estimates show a

similar trend, with the gross primary school enrolment ratio increasing from 10.5% in 1938 to 36.9% in 1955.

According to (Oteng-Ababio et al., 2017), the colonial masters, as a matter of policy, decided that the people of the Northern territories of the Gold Coast were not provided with equitable formal education because they were being reserved as unskilled labour to extract the rich resources of the South for the benefit of the colonising masters and their various countries. Adumpo (2020) also stated that the Colonialists followed up with their designed scheme by establishing few schools in Northern Ghana, thus preventing many people of the North from having a sufficient formal education.

The study by (Abdulai & Hickey, 2014) indicated that getting towards gaining the independence of Ghana from her Colonial Masters in 1957, there was growing uneasiness among the Northern elite that, with the wide gap between the average educational attainment in the North and the South, Northerners would be politically and economically worse off than they had been during the colonial era and that the match for independence should be postponed. Furthermore, (Abdulai & Hickey, 2014) claimed that late educational development delayed the emergence of a Northern educated elite that could influence the further distribution of public investments. Studies by researchers revealed that the inequalities in education and spatial development in Ghana were started by the colonial administration and ingrained by post-colonial development policies and strategies (Aryeetey et al., 2009). The British Administration accepted that they actually caused the inequalities in education and underdevelopment of the North and thereby agreed on an educational scholarship scheme seeking to bridge the yawning gap between the North and the South (Herr Emile Akangoa Adumpo Dr-Ing Sabine Kunst Christian Kassung et al., 2020).

Immediately after independence in 1957, the first post-independence government under the leadership of Dr. Kwame Nkrumah instituted the Northern Scholarship Scheme for people of Northern extraction to enjoy free education (Oteng-ababio et al., 2017). The leadership of the government in the new independence of Ghana then made an undertaking to implement a special scholarship scheme that would ensure the accelerated development of education for the North to come abreast with the South, and the aim was to get as many Northerners as possible to get educated to reduce the increasing inequality of education between the North and the South of Ghana (Herr Emile Akangoa Adumpo Dr-Ing Sabine Kunst Christian Kassung et al., 2020).

Also, researchers revealed that the Nkrumah government recognised these inequalities. Within the framework of social justice, students in the North were exempted from paying school fees, and in addition, textbooks were provided free for them. In addition, automatic Scholarship Schemes for students of Northern descent in the Senior Secondary Schools (now Senior High Schools) were instituted. Nkrumah's government committed itself firmly to addressing these past inequities (McWilliam and Kwa-mena-Po, 1975; Yusif, 2009).

4.1.2 The Education Acts and Committee

'Several educational reforms and educational policy documents, laws, and reports have been enacted and approved from time to time to ensure that there is equity in the distribution of education in the country. These include the Education Act of 1961, the Dzobo Report 1973, the Evans Anform Committee 1986, and the Education Reform Programme 1987/88, among other things (Yusif and Yussof, 2010). Before independence, education in Ghana was controlled by ordinances, and these were the 1925 Southern and Ashanti Ordinances and the 1927 Upper and Northern Region Ordinance. However, after independence, the Nkrumah government initiated the Education Act of 1961, and it was this act that laid the first uniform education policy for the

whole country. The 1961 Act made a significant effort to reduce discriminatory tendencies that characterized parts of the early education system. Yusif and Yussof (2010) deduced that the 1961 Education Act laid a firm foundation for a national system of education in Ghana that is devoid of discrimination. Again, the Act made it officially mandatory for children of school-going-age to go to school (Yusif and Yussof, 2010).

In 1970 the Dzobo committee was created to investigate the structure and quality of education in Ghana. The Committee proposed the new concept of the Junior Secondary School (JSS) and Senior Secondary School (SSS), now Junior High School (JHS) and Senior High School (SHS) educational structure. This academic structure was to replace the old education structure. The Dzobo Committee recommendations were due to operate in 1975 but could not be implemented due to financial difficulties (Yusif and Yussof, 2010).

In 1986 the Evans Anform Committee was set up to review the Dzobo Committee report. In September 1987, the reviewed Dzobo Committee education report was implemented and brought Six years of Primary education, Three years of JHS, Three years of SHS, and Four years of university education. This new educational structure thus replaced the old educational system, which had Six years of Primary School, Four years of Middle School, and Seven years of Secondary education (of which five years were for the Ordinary Level Certificate and two years for the Advance Level Certificate) and Three years of University education (Atuahene et al., 2013). Dzobo committee and the Evans Anfom committee reports cut down the number of years spent in Primary and Secondary Schools significantly from 17 to 12 years (Yusif and Yussof, 2010). The 1980s witnessed many education reforms which touched on all the levels of education in Ghana. The Evans Anform Committee review, among others, improved enrolment at the Basic and Secondary education levels. It is estimated that in 1990-91 about 1.8 million

pupils were attending over 9,300 primary schools with 609,000 pupils enrolled in approximately 5,200 Junior Secondary Schools while 200,000 pupils were enrolled in some 250 Senior Secondary Schools (Attuahene, 2006).

4.2 Senior High School Education in the Northern Region of Ghana

The Ten-Year Development Plan of 1946 was not as favourable to Northerners as the revised plan in 1951. The Accelerated Development Plan for Education (ADPE) expanded access. It provided for an opportunity for children to move from six-year primary to "secondary grammar school, secondary technical school, technical institute, the newly named middle school or to a training college for two years or four years training" for Certificate "B" (Asare-Bediako, 2014, p.41). In addition, from 1952, students of Northern extraction were given bursaries beyond tuition and feeding fees to support their education beyond primary school.

According to (Mohammed & Kuyini, 2021), the objective of the free SHS programme aligns with the global agenda for ensuring at least every child worldwide is supported to have access to free quality education to a senior high level. In light of this, the government, under the current Education Strategic Plan, seeks to ensure that no qualified student is denied access by removing all financial and physical barriers to senior secondary education in Ghana (Mohammed & Kuyini, 2021). The foregoing certainly has led to a significant increase in enrolment in senior high schools in general, and the Northern Region is no exception.

4.2.1 NUMBER OF SENIOR HIGH SCHOOLS (SHS) IN NORTHERN REGION, 2005 – 2019

The information available at the Ghana Ministry of Education (MOE) - Education Management Information System (EMIS) indicated that the SHSs in the Northern region are increasing. Table 1.1 shows the number of SHSs in the Northern region, both Public and Private, and Figure 1.1 illustrates only Public SHSs in the same region in each academic year from 2005 to 2019.

Table 3: Number of SHS in Northern Region

ACADEMIC	NUMBER OF SHS IN NORTHERN REGION		
YEAR	PUBLIC	PRIVATE	TOTAL
2005/2006	32	4	**36**
2006/2007	35	9	**44**
2007/2008	35	9	**44**
2008/2009	35	13	**48**
2009/2010	36	12	**48**
2010/2011	37	12	**49**
2011/2012	37	16	**53**
2012/2013	37	27	**64**
2013/2014	41	29	**70**
2014/2015	41	35	**76**
2015/2016	43	33	**76**
2016/2017	45	33	**78**
2017/2018	47	34	**81**
2018/2019	46	30	**76**
TOTAL	547	296	843

Source: MOE – EMIS Data, 2005-2019

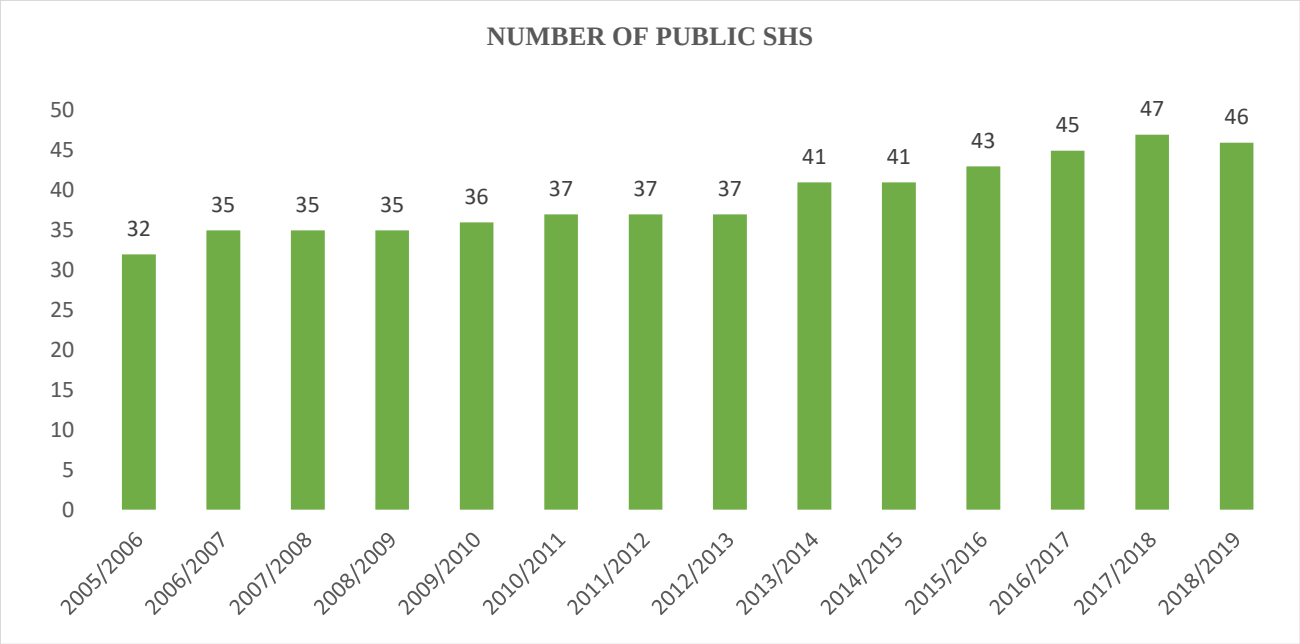


Figure 1: Number of Public SHS in Northern Region Source: MOE – EMIS Data, 2005-2019

Table 3 and figure 1 show that the number of senior high schools in the current Northern Region has been increasing steadily since 2005. The figure also shows that some years were constant.

4.2.2 STUDENTS ENROLMENT IN THE SENIOR HIGH SCHOOLS (SHS) IN NORTHERN REGION, 2005 – 2019.

Table 4: Students Enrolment by Sex in SHS in Northern Region

ACADEMIC YEAR	ENROLMENT BY SEX IN SHS IN THE NORTHERN REGION			PERCENTAGE ENROLMENT IN SHS IN NORTHERN REGION	
	BOYS	GIRLS	TOTAL	% BOYS	% GIRLS
2005/2006	14978	6316	21294	70.3	29.7
2006/2007	17582	7444	25026	70.3	29.7
2007/2008	18725	8025	26750	70	30
2009/2010	23132	11902	35034	66	34
2010/2011	32589	17559	50148	65	35
2011/2012	35869	20332	56201	63.8	36.2
2012/2013	40717	23709	64426	63.2	36.8
2013/2014	36001	22731	58732	61.3	38.7
2014/2015	40307	26289	66596	60.5	39.5
2015/2016	40557	27982	68539	59.2	40.8
2016/2017	39667	29411	69078	57.4	42.6
2017/2018	40662	30621	71283	57	43
2018/2019	45223	36404	81627	55.4	44.6
TOTAL	446303	278072	724375	61.6	38.4

Source: MOE – EMIS Data, 2005-2019

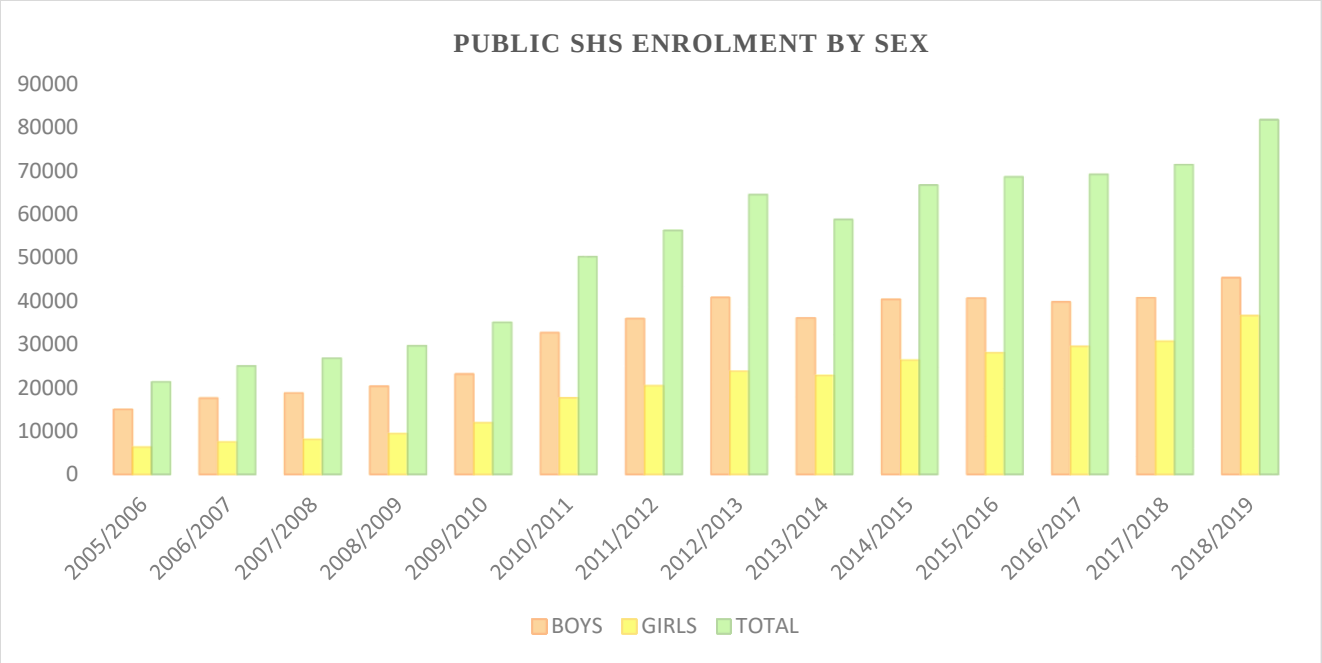


Figure 2: Enrolment by Sex of Public SHS in Northern Region **Source: MOE – EMIS Data, 2005-2019**

Table 1, and Fig.1 showed that the number of senior high schools steadily increased from 2005 to 2019. From table 2 and Fig. 2, it can also be seen that student enrolment also steadily increased throughout the same period. If the number of senior high schools were not increased to correspond with the increase in student enrolment; some students may not have the opportunity to enter public senior high schools for lack of space.

4.2.3 NUMBER OF TEACHERS IN THE SHS IN NORTHERN REGION, 2005 – 2019.

Table 5: Number of Teachers in the Senior High Schools (SHS) in Northern Region

ACADEMIC YEAR	NUMBER OF TEACHERS IN SHS IN NORTHERN REGION						PERCENTAGE OF TRAINED TEACHERS IN SHS IN THE NORTHERN REGION		
	NO. OF TEACHERS			NO. OF TRAINED TEACHERS			PERCENTAGE OF TRAINED TEACHERS IN SHS		
	PUBLIC	PRIVATE	TOTAL	PUBLIC	PRIVATE	TOTAL	%PUBLIC	%PRIVATE	%TOTAL
2005/2006	955	67	1022	673	25	698	70.5	37.3	68.3
2006/2007	1170	152	1322	899	107	1006	76.8	70.4	76.1
2007/2008	1223	158	1381	967	87	1054	79.1	55.1	76.3
2008/2009	1219	211	1430	917	118	1035	75.2	55.9	72.4
2009/2010	1566	242	1808	1183	138	1321	75.5	57	73.1
2010/2011	1500	219	1719	1182	143	1325	78.8	65.3	77.1
2011/2012	1761	226	1987	1422	120	1542	80.7	53.1	77.6
2012/2013	2118	359	2477	1599	154	1753	75.5	42.9	70.8
2013/2014	2152	429	2581	1729	278	2007	80.3	64.8	77.8
2014/2015	2392	573	2965	2052	292	2344	85.8	51	79.1
2015/2016	2398	507	2905	2139	251	2390	89.2	49.5	82.3
2016/2017	2598	482	3080	2255	282	2537	86.8	58.5	82.4
2017/2018	2675	476	3151	2348	252	2600	87.8	52.9	82.5
2018/2019	3445	370	3815	2834	233	3067	82.3	63	80.4
TOTAL	**27172**	**4471**	**31643**	**22199**	**2480**	**24679**	**81.7**	**55.5**	**78**

Source: MOE – EMIS Data, 2005-2019

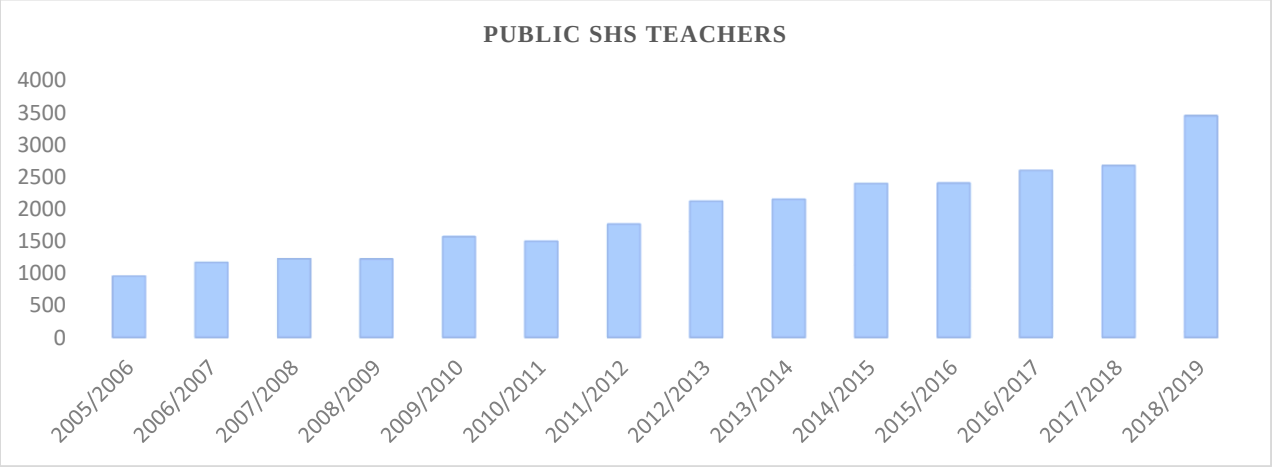


Figure 3: Teachers in Public SHS in Northern Region **Source: MOE – EMIS Data, 2005-2019**

Table53 and Fig.3 show that the number of qualified teachers has been increasing from 2005 to 2019. Even though the number of qualified teachers has generally been increasing, there were some years (e.g., 2009 and 2011) where the numbers slightly decreased.

4.2.4 INFRASTRUCTURE DEVELOPMENT IN THE SHS IN NORTHERN REGION, 2005 – 2019

Table 6: Number of Classrooms in the Senior High Schools (SHS) in Northern Region

Academic year	Permanent	Temporary	Total	Percentage
2005/2006	423	31	454	**92.6**
2006/2007	530	48	578	**91.4**
2007/2008	599	44	643	**92.6**
2008/2009	595	45	640	**91.5**
2009/2010	633	57	690	**91.1**
2010/2011	781	88	869	**89.0**
2011/2012	822	86	908	**90.7**
2012/2013	890	97	987	**90.7**
2013/2014	1014	73	1087	**92.8**
2014/2015	1093	27	1120	**97.7**
2015/2016	1093	27	1120	**97.7**
2016/2017	1249	58	1307	**95.8**
2017/2018	1339	77	1416	**94.6**
2018/2019	1469	104	1573	**91.7**
TOTAL	**12530**	**862**	**13392**	**93.3**

Source: MOE – EMIS Data, 2005-2019

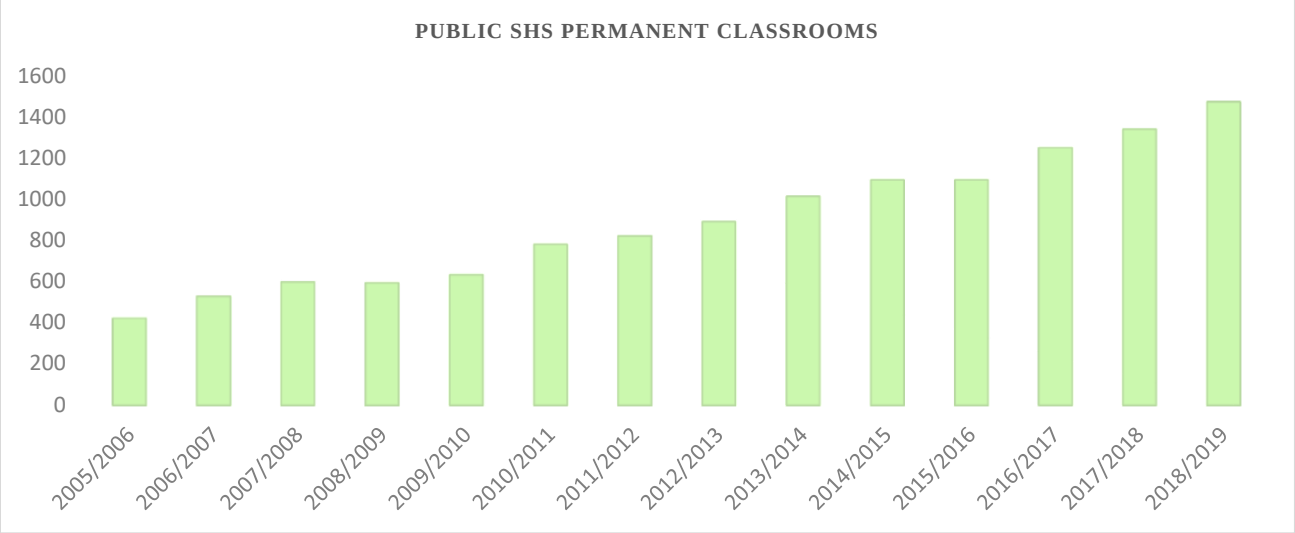


Figure 4: Permanent Classrooms in Public SHS in Northern Region **Source: MOE – EMIS Data, 2005-2019**

Table 6 and Fig.4 show that permanent classrooms have been increasing from 2005 to 2019. The number of classrooms alone may not tell whether they are adequate or not unless the number of classrooms is compared to the students' enrolment to determine class size.

4.2.5 Students Classroom Ratio in the Senior High Schools (SHS) in Northern Region

Table 7: Students Enrolment by Sex in SHS in Northern Region

	Public			Percentage	
Academic year	**Boys**	**Girls**	**Total**	**Boys**	**Girls**
2005/2006	14978	6316	21294	70.3	29.7
2006/2007	17582	7444	25026	70.3	29.7
2007/2008	18725	8025	26750	70.0	30.0
2008/2009	20294	9347	29641	68.5	31.5
2009/2010	23132	11902	35034	66.0	34.0
2010/2011	32589	17559	50148	65.0	35.0
2011/2012	35869	20332	56201	63.8	36.2
2012/2013	40717	23709	64426	63.2	36.8
2013/2014	36001	22731	58732	61.3	38.7
2014/2015	40307	26289	66596	60.5	39.5
2015/2016	40557	27982	68539	59.2	40.8
2016/2017	39667	29411	69078	57.4	42.6
2017/2018	40662	30621	71283	57.0	43.0
2018/2019	45223	36404	81627	55.4	44.6
TOTAL	446303	278072	724375	61.6	38.4

Source: MOE – EMIS Data, 2005-2019

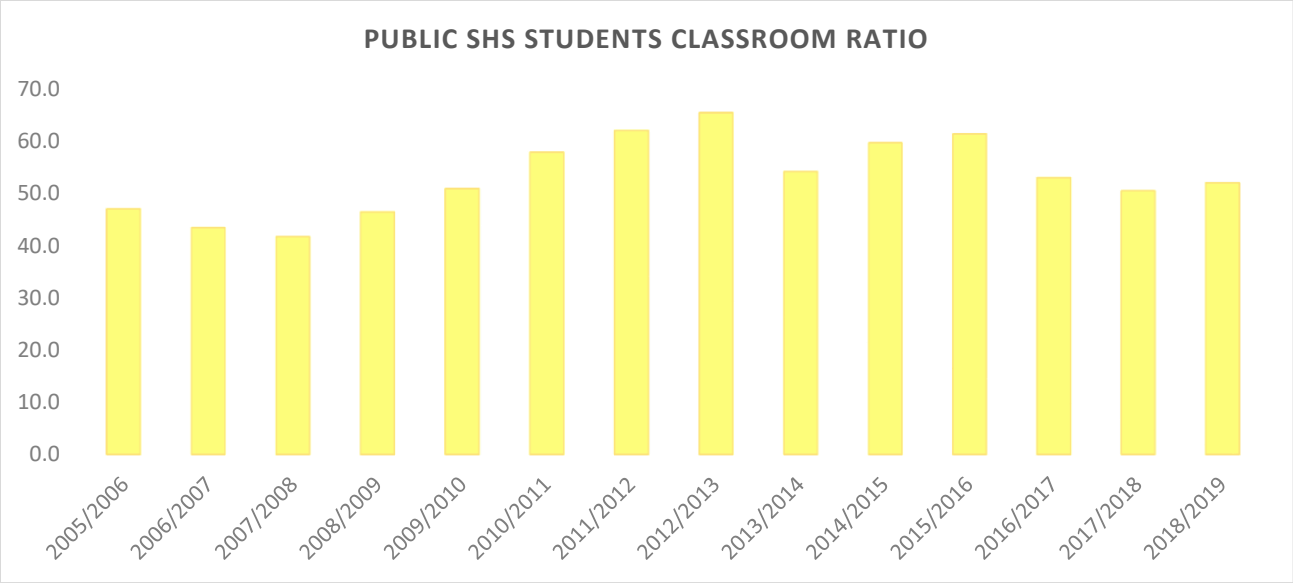


Figure 5: Students Classrooms Ratio in Public SHS in Northern Region **Source: MOE – EMIS Data, 2005-2019**

As observed in table 6 and Fig. 4, where the number of permanent classrooms has been increasing, it can be seen from table 7 and Fig.5 that even as the number of permanent. Classrooms increased, student enrolment data increased more than proportionately, leading to higher class sizes in some years. Table 7 and Fig.5 also show that the class size generally increased from 2005 to 2013 and then declined, except in 2015 and 2016, where it increased slightly.

4.2.6 STUDENTS FURNITURE RATIO IN SHS IN NORTHERN REGION, 2009-2019

Table 8: Students' Seating Place in SHS in Northern Region

ACADEMIC YEAR	STUDENTS ENROLMENT	NO. OF CHAIRS	STUDENTS CHAIRS RATIO
2009/2010	35034	27346	**0.8**
2010/2011	50148	37565	**0.7**
2011/2012	56201	45239	**0.8**
2012/2013	64426	54097	**0.8**
2013/2014	58732	46917	**0.8**
2014/2015	66596	59948	**0.9**
2015/2016	68539	60527	**0.9**
2016/2017	69078	77238	**1.1**
2017/2018	71289	57668	**0.8**
2018/2019	81627	80997	**1.0**
TOTAL	**621670**	**547542**	**0.9**

Source: MOE – EMIS Data, 2009-2019

It can be seen from table 6 that furniture distribution is not adequate in the public senior high schools in northern Ghana. Apart from 2017 and 2019, where the student-chairs ratio is one, the rest are less than one.

4.2.7 TEACHING LEARNING MATERIALS IN SHS IN NORTHERN REGION, 2005-2019

4.2.7 Students Textbooks Ratio in SHS in Northern Region

Table 9: Students Mathematics Textbooks Ratio in the SHS in Northern Region

ACADEMIC	STUDENTS ENROLMENT	NO. OF TEXTBOOKS	STUDENTS TEXTBOOKS RATIO
2005/2006	21294	27664	**1.3**
2006/2007	25026	29110	**1.2**
2007/2008	26750	30514	**1.1**
2008/2009	29641	29925	**1.0**
2009/2010	35034	29186	**0.8**
2010/2011	50148	23697	**0.5**
2011/2012	56201	25515	**0.5**
2012/2013	64426	27021	**0.4**
2013/2014	58732	26856	**0.5**
2014/2015	66596	21221	**0.3**
2015/2016	68539	20077	**0.3**
2016/2017	69078	23225	**0.3**
2017/2018	71289	62638	**0.9**
2018/2019	81627	72312	**0.9**
TOTAL	**724381**	**448961**	**0.6**

Source: MOE – EMIS Data, 2005-2019

STUDENTS ACADEMIC PERFORMANCE IN SSSCE / WASSCE IN THE FOUR CORE SUBJECTS IN SHS IN NORTHERN REGION, 2006-2019

4.2.8 Students Performance in SSSCE / WASSCE in the Four Core Subjects in SHS in Northern Region

Table 10: Students Mathematics Performance in SSSCE / WASSCE in the SHS in Northern Region

YEAR	STUDENTS PERFORMANCE IN SSSCE / WASSCE MATHEMATICS IN SHS IN NORTHERN REGION								
	NO. OF STUDENTS PRESENTED			NO. OF STUDENTS PASSED			PERCENTAGE OF STUDENTS WHO PASSED		
	BOYS	GIRLS	TOTAL	BOYS	GIRLS	TOTAL	%BOYS	%GIRLS	%TOTAL
2006	5062	2198	7260	929	143	1072	18.4	6.5	**14.8**
2007	5609	2508	8117	1099	156	1255	19.6	6.2	**15.5**
2008	6285	2858	9143	1132	155	1287	18.0	5.4	**14.1**
2009	5322	2274	7596	2264	596	2860	42.5	26.2	**37.7**
2010	6531	2922	9453	2996	959	3955	45.9	32.8	**41.8**
2011	6799	3401	10200	2930	1058	3988	43.1	31.1	**39.1**
2012	7820	4257	12077	2985	1087	4072	38.2	25.5	**33.7**
2013	19871	11773	31644	10905	5266	16171	54.9	44.7	**51.1**
2014	10797	6920	17717	3008	1134	4142	27.9	16.4	**23.4**
2015	13958	9211	23169	1303	493	1796	9.3	5.4	**7.8**
2016	14864	10484	25348	2422	688	3110	16.3	6.6	**12.3**
2017	14573	10838	25411	2299	710	3009	15.8	6.6	**11.8**
2018	14115	10792	24907	1356	343	1699	9.6	3.2	**6.8**
2019	9678	7679	17357	2892	1291	4183	29.9	16.8	**24.1**
TOTAL	**141284**	**88115**	**229399**	**38520**	**14079**	**52599**	**27.3**	**16.0**	**22.9**

Source: MOE – EMIS Data, 2005-2019

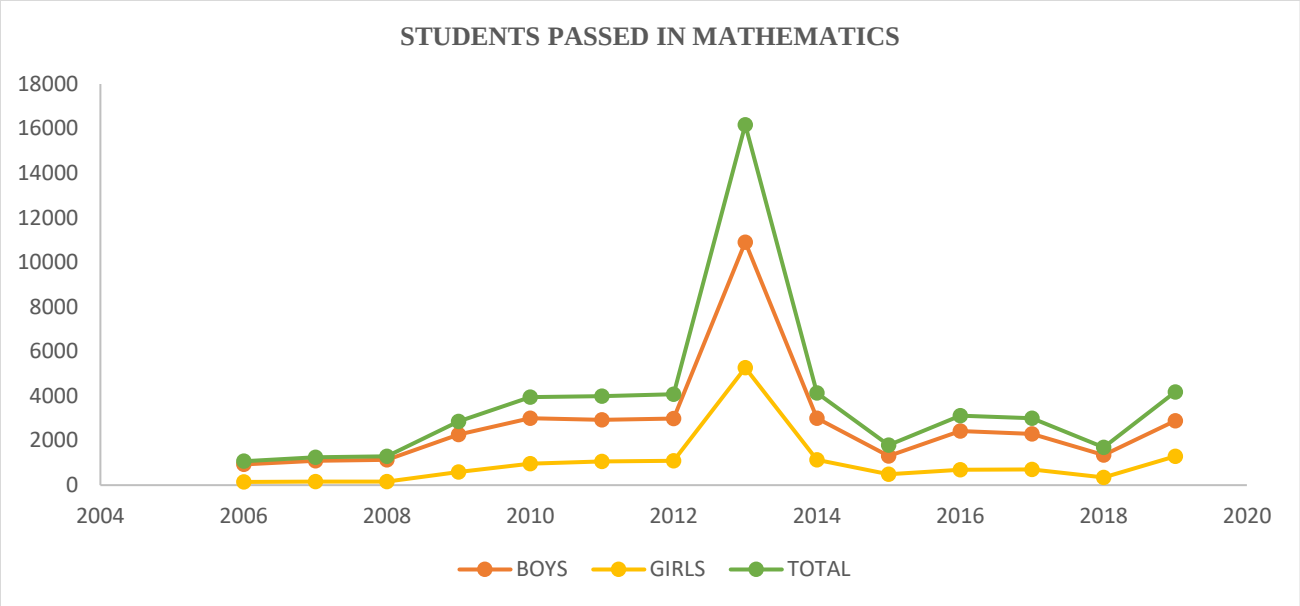


Figure 6: Students Passed in Mathematics in SHS in Northern Region **Source: MOE – EMIS Data, 2005-2019**

Table 11 and Fig.6 show that students' performance increased slightly from 2006 to 2012, rose sharply in 2013 and then declined steeply in 2014. From 2014 to 2019, performance does not show a steady increase or decrease.

Table 11: Students English Language Performance in SSSCE / WASSCE in the SHS in Northern Region

YEAR	STUDENTS PERFORMANCE IN SSSCE / WASSCE ENGLISH LANGUAGE IN SHS IN NORTHERN REGION								
	NO. OF STUDENTS PRESENTED			NO. OF STUDENTS PASSED			PERCENTAGE OF STUDENTS WHO PASSED		
	BOYS	GIRLS	TOTAL	BOYS	GIRLS	TOTAL	%BOYS	%GIRLS	%TOTAL
2006	5062	2198	7260	437	106	543	8.6	4.8	**7.5**
2007	5241	2413	7654	633	255	888	12.1	10.6	**11.6**
2008	6285	2858	9143	648	207	855	10.3	7.2	**9.4**
2009	5323	2275	7598	3835	1604	5439	72.0	70.5	**71.6**
2010	6527	2921	9448	4115	1766	5881	63.0	60.5	**62.2**
2011	6799	3401	10200	4808	2273	7081	70.7	66.8	**69.4**
2012	7820	4257	12077	3906	1852	5758	49.9	43.5	**47.7**
2013	19871	11773	31644	15442	8273	23715	77.7	70.3	**74.9**
2014	10806	6922	17728	3895	1928	5823	36.0	27.9	**32.8**
2015	13961	9215	23176	3051	1500	4551	21.9	16.3	**19.6**
2016	14864	10484	25348	3454	1861	5315	23.2	17.8	**21.0**
2017	14609	10853	25462	2752	1496	4248	18.8	13.8	**16.7**
2018	14100	10780	24880	2422	1378	3800	17.2	12.8	**15.3**
2019	9678	7679	17357	1758	1117	2875	18.2	14.5	**16.6**
TOTAL	**140946**	**88029**	**228975**	**51156**	**25616**	**76772**	**36.3**	**29.1**	**33.5**

Source: MOE – EMIS Data, 2005-2019

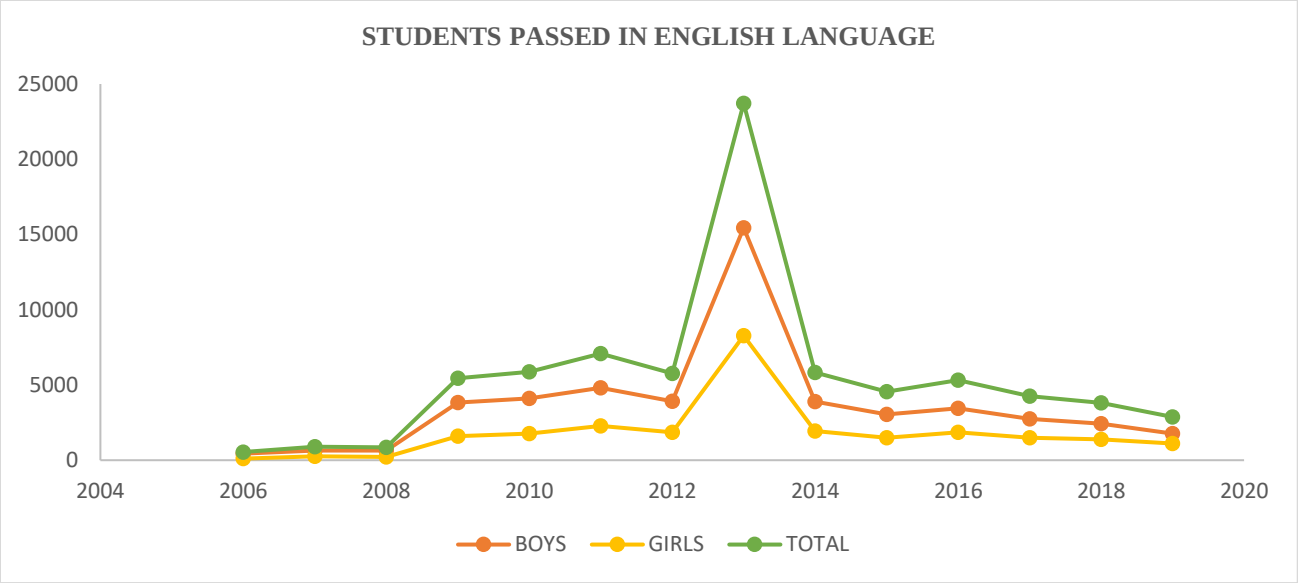


Figure 7: Students Passed in English Language in SHS in Northern Region **Source: MOE – EMIS Data, 2005-2019**

Table 12: Students Integrated Science Performance in SSSCE / WASSCE in the SHS in Northern Region

YEAR	STUDENTS PERFORMANCE IN SSSCE / WASSCE INTEGRATED SCIENCE IN SHS IN NORTHERN REGION								
	NO. OF STUDENTS PRESENTED			NO. OF STUDENTS PASSED			PERCENTAGE OF STUDENTS WHO PASSED		
	BOYS	GIRLS	TOTAL	BOYS	GIRLS	TOTAL	%BOYS	%GIRLS	%TOTAL
2006	5062	2198	7260	437	106	543	8.6	4.8	**7.5**
2007	5241	2413	7654	633	255	888	12.1	10.6	**11.6**
2008	6285	2858	9143	648	207	855	10.3	7.2	**9.4**
2009	5323	2275	7598	3835	1604	5439	72.0	70.5	**71.6**
2010	6527	2921	9448	4115	1766	5881	63.0	60.5	**62.2**
2011	6799	3401	10200	4808	2273	7081	70.7	66.8	**69.4**
2012	7820	4257	12077	3906	1852	5758	49.9	43.5	**47.7**
2013	19871	11773	31644	15442	8273	23715	77.7	70.3	**74.9**
2014	10806	6922	17728	3895	1928	5823	36.0	27.9	**32.8**
2015	13961	9215	23176	3051	1500	4551	21.9	16.3	**19.6**
2016	14864	10484	25348	3454	1861	5315	23.2	17.8	**21.0**
2017	14609	10853	25462	2752	1496	4248	18.8	13.8	**16.7**
2018	14100	10780	24880	2422	1378	3800	17.2	12.8	**15.3**
2019	9678	7679	17357	1758	1117	2875	18.2	14.5	**16.6**
TOTAL	**140946**	**88029**	**228975**	**51156**	**25616**	**76772**	**36.3**	**29.1**	**33.5**

Source: MOE – EMIS Data, 2005-2019

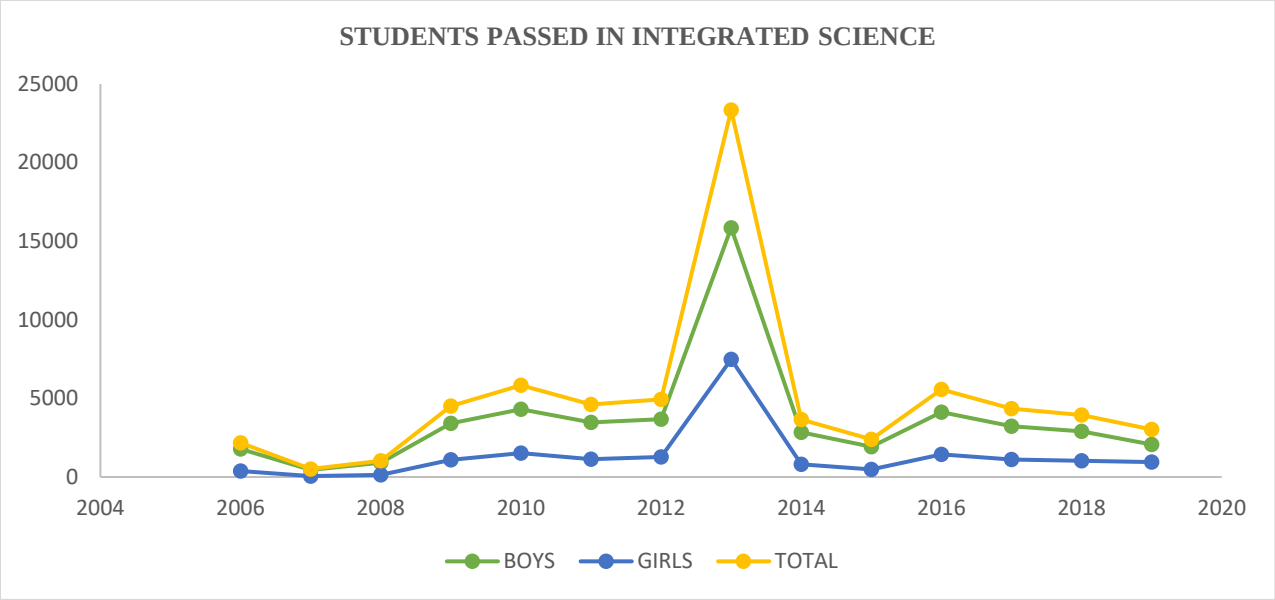


Figure 8: Students Passed in Integrated Science in SHS in Northern Region **Source: MOE – EMIS Data, 2005-201**

Table 13: Students Passed in Social Studies in SHS in Northern Region

YEAR	STUDENTS PERFORMANCE IN SSSCE / WASSCE SOCIAL STUDIES IN SHS IN NORTHERN REGION								
	NO. OF STUDENTS PRESENTED			NO. OF STUDENTS PASSED			PERCENTAGE OF STUDENTS WHO PASSED		
	BOYS	GIRLS	TOTAL	BOYS	GIRLS	TOTAL	%BOYS	%GIRLS	%TOTAL
2006	5062	2198	7260	2637	726	3363	52.1	33.0	**46.3**
2007	5594	2504	8098	1867	512	2379	33.4	20.4	**29.4**
2008	6285	2858	9143	3821	1289	5110	60.8	45.1	**55.9**
2009	5318	2273	7591	4286	1624	5910	80.6	71.4	**77.9**
2010	6523	2918	9441	5809	2414	8223	89.1	82.7	**87.1**
2011	6799	3401	10200	5716	2542	8258	84.1	74.7	**81.0**
2012	7820	4257	12077	5931	2795	8726	75.8	65.7	**72.3**
2013	19871	11773	31644	18294	9974	28268	92.1	84.7	**89.3**
2014	10788	6912	17700	6400	2870	9270	59.3	41.5	**52.4**
2015	13958	9213	23171	4139	1535	5674	29.7	16.7	**24.5**
2016	14865	10484	25349	5146	2225	7371	34.6	21.2	**29.1**
2017	14602	10844	25446	4222	1768	5990	28.9	16.3	**23.5**
2018	14108	10782	24890	6473	3243	9716	45.9	30.1	**39.0**
2019	9678	7679	17357	4601	2633	7234	47.5	34.3	**41.7**
TOTAL	**141271**	**88096**	**229367**	**79342**	**36150**	**115492**	**56.2**	**41.0**	**50.4**

Source: MOE – EMIS Data, 2005-2019

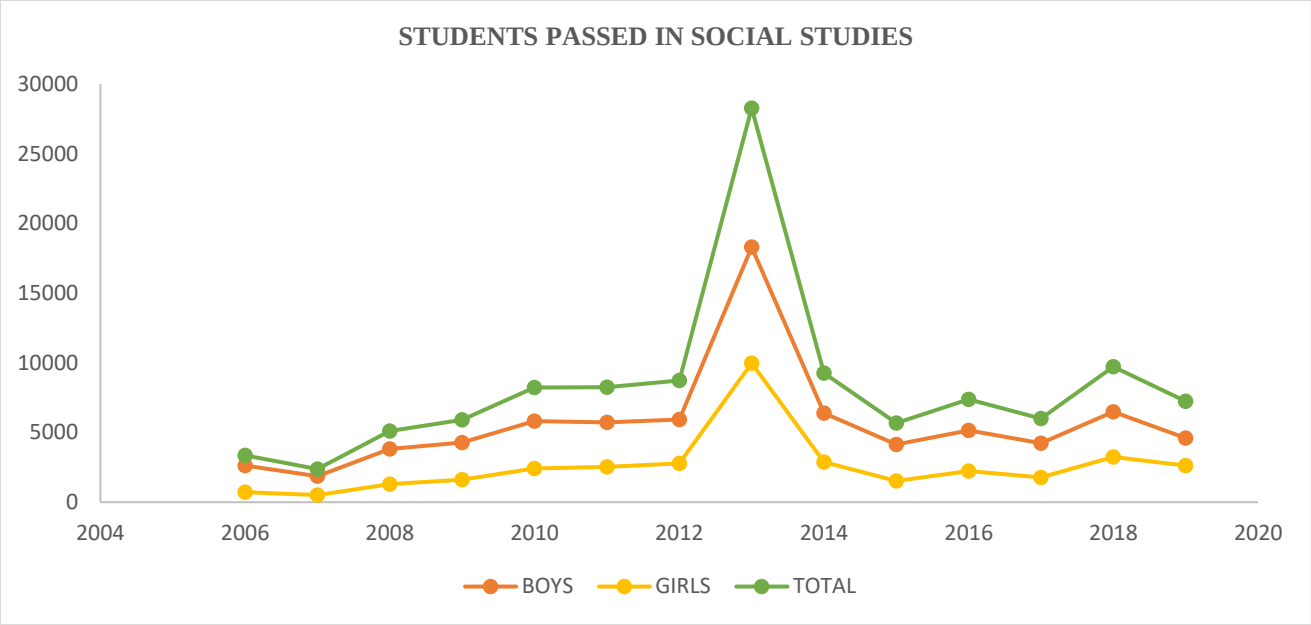


Figure 9: Students Passed in Social Studies in SHS in Northern Region **Source: MOE – EMIS Data, 2005-2019**

Fig.7,8, and 9 show a similar trend as table 13 and Fig. 6, where students' performance did not increase significantly but increased sharply between 2012 and 2013 and then generally declined from 2015 to 2019.

4.9.2 Discipline in Schools

GENERAL RULES FOR SENIOR HIGH SCHOOL

Senior high school is one of, if not the most, interesting levels of education, but even at that, there are a few guidelines that students must follow each day.

Even though each senior high school may have its unique punishments for each offence committed by its students, these offences and penalties are often present in the majority of Ghana's senior high schools.

Additionally, breaking any of the following school rules over the midterm, on holidays, or on the weekends will result in a penalty consistent with the offence (*General Senior High School Rule*, n.d.).

Table 14: General Rules for Senior High School

RULE COMPONET	OFFENCE	SANCTION
Examinations	Cheating on a test or assignment in class.	Papers cancelled, a two-week external suspension, and counselling.
		The student will repeat the course for promotional tests.
Classes and Assignments	Skipping Classes	External suspension for five days and counselling.
	Failing to show up for class	External suspension for five days and counselling.
	Hiding out in the dorms while it's class time.	Deboardinization.
	Consistently skipping classes	Dismissal
Assignments	Not completing class assignments	Counselling.
	Persistent unwillingness to turn in classwork and failing to write the term exam.	External suspension for a week and counselling.
Preps	Failing to show up for Prep.	Counselling and a five-day external suspension.
	Hiding during prep in the dorms.	Deboardinization.
	Recurring absences from prep.	Dismissal
Disturbance at Prep	1st offence	Internal day-long suspension
	Second offence.	External 5-day punishment.
Disrespecting a teacher	First offence	Two weeks of external suspension.
	Subsequent offence.	Dismissal
	Refusing to comply with a teacher's punishment	The conclusion of the initial work plus a five-day external suspension.
	Deceiving teachers	2 weeks of external suspension, counselling, and the execution of a good behaviour bond.
Disrespecting a prefect	First Offence	3 days of internal suspension
	2nd Offense	Internal suspension for five days.
	Refusing to carry out a Prefect's punishment.	Along with doing the initial task, there will be a three-day internal suspension.
Dressing incorrectly	Incorrect dressing	3 days of internal suspension.
Unauthorized Clothing	First Offense	Permanent item confiscation and a one-week internal suspension.
	Second offence	External suspension for two weeks.
Bushy hair, facial hair, bleaching, or an	First-time offenders	Two-week external suspension and are required to change their hairstyle themselves.

unacceptable haircut.		
	Second offence	Two weeks of external suspension and deboarding.
	Alterations to the school clothes.	Confiscation of the altered uniform, a one-week internal suspension, and the execution of a good behaviour bond.
Exeats and breaking of bounds	Leaving the school's grounds without permission.	Two-week external suspension and counselling.
	First offence	
	2nd offence	Indefinite suspension.
Failure to return from holidays or midterms on time or being late without providing a good reason	Failure to return from holidays or midterms on time or being late without providing a good reason	Internal suspension with progressive manual labour based on absence days.
	Failure to return from holidays or midterms on time or being late without providing a good reason	Internal suspension for one day and forfeiture of exeat for one term
Overstaying an exeat	Failure to return from a break at school at the appointed time that day.	Internal suspension for one day and forfeiture of exeat for one term
	A prolonged absence of more than one day.	Deboardinization and a one-week external suspension.
Programs And Meetings	Arranging events or programmes without permission.	External suspension and deboarding for two weeks
	Arranging events or programmes without permission in the school.	External suspension and deboarding for two weeks
	arranging and escorting pupils to activities outside of the school without permission	External suspension and deboarding for two weeks
	External suspension and deboarding for two weeks	External suspension and deboarding for two weeks
Social get- to- gather		
	First Offense	One Day Internal Suspension.
Lateness to school gatherings		
	Second offence.	3 days of internal suspension
Failing to show up for a school event	First offence	Internal suspension for two weeks.
	Second offence.	2 weeks of external suspension or deboarding
Boarding House	Receiving visitors on days or during hours that are not appropriate for visits.	5 days of external suspension
	First offence.	5 days of external suspension
	Second offence	Deboardinization
	Sending off guests beyond the boundaries.	5 days of external suspension
	first offence	5 days of internal suspension

	Second offence	External 5-day punishment
Accommodating a suspended or deboarded student in the dorm.	The first offence	Two-week external suspension, the completion of a good behaviour bond, and payment of three times the daily boarding rate.
	The second offence	Two-week external suspension and deboarding.
	Interacting with a guest in the dorm	External suspension for two weeks followed by deboarding
Indecent exposure	The first offence	Two-week internal suspension, counselling, and the execution of a good-behaviour bond.
Neglecting Household Duties.	First Offense	Insistence on the need for work to be done, a one-week internal suspension, the execution of a good conduct bond, and counselling.
	Second offence	Two weeks of external suspension and deboarding.
Return of a deboarded student without authorization to the boarding school.	Return of a deboarded student without authorization to the boarding school.	Paying three times as much for boarding as the number of days spent in the boarding home, as well as a permanent suspension pending the board's judgement.
	Unauthorized switching of a day student to a boarder	Paying three times as much for boarding as the number of days spent in the boarding home, as well as a permanent suspension pending the board's judgement.
Temporary self-identification as a day student without notifying the authorities	Abandoning the boarding house permanently without telling the relevant authorities.	Deboardinization, paying three times the boarding costs and being deboarded
Defecating around the dorms	Defecating around the dorms	2-week external suspension, deboarding, and counselling.
Wall-jumping in a dorm	Wall-jumping in a dorm	Deboardinization
Illegal electrical connection	Illegal electrical connection	Deboardment and payment for any damage that was incurred
Dining	Not making it to the dining room	First Offense: Internal Suspension for 5 Days
		2 weeks of external suspension for a second offence
		Third offence: deboarding
Removing food from the dining room	Removing food from the dining room	First Offense: Internal Suspension for 2 Days and Counselling
		Second offence: deboarding
Not using a cup, plate, or cutlery in the dining room	Not using a cup, plate, or cutlery in the dining room	First Offense: Internal Suspension for 3 Days
		Second offence: internal suspension of two weeks spending three times as much on food and deboarding
Stealing food from the dining room	Stealing food from the dining room	
Items not authorised	Electrical equipment ownership (except electric iron)	Confiscation of the appliance and a one-week suspension for the first offence
		The appliance will be forfeited for the second offence, student deboarded for two weeks.

Preparing food in the dorm	Preparing food in the dorm	First Offense: Confiscation of the cooking equipment and a one-week suspension Second offence: two weeks of external suspension and deboarding
Any type of unapproved sales in the school	Any type of unapproved sales in the school	First Offense: Items are forfeited, and an external suspension of two weeks is imposed. Deboardinization for a second offence
Possession of a mobile phone or any other prohibited device in a school is punishable	Possession of a mobile phone or any other prohibited device in a school is punishable	By permanent confiscation of the device and a two-week external suspension for the first offence. Items will be permanently confiscated and deboarded for a second offence
Not turning over unlawful materials or unauthorized items	Not turning over unlawful materials or unauthorized items	First Offense: Items are forfeited for good and there is a five-day external suspension. Deboarding for a second offence
Ethical Questions	Unofficial language obscene language	Speaking of Pidgin English 2 weeks of external suspension writing lines and a three-day internal suspension
Gambling	Gambling	First Offense: Two weeks of external suspension and counselling Deboardinization awaiting inquiries by board of governors for a second offence
Neglecting one's responsibilities as a prefect	Neglecting one's responsibilities as a prefect	First Offense: Counselling and warning Removal from office in a second instance
Sexual misbehaviour	Sexual misbehaviour	Dismissal
Possession of occult items or engaging in occult practises	Possession of occult items or engaging in occult practises	Indefinite suspension or dismissal while an investigation is ongoing Visitors' embarrassment on the school's grounds: two weeks of internal suspension
Forgery	Forgery	First-time forgeries receive a two-week external suspension and counselling.
Destroying School Resources	Intentional damage of school property	First-time offenders must pay three times the item's or property's cost, get counselling, and externally suspended for two weeks.
	Destroying equipment or supplies used in the school	Second offence: Three times the item's cost must be paid, plus two weeks of external suspension and deboarding.
Inciting students to demonstrate:	Inciting students to demonstrate:	two-week suspension from school, an indefinite suspension or dismissal depending on how serious the offence was pending investigations
Writing and drawing on walls	Writing and drawing on walls	painting the damaged wall and a two-week suspension outside
Assault	Fighting with a deadly weapon in a school	2 weeks of external suspension and counselling for the first offence.

		Deboardinization and indefinite suspension awaiting inquiry for a second offence
Attacks	Physical assault on staff members and their dependents	Dismissal or indefinite suspension
	Prefects are attacked physically	External suspension for two weeks, counselling, and deboarding
Carrying a weapon	Carrying a weapon	Confiscation/seizure indefinite suspension pending an inquiry or dismissal Transfer to the Police
Drugs	Use or Possession of Drugs	suspended indefinitely pending an inquiry and counselling
	Use or possession of alcoholic beverages	suspended indefinitely pending an inquiry and counselling
	Sniffing or smoking any substance, including marijuana (wee)	suspended indefinitely pending an inquiry and counselling Give to the police
Having contraception	Having contraception	Confiscation of the contraception and a two-week internal suspension with counselling for a first offence 2 weeks of external suspension and deboarding for a second offence
Use and possession of harmful hard drugs	Use and possession of harmful hard drugs	Confiscation of the medications and an indefinite suspension pending a Board's investigation
Extortion and bullying	using force and abusing their positions of authority, seniors and student leaders	2 weeks of external suspension and counselling for the first offence Removal from office and indefinite suspension pending investigation for a second offence
	Extortion and Bullying	2 weeks of external suspension for a first offence Second offence - deboarding
Stealing	Stealing	2 weeks of external suspension and counselling for the first offence (with restitution) Indefinite suspension awaiting an investigation for a second offence (with restitution)
	Burglary (Break-in) becoming a thief with robbers	Break-in – internal suspension Dismissal

(*General Senior High School Rule*, n.d.)**.**

CHAPTER FIVE

TEACHER FACTORS AND STUDENTS' ACADEMIC PERFORMANCE IN PUBLIC SENIOR HIGH SCHOOLS

5.0 INTRODUCTION

This study aimed to investigate the flaws in the WASSCE grading system with how resources or inputs from the sampled school students' academic performance at public senior high schools in Ghana's northern region. The results of the study are discussed in this chapter along with background information on the characteristics of sampled senior high schools, teachers, and students, as well as details on how teachers' backgrounds and qualifications affect students' academic performance in the West African Secondary School Certificate Examination (WASSCE). The data were provided by students, teachers, headmasters, or headmistresses and principals of the sampled senior high and senior technical high schools. The selected senior high schools were further divided into Secondary Education Improvement Project (SEIP) and Non-Secondary Improvement Project (Non-SEIP) schools to represent rural and urban schools, respectively. The data in this section were analysed using descriptive statistics. Additionally, Section B's analysis of the information on SEIP and Non-SEIP schools from the responses of teachers and students used Spearman correlation. The results of open-ended questions, in which teachers and students equally expressed their views on the influence of school inputs on students' academic achievement, are presented in Section C of the chapter.

5.2 Background Information

Background information of selected Public Senior high schools in the Northern Region of Ghana. This section provides information on the characteristics of Public Senior High schools under study, teachers, and students to understand the nature of schools under study.

Table 15: Students Enrolment of the Schools by Sex

Name of School	Percentage (%) of Students Enrolment from 2017-2021									
	%Enrolment of Students of the Schools by Sex									
	2017		2018		2019		2020		2021	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
GHANA SENIOR HIGH SCHOOL, TAMALE	67%	33%	50%	50%	50%	50%	56%	44%	44%	56%
DAGBONG STATE SHTS-YENDI	62%	38%	60%	40%	60%	40%	58%	42%	59%	41%
TAMALE GIRLS SENIOR HIGH SCHOOL	0%	100%	0%	100%	0%	100%	0%	100%	0%	100%
E. P. HIGH SCHOOL, SABOBA	63%	37%	65%	35%	64%	36%	63%	37%	62%	38%
KARAGA SENIOR HIGH SCHOOL	58%	42%	56%	44%	56%	44%	57%	43%	62%	38%
PRESBYTERIAN SENIOR HIGH SCHOOL	100%	0%	100%	0%	100%	0%	100%	0%	41%	59%
GUSHEGU SENIOR HIGH SCHOOL	60%	40%	63%	37%	61%	39%	60%	40%	62%	38%
PONG-TAMALE S.H.S	69%	31%	63%	37%	60%	40%	67%	33%	60%	40%
KUMBUNGU SHS	51%	49%	52%	48%	58%	42%	58%	42%	61%	39%
ST. CHARLES MINOR SEMINARY SHS	100%	0%	100%	0%	100%	0%	100%	0%	100%	0%
TOTAL	**56%**	**44%**	**54%**	**46%**	**55%**	**45%**	**56%**	**44%**	**52%**	**48%**

Source: Field work, 2021

Table 16 shows the percentage enrolment of students in the research schools from 2017 to 2021 by sex. Consider Table 16 for more details of the percentage enrolment distribution of the schools.

Table 16: Student-Teacher Ratio of the Schools

Name of School	Student-Teacher Ratio of the Schools from 2017-2021				
	Student-Teacher Ratio (STR)				
	2017	2018	2019	2020	2021
	STR	STR	STR	STR	STR
GHANA SENIOR HIGH SCHOOL, TAMALE	10	14	13	11	4
DAGBONG STATE SHTS-YENDI	12	13	6	8	21
TAMALE GIRLS SENIOR HIGH SCHOOL	19	17	18	17	19
E. P. HIGH SCHOOL, SABOBA	22	25	23	22	19
KARAGA SENIOR HIGH SCHOOL	23	24	10	29	7
PRESBYTERIAN SENIOR HIGH SCHOOL	5	4	6	4	6
GUSHEGU SENIOR HIGH SCHOOL	32	32	35	32	27
PONG-TAMALE S.H.S	9	8	10	12	5
KUMBUNGU SHS	19	20	23	22	22
ST. CHARLES MINOR SEMINARY SHS	15	11	8	8	10
TOTAL	**17**	**17**	**16**	**17**	**14**

Source: Field work, 2021

The Table 17 gives accounts of student-teacher ratio of the research schools from 2017 to 2021. From the Table 17 Gushegu SHS recorded the higher STR in all the years among the schools. Study the Table 17 for more clarification.

Table 17: Background Information of Selected Senior High Schools in the Northern Region of Ghana.

Background Data	SEIP	%	NON SEIP	%
Location				
Urban			6	60
Rural	4	40		
School Programmes				
Gen. Science	4	40	6	60
Gen. Arts	4	40	6	60
Visual Arts	4	44	5	56
Agric. Science	4	40	6	60
Business	4	44	5	56
Home Economics	4	40	6	60
Technical			1	100
Teacher-Pupil Ratio				
	1:25		1: 22	
Sex of Students				
Male	103=54%		97=57%	
Female	87=46%		79=43%	
Total	190=100%		176=100%	

Sex of Teachers		
Male	107=96%	106=86%
Female	5=4%	17=14%
Total	112=100%	123=100%

Per Table 18, there are four Secondary Education Improvement Project (SEIP) schools, compared to six non-Secondary Education Improvement Project (non-SEIP) schools. All four of the sample SEIP schools provide the following six programmes: general science, general arts, visual arts, agricultural science, business, and home economics. A secondary technical high school that offers five of the programmes in addition to a technical programme is the only one of the non-SEIP institutions that do not provide the same programmes. The pupil-teacher ratio in SEIP schools is 1:25, while it is 1:22 in non-SEIP schools, according to the table. Additionally, Table 18 demonstrates that the number of female students at sampled SEIP schools is 87 (46%) and the number of male students is 103 (54 percent). On the other hand, the sampled non-SEIP boys' enrolment is 97 (57 percent), whereas the girls' enrolment is 79 (43 percent). Additionally, table 18 gives the female teacher population for the sampled SEIP schools as five (four percent), while the male teacher population is 107 (94 percent). Contrarily, the female teacher population for the sampled schools is 17 (14 percent), while the male teacher population is 106 (86 percent). Table 18 also shows that; six (4.44 percent) of the sampled teachers are diploma holders, degree holders are 92 (68.15 percent), masters holders are 20 (14.81 percent), and other qualifications are 17 (12.59 percent). On the other hand, the table shows that in sampled non-SEIP schools; diploma holders are four (3.08 percent), degree holders are 89 (68.46 percent), masters holders are 28 (21.54 percent), and other qualifications are nine (6.92 percent). Moreover, table 18 shows that the population of the SEIP SHS students that were present in school during the period of the

research was 4141, while that of the non-SEIP schools was 3658. Finally, table 18 shows that 416 teachers were in SEIP schools, while 434 teachers were in non-SEIP schools.

5.2.1 Discussion

The background details of the sampled schools are displayed in Tables 16, 17 and 18. It demonstrates that four of the schools are situated in somewhat rural locations. A rural school is one with less than 500 students (Opoku et al., 2020). Rural areas were home to all four of the secondary education improvement project (SEIP) schools. Schools included in the Non-SEIP (Non-Secondary Education Improvement Project) were situated in relatively urban areas. While some studies found no significant differences in performance or even found some rural schools outperforming their urban counterparts, another study (Adepoju & Oluchukwu, 2011) demonstrated that urban schools perform better than their rural counterparts (Fan & Chen, 1998). Other research found no discernible difference between rural and urban peers in terms of performance Yusuf, 2010).

Only one of the sampled schools was a senior technical high school, the bulk of the institutions being senior high schools. General Arts, General Science, Business, Agriculture Science, Home Economics, and Visual Arts were offered at many of the schools. The senior technical high school additionally provided technical education.

The teacher-student ratio was generally larger in rural senior high schools than it was in metropolitan ones. Rural schools had a teacher-to-student ratio of 1:25, and urban schools had a ratio of 1:22. However, both were lower than the suggested national average of 1:35 (Republic of Ghana, 2002).

The number of SHS2 students by gender in SEIP and non-SEIP schools are also shown in Table 3. The 366 students who were sampled included 190 from SEIP schools and 176 from non-SEIP schools. According to the table, there were 46 percent female students and 54 percent male students at SEIP schools. In contrast, 57 percent of the pupils sampled from schools outside the SEIP were male, while 43 percent were female.

Table 18's breakdown of the number of teachers by sex shows that SEIP schools had fewer teachers than their non-SEIP counterparts. 107 (96 percent) of the SEIP schools' 112 teachers were male, while 5 (four percent) were female. In contrast, 106 of the teachers in the non-SEIP schools were male, making up 86 percent of the total, as opposed to 17 female teachers, who made up 14 percent of the total.

Table 18 also demonstrates the qualifications of the 135 teachers working in the SEIP schools. Six instructors held a diploma, making up 4 percent of the total; 92 teachers held a degree, making up 68.25; 20 teachers held a master's degree, making up 14.8 percent; and 17 teachers held any other degrees or certificates, making up 12.6 percent. The 130 teachers at the non-SEIP schools, on the other hand, had the following degrees: diplomas (4=3.1 percent), degrees (89=68 percent), masters (28=21.5 percent), and others (9=6.9 percent). The table shows that there were no appreciable differences in the qualifications of instructors in senior high schools that participated in SEIP and those that did not, although there were considerable differences between them in terms of those who held master's degrees. In contrast to the 14.8 percent of master's degree holders in SEIP institutions, there were 28 master's degree holders in non-SEIP schools, or 21.5 percent.

In the ten senior high schools that were sampled, Table 3 displays the total number of teachers and pupils in form two. Due to government regulations about COVID-19, the researcher could

only collect data from senior high school form two pupils because form one and three students were absent. Thus, a total of 4,141 and 3,658 SHS 2 students from SEIP and non-SEIP schools, respectively, were sampled. In the sampled senior high schools, there were 416 instructors overall in SEIP schools and 434 in non-SEIP schools. According to Table 3, there were a total of 10,793 pupils in SEIP schools and 9,406 students in non-SEIP schools in the sampled schools, consisting of SHS1, SHS2, and SHS3. Using only SHS2 students or all students, it can be seen in the chart that while there were more students in SEIP schools than in non-SEIP schools, the total number of teachers for non-SEIP schools (434) was higher than that for SEIP schools. This explains why SEIP schools' teacher-to-student ratio (1:25) was higher than those of non-SEIP schools (1:22).

5.2 SECTION B: Teacher Qualification and Experience and Students' Academic Performance in Public Senior High Schools

Educational researchers have examined how a teacher's qualifications, experience, and teaching effectiveness relate to student achievement. In general, teacher qualification refers to the circumstance in which a teacher obtains the necessary academic certificates to qualify him or her to teach a specific subject. However, a trained teacher or a professional teacher is someone who has received pedagogical training or training in teaching techniques. The length of one's teaching career is related to their teaching experience. According to table 9 of this study, the relationship between academic achievement and teachers' training and experience is examined. According to the study, student success in the 2019 WASSCE, as determined by weighted average scores, is related to teachers' professional qualifications, such as degrees in education, using weighted average scores, the 2019 WASSCE student performance was calculated. Between the Secondary

Education Improvement Project (SEIP) Schools and non-SEIP Schools, the link between the two factors was investigated.

5.3 Teacher Qualification and Students' Academic Performance

Table 18 shows the qualification of teachers in SEIP schools and Non-SEIP schools concerning the academic performance of students in the Northern Region of Ghana.

Table 18: Relationship between Teacher Qualification and Students' Academic Performance

School Code	Teacher Qualification (Degree in Education)	Weighted Average
Saint Charles (NS3)	31.3	7.40
Ghana SHS(NS2)	58.3	5.93
Tamale Girls SHS(NS5)	53.8	4.11
Pong-Tamale SHS(S7)	66.7	3.60
Karaga SHS(S10)	55.00	2.45
Presbyterian SHS (NS6)	58.8	2.13
Saboba E/P (NS4)	40.0	1.74
Gushiegu SHS (S9)	73.1	1.33
Dagbon State STHS(NS1)	66.7	1.13
Kunbumgu SHS (S8)	72.00	0.72

Table 19 demonstrates that there is no consistent correlation between students' academic achievement and teachers' professional qualifications (Degree in Education) in a sample of Northern Region public senior high schools. For instance, S8, a SEIP school, had 72 percent of instructors with a degree in education and scored the lowest on the weighted average, whereas

NS3, a non-SEIP school with the greatest weighted average score (students/academic performance of 7.4), had the lowest proportion of teachers with a degree in education (31.3). (0.72).

5.2.3 TEACHER EXPERIENCE AND STUDENTS' ACADEMIC PERFORMANCE

Table 20 shows the relationship between teachers with more than five years of experience (% agree and strongly agree) and students' academic performance (weighted average) for SEIP and non-SEIP schools under study.

Table 19: Results of Comparing Teacher Experience and Student's Academic Performance

School Code	No. OF Teachers with more than five years' experience (%)	Weighted Average
Saint Charles (NS3)	56.3	7.40
Ghana SHS(NS2)	77.8	5.93
Tamale Girls(NS5)	59.3	4.11
Pong -Tamale SHS(S7)	44.4	3.6
Karaga SHS(S10)	45	2.45
Presby SHS(NS6)	43	2.13
E.P Saboba (NS4)	53.3	1.74
Gusheigu SHS(S9)	66.7	1.33
Dagbon(NS1)	33.3	1.13
Kumbungu(S8)	36	0.72

Table 20 does not show a consistent relationship between teachers with more than five years of experience (% agreed and strongly agreed) and students' academic performance (weighted average score) based on the teachers' perspectives in SEIP and non-SEIP schools.

According to the percentage of teachers in SEIP and non-SEIP schools who agreed (agreed and strongly agreed), non-SEIP school teachers generally agreed more than their counterparts in SEIP schools that teachers with more than five years of experience would have a greater impact on student's academic performance. SEIP schools had 44.4, 53.3, 66.7, and 36.0 while non-SEIP schools had 56.3, 77.8, 59.3, 53.0, 53.3, and 33.3. The academic achievement of the pupils and the teacher's teaching experience, however, did not appear to be consistently correlated in table 13. Similar to the data in SEIP schools, the link between teachers' teaching experience and students' academic performance in non-SEIP schools was inconsistent. For instance, NS3, which had the highest weighted average score of 7.40, had 56.3 teachers who agreed, while NS2, which came in second place in terms of student performance and had a weighted average score of 59.3, had a higher percentage of teachers who agreed that the teaching experience of the teachers affected academic performance.

In both SEIP and non-SEIP schools, where Spearman rho was 0, a bivariate correlation between teachers' teaching experience and students' academic achievement revealed no association. Comparatively, the study of the correlation data from the viewpoint of the students revealed a weakly positive connection, which was not statistically significant, between the academic performance of the students and the teachers with more than five years of experience in the classroom. The Spearman rho for SEIP schools in the instance of the students was.183 with a p-value of.638, which was higher than the.05 significance threshold. In contrast, the outcomes for the non-SEIP schools revealed a Spearman r =.311 with P=.416.

5.2.4 TEACHER QUALIFICATION AND STUDENTS' ACADEMIC PERFORMANCE FROM STUDENTS' RESPONSES

The qualifications and experience of teachers are not consistently correlated, as seen in Table 21. It does, however, hint at a somewhat unfavourable correlation between the academic achievement of students and the experience and qualifications of teachers.

Table 20 shows the relationship between teachers' qualifications and students' academic performance from the student's perspective.

Table 20: Relationship between teachers' qualification and students' academic performance from students' perspective in selected SHS in Northern Region.

School Code	Teachers with higher qualificationS enable students TO perform better.	Weighted Average
Saint CHARLES (NS3	54.	7.40
Ghana SHS(NS2)	65.5	5.93
Tamale Girls SHS(NS5)	52.2	4.11
Pong-Tamale SHS(S7)	68.6	3.60
Karaga SHS (S10)	55.6	2.45
Presby SHS (NS6)	7 5.0	2.13
E/P Saboba SHS(NS4)	68.6	1.74
GUSHIEGU SHS (S9)	66.4	1.33
Dagbon State STHS(NS1)	77.8	1.13
Kunbumgu SHS (S8)	76.5	0.72

According to Table 21, the four top-ranking schools had varying percentages of students who agreed that teacher experience and training improve students' academic performance: 57.2, 65.5, 52.2%, and 68.2 percent. The influence of teacher experience and qualification was strongest in the two (2) lowest performing schools.

Table 21: Teaching Staff in the Schools

Name of School	Percentage (%) Teaching Staff in the School, 2021					
	Male Professional Teachers	Female Professional Teachers	Total Professional Teachers	Male Professional Non-Teachers	Female Professional Non-Teachers	Total Professional Non-Teachers
GHANA SENIOR HIGH SCHOOL, TAMALE	84%	16%	**100%**	0%	0%	**0%**
DAGBONG STATE SHTS- YENDI	87%	12%	**99%**	1%	0%	**1%**
TAMALE GIRLS SENIOR HIGH SCHOOL	74%	19%	**92%**	7%	1%	**8%**
E. P. SENIOR HIGH SCHOOL, SABOBA	83%	2%	**85%**	15%	0%	**15%**
KARAGA SENIOR HIGH SCHOOL	86%	3%	**89%**	11%	0%	**11%**
PRESBYTERIAN SENIOR HIGH SCHOOL, TAMALE	74%	26%	**100%**	0%	0%	**0%**
GUSHEGU SENIOR HIGH SCHOOL	85%	6%	**91%**	9%	0%	**9%**
PONG-TAMALE SENIOR HIGH SCHOOL	74%	8%	**81%**	13%	6%	**19%**
KUMBUNGU SENIOR HIGH SCHOOL	76%	22%	**98%**	2%	0%	**2%**
ST. CHARLES MINOR SEMINARY SHS	83%	15%	**98%**	2%	0%	**2%**
TOTAL	**80%**	**13%**	**93%**	**6%**	**1%**	**7%**

Source: Field work, 2021

Table 22 shows the teaching staff in the sampled schools in percentages, from the Table… the Senior High Schools (SHSs) equipped with fully professional teachers were Ghana SHS and Presbyterian SHS, both Schools have 100% professional teachers. Consider the Table… for more details of the rest of the Schools staffing of teachers.

Table 22: Teachers Highest Qualification both Professional and Academic

Name of School	Percentage (%) of Teachers Highest Qualification both Professional and Academic									
	%Professional Teaching Certificates					%Academic Certificates				
	Cert. A	Diploma	Degree	Masters	PhD	Others	Diploma	Degree	Masters	PhD
GHANA SENIOR HIGH SCHOOL, TAMALE	0%	0%	62%	38%	0%	0%	0%	62%	38%	0%
DAGBONG STATE SHTS- YENDI	0%	1%	75%	12%	0%	0%	1%	87%	12%	0%
TAMALE GIRLS SENIOR HIGH SCHOOL	16%	4%	52%	10%	0%	0%	0%	88%	12%	0%
E. P. HIGH SCHOOL, SABOBA	10%	42%	21%	13%	0%	0%	42%	46%	13%	0%
KARAGA SENIOR HIGH SCHOOL	0%	4%	78%	7%	0%	0%	0%	93%	7%	0%
PRESBYTERIAN SENIOR HIGH SCHOOL	20%	8%	61%	11%	0%	7%	3%	67%	23%	0%
GUSHEGU SENIOR HIGH SCHOOL	0%	0%	78%	13%	0%	0%	0%	87%	13%	0%
PONG-TAMALE S.H.S	0%	0%	66%	15%	0%	0%	0%	85%	15%	0%
KUMBUNGU SHS	17%	25%	48%	8%	0%	0%	1%	85%	14%	0%
ST. CHARLES MINOR SEMINARY SHS	13%	21%	48%	17%	0%	0%	0%	75%	25%	0%
TOTAL	**7%**	**9%**	**61%**	**15%**	**0%**	**0%**	**3%**	**79%**	**18%**	**0%**

Source: Field work, 2021

Table 23 shows the qualifications of teachers both professional and academic in the research schools. From the Table 23, Ghana SHS had 38% of the teachers having Masters Certificates both academic and professional. ST. Charles Minor Seminary SHS had 17% and 25% of the teachers having professional and academic Masters Certificates respectively. For more details on the qualification of teachers in the sample schools, consider Table 23.

Table 23: Teachers Experience in Teaching of the Schools

Name of School	Percentage (%) of Teachers Experience in Teaching							
	%Number of years Professional Teachers taught				%Number of years Non-Professional Teachers taught			
	1-3 Years	4-6 Years	7-10 Years	11 & Above Years	1-3 Years	4-6 Years	7-10 Years	11 & Above Years
GHANA SENIOR HIGH SCHOOL, TAMALE	18%	7%	20%	54%	0%	0%	0%	0%
DAGBONG STATE SHTS- YENDI	18%	13%	14%	42%	11%	0%	0%	1%
TAMALE GIRLS SENIOR HIGH SCHOOL	7%	9%	19%	48%	3%	4%	4%	5%
E. P. HIGH SCHOOL, SABOBA	17%	31%	31%	6%	15%	0%	0%	0%
KARAGA SENIOR HIGH SCHOOL	2%	7%	80%	0%	2%	9%	0%	0%
PRESBYTERIAN SENIOR HIGH SCHOOL	38%	13%	33%	16%	0%	0%	0%	0%
GUSHEGU SENIOR HIGH SCHOOL	20%	6%	3%	62%	0%	7%	0%	2%
PONG-TAMALE S.H.S	4%	15%	23%	40%	0%	4%	6%	9%
KUMBUNGU SHS	9%	5%	6%	78%	1%	1%	0%	0%
ST. CHARLES MINOR SEMINARY SHS	21%	35%	27%	15%	0%	0%	2%	0%
TOTAL	**14%**	**12%**	**24%**	**43%**	**2%**	**3%**	**1%**	**2%**

Source: Field work, 2021

Table 24 gives the overview of teachers experience in teaching in the research schools in various range years in teaching. From the Table 23 Kumbungu SHS had the majority of professional teachers having teaching experience from 11 years and above (78%) and followed by Gushegu SHS (62%). Consider Table 24 for more highlights on the number of years of teaching experience of teachers in the remaining schools.

Table 24: Record of Number of Teaching Staff of the School by Sex

Name of School	Record of Number of Teaching Staff of the Schools from 2017-2021									
	Percentage (%) Number of Teaching Staff by Sex									
	2017		2018		2019		2020		2021	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
GHANA SENIOR HIGH SCHOOL, TAMALE	88%	12%	88%	12%	88%	12%	83%	17%	84%	16%
DAGBONG STATE SHTS- YENDI	96%	4%	92%	8%	89%	11%	88%	12%	88%	12%
TAMALE GIRLS SENIOR HIGH SCHOOL	71%	29%	75%	25%	76%	24%	80%	20%	81%	19%
E. P. HIGH SCHOOL, SABOBA	93%	7%	93%	7%	94%	6%	96%	4%	98%	2%
KARAGA SENIOR HIGH SCHOOL	95%	5%	98%	2%	95%	5%	97%	3%	97%	3%
PRESBYTERIAN SENIOR HIGH SCHOOL	86%	14%	80%	20%	79%	21%	74%	26%	74%	26%
GUSHEGU SENIOR HIGH SCHOOL	100%	0%	97%	3%	96%	4%	96%	4%	94%	6%
PONG-TAMALE S.H.S	95%	5%	96%	4%	88%	12%	86%	14%	86%	14%
KUMBUNGU SHS	82%	18%	80%	20%	80%	20%	81%	19%	78%	22%
ST. CHARLES MINOR SEMINARY SHS	89%	11%	87%	13%	85%	15%	85%	15%	85%	15%
TOTAL	**89%**	**11%**	**89%**	**11%**	**87%**	**13%**	**86%**	**14%**	**86%**	**14%**

Source: Field work, 2021

Table 25, indicates teacher staffing by sex in the research schools from 2017 to 2021. From the Table 25 Female teacher staffing recorded the lower percentages across all the years in the research schools. Consider Table 25 for more details on teacher staffing by sex in the sampled schools in the various years.

5.3.0 DISCUSSION OF RESULTS

5.3.1 Teacher Qualification and Experience

Tables 19, 20, and 21 failed to find a consistent link between teacher experience and qualifications and student achievement in the study's SEIP and non-SEIP senior high schools. Based on teachers' responses, a bivriate correlation between teacher qualification and students' academic achievement in the chosen SEIP and non SEIP schools had a Spearman rho ®=0. This indicated that the two variables had no association. A bivariate Spearman rho correlation between teacher credentials and students' academic performance based on their responses, on the other hand, revealed a weak negative link that was not statistically significant. That was r=-.174, and P=.631 was higher than the.05 level of significance. However, a bivariate Spearman correlation using students' responses from non-SEIP schools also revealed a positive, fairly strong association (r=.498), which was not statistically significant. The findings of the connection between replies from students in SEIP schools and those from students in non-SEIP schools differed, which may be explained by the varied ways in which teacher qualifications affected the two groups of pupils.

Additionally, it was discovered that for both SEIP and SEIP schools, when Spearman r was equal to zero, a bivariate correlation between the instructors' teaching experience had no bearing on the student's academic achievement from the teachers' perspective. Students' responses on the connection between the teachers' teaching experience and their qualifications demonstrated, once more, a weak positive association that was not statistically significant for SEIP and non-SEIP schools.

The information above demonstrated that students in the study's sample of senior high schools believed that teacher training and experience had some bearing on their academic success.

Although the results for students were similarly not statistically significant, the teachers had a different opinion. These might result from the numerous variables that affect students' success rather than a lack of importance placed on instructor elements in terms of their academic progress. The past performance of students "is a strong predictor of future performance," according to (Yunas, 2014, p.50). This implies that a variety of factors, including the internal efficiency of the school, influence achievement or student performance. Inherent and acquired skills, personality, learning preferences, family, and community influences, and learning styles are some other variables that affect students' accomplishments. Demographics of students such as age, gender, and socio-economic background of students also affect students' academic performance one way or the other (Yunus, 2014, P.51).

Table 20 demonstrated a statistically insignificant negative weak connection between instructor factors and student performance (-.006 at p=.986 >.05; and -.174 at p=.630 >.05). Similar modest negative correlations were found in the analysis of the results for schools not participating in the SEIP, which did not reach statistical significance. Only 9 percent of analyses containing 377 separate Education Production function (EPF) estimates that took teacher qualification into account found positive statistically significant effects on students' performance, according to Hanushek's (1997) analysis of meta-data; this meant that 91 percent supported the current study and were not statistically significant. According to Akinsolu (2010), there is a considerable correlation between a teacher's training and experience and the academic success of their students. In any case, Hanushek's (1997) assertion that only 9% of his Meta-data analysis revealed a significant association was not necessarily argued by Akinsolu's findings.

In addition, of the 207 estimations of the effects of critical resources, 20% had significant positive outcomes and 5% had significant negative results for teacher experience. The results of

the same study were negative but statistically insignificant in 71% of the cases, which generally supports the conclusion of the present study.

Table 25: Correlation between Other Teacher-Related Factors and Students' Academic Performance

Teacher Related Factors	Weighted Average Scores (WA)	Correlation Showing Relationship			
		SEIP Schools		Non SEIP Schools	
Students in schools where the majority of teachers specialized in the subjects, they teach perform better	WA	Not sig	-.014	Not sig	.121
Students in schools with teachers who have more than five years' experience perform better	WA	Not sig	.009	Not sig	.487
Students who attend schools where teachers are motivated to support learning perform better	WA	Not sig	.130	Not sig	.342
Students who attend schools where teachers show warmth and teach in simple, straightforward language perform better	WA	Not sig	.270	Not sig	.174
Students who are taught by teachers who have at least a degree in the subject perform better	WA	Not sig	.479	Not sig	.160

In both SEIP and non-SEIP schools, a bivariate Spearman correlation between teacher-related variables and students' academic achievement typically reveals positive weak to moderate

correlations, which were not statistically significant. Teachers in SEIP schools believed that students perform better when they are taught by teachers who have at least a bachelor's degree in the subject they are teaching, whereas their counterparts in non-SEIP schools believe that students perform better when they attend schools where teachers have more than five years of experience.

Additionally, a bivariate Spearman correlation between teacher credentials and student achievement in the specific schools revealed no correlation between these two variables in both SEIP and Non-SEIP schools. It meant that these schools often employed qualified teachers with first-degree average academic preparation and more advanced professional preparation, such as a degree in education. The researcher was unable to determine whether the teachers' degrees were in the disciplines they were teaching.

Using Spearman correlation analysis, the weighted average scores (student academic achievement) and teacher professional qualification were correlated. As was previously indicated, the school with the worst performance has 72% of its teachers with degrees in education. Table 26 also showed that S7, S8, and S9, which represent SEIP schools, had the highest percentages of qualified professional teachers despite being the schools with the lowest test scores (66.7 percent, 72.0 percent, and 73.1 percent, respectively). The foregoing implies that there may be some other factors than the teacher's academic or professional background that could affect students' academic achievement.

While a bivariate Spearman correlation between teacher credentials and student academic performance for students in SEIP schools revealed a weak negative correlation that was not statistically significant—r=-.174 with P=.631>.05—students in non-SEIP schools revealed a strong positive correlation that was, however, not statistically significant—r=.494 with P=.147—

which was greater than.05 significance level. They indicated that there was no consistent correlation between teacher qualification and student performance, whether viewed from the perspectives of instructors in both SEIP and non-SEIP schools or of students in both SEIP and non-SEIP schools.

5.3.2 SECTION C RESULTS OF OPEN-ENDED RESPONSES ON QUALIFICATION AND EXPERIENCE OF TEACHERS ON STUDENTS' ACADEMIC PERFORMANCE, TEACHERS AS RESPONDENTS

Table 26: Teachers' response on qualification and experience of teachers on the influence of students' academic performance

Response of teachers on Qualification and Experience of teachers on Students' Academic Performance	Percentage (%) of Responses by Sex		
	% Female (F)	% Male (M)	Total % (%FM)
Teachers must properly prepare lesson notes and effective delivery to students	2	8	**10**
Teachers Continuous Professional Development must be done all the time to make them up to date	3	27	**30**
Teachers using appropriate teaching methods and techniques (such as student centred and activity based) to teach students	1	11	**12**
Teachers effective use of TLMs	0	3	**3**
Teachers should be recruited to teach the areas of their specialization	0	11	**11**
Teachers should show professionalism and dedication in their teaching	0	5	**5**
Teachers should be punctual and regular to school and use the best teaching methods and techniques to teach students to understand well	2	6	**8**
Teachers experience and higher education are key to improve students' higher academic performance	1	1	**2**
Teachers should identify students' potentials and assist them to develop their potentials	0	14	**14**
Teachers should conduct regular assessment such as exercises, quizzes, homework, and class test to students and discipline those who fail to do them	1	4	**5**
TOTAL	10	90	**100**

Source: Field Survey 2021

Table 27 expresses the views of teachers both female and male on the Qualification and Experience of teachers on the influence of students' academic performance in schools. From table 26, 30 percent of the teachers were of the view that Teachers' Continuous Professional

Development must be done all the time to make them up to date, and 14 percent of them were of the view that Teachers should identify students' potential and assist them to develop their potentials. For more various views of responses on the teachers' Qualifications and Experience with regards to students' academic performance in schools, refer to table 27.

5.3.3 RESULTS OF OPEN-ENDED RESPONSES ON TEACHER FACTORS ON STUDENTS' ACADEMIC PERFORMANCE, STUDENTS AS RESPONDENTS

Table 27: Students' response on the influence of Teacher Factors on students' academic performance

Response of students on influence of Teacher Factors on Students' Academic Performance	**Percentage (%) of Responses by Sex**		
	% Female (F)	**% Male (M)**	**Total % (% FM)**
Teachers should consider students opinions when teaching	4	3	**7**
Teachers should be punctual and regular to school and use the best teaching methods and techniques to teach students to understand well	29	37	**66**
Teachers should stop indiscriminate punishment of students	2	0	**2**
Teachers should assess students' performance regularly	3	4	**7**
Teachers experience and higher education are key to improve students' higher academic performance	0	1	**1**
Teachers should identify students potentials and assist them to develop their potentials	11	4	**15**
Teachers Continuous Professional Development must be done all the time to make them up to date	1	1	**2**
TOTAL	50	50	**100**

Source: Field Survey 2021

The opinions of both male and female students on the impact of teacher factors on students' academic achievement are shown in Table 28. According to table 9, most respondents (66 percent) believed that teachers' regular attendance at school, use of the best teaching strategies, and emphasis on helping students understand concepts would all improve students' academic

performance. Additionally, 15 percent of respondents thought teachers should recognise students' potential and help them to realise it. The table also demonstrates that only one percent of respondents agreed or strongly agreed that teacher experience and qualifications have an impact on student's academic success. Additionally, two percent of the respondents said they agreed that teachers' ongoing professional development affects pupils' academic success. Take a look at table 9 for the remaining comments made by other respondents regarding the teacher-related factors that affect students' academic achievement in schools.

From table 28, 15 percent of respondents said that teachers should identify pupils' potential and aid them in realising it. Studies have been conducted to ascertain the relationship between academic achievement or success and motivation in students. Academic success and Vroom's Expectancy Theory were used by Whittington (2014) to investigate motivation and academic achievement. Following the application of Vroom's Expectancy concepts like "valence, Expectancy, and instrumentality to enhance the study of motivation," the levels of motivation were compared to the student's performance on the Illinois Mouse Assistant Training Competency Examination. Whittington contends that if teachers recognised the importance of motivation in the classroom, they would be equipped with knowledge that would improve students' academic performance.

From table 28, 66 percent of respondents thought that teachers' consistent attendance at school, their use of the most effective teaching techniques, and their concentration on ensuring that their students fully comprehend ideas would all enhance their academic achievement.

Fehintola (2014) investigated the impact of eight teacher characteristics, including academic qualification, professional qualification, content knowledge, instructional quality, evaluation

procedures, work value, classroom attendance, and job satisfaction, on students' academic performance and discovered that the teachers' characteristics accounted for .546 (54.6%) of the variation in students' academic performance (Abstract). Fehintola suggested that teachers' content understanding and instructional qualities were more effective predictors of students' academic performance than professional teacher certification and job value (Adediwura and Tayo (2007; Ad and Olatundun (2007; Lockhead and Komenan 1988; Schacter and Thum 2004; and Star 2002; as referenced in Akiri, 2013, P. 106.)

CHAPTER SIX

SCHOOL SYSTEM FACTORS ON THE ACADEMIC PERFORMANCE OF PUBLIC SENIOR HIGH SCHOOLS

6.0 Introduction

The main goal of the study was to analyse how resources or inputs from the schools affected students' academic performance in selected public senior high schools in Ghana's Northern region. This chapter is divided into four major sections and several minor sections. In the first main section, correlational analysis was used to assess the relationship between learning materials, infrastructure, equipment, students' characteristics, rules/regulations and discipline and students' academic achievement as determined by weighted average scores. The second section discussed results of the correlational analysis of the correlation between the school system factors and academic performance. The third section also discussed the influence of student characteristics on students' academic performance. While the forth section presented the findings on the opinions of teachers and students from open-ended questions on the influence of school system factors on students' academic performance.

Table 28: Student-Classroom Ratio of the Schools

Name of School	Student-Classroom Ratio of the Schools from 2017-2021				
	Student-Classroom Ratio (SCR)				
	2017	2018	2019	2020	2021
	SCR	SCR	SCR	SCR	SCR
GHANA SENIOR HIGH SCHOOL, TAMALE	20	34	33	30	15
DAGBONG STATE SHTS- YENDI	22	30	15	15	40
TAMALE GIRLS SENIOR HIGH SCHOOL	44	62	56	46	48
E. P. HIGH SCHOOL, SABOBA	51	48	32	32	27
KARAGA SENIOR HIGH SCHOOL	69	60	24	72	20
PRESBYTERIAN SENIOR HIGH SCHOOL	9	11	13	10	16
GUSHEGU SENIOR HIGH SCHOOL	63	68	66	62	58
PONG-TAMALE S.H.S	20	20	37	39	16
KUMBUNGU SHS	57	67	90	60	60
ST. CHARLES MINOR SEMINARY SHS	35	27	20	21	24
TOTAL	**38**	**43**	**41**	**40**	**35**

Source: Field work, 2021

Table 29, displays the figures of student-classroom (SCR) of the research schools from 2017 to 2021. From the Table 28, Presbyterian SHS recorded the lower SCR in all the years except 2021 among the schools. Consider the Table 29 for more clarification on SCR of the various schools.

Table 29: Student-Furniture Ratio of the Schools

Name of School	Student-Furniture Ratio of the Schools from 2017-2021									
	Students-Chairs Ratio (SChR)					Students-Tables Ratio (STaR)				
	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
	SChR	SChR	SChR	SChR	SChR	STaR	STaR	STaR	STaR	STaR
GHANA SENIOR HIGH SCHOOL, TAMALE	1.1	0.7	0.7	0.7	1.5	1.1	0.7	0.7	0.7	1.5
DAGBONG STATE SHTS- YENDI	2.6	2.0	3.7	2.9	1.1	2.6	2.0	3.7	2.9	1.1
TAMALE GIRLS SENIOR HIGH SCHOOL	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E. P. HIGH SCHOOL, SABOBA	1.0	1.0	1.0	0.9	1.1	1.0	1.0	1.0	0.9	1.1
KARAGA SENIOR HIGH SCHOOL	0.6	0.7	1.7	0.6	2.0	0.6	0.7	1.7	0.6	2.0
PRESBYTERIAN SENIOR HIGH SCHOOL	1.5	1.2	1.0	1.3	1.1	1.5	1.2	1.0	1.3	1.1
GUSHEGU SENIOR HIGH SCHOOL	0.5	0.6	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5
PONG-TAMALE S.H.S	1.1	0.9	0.6	0.5	1.1	1.1	0.9	0.6	0.5	1.1
KUMBUNGU SHS	0.6	0.5	0.6	0.8	0.8	0.6	0.6	0.4	0.8	0.8
ST. CHARLES MINOR SEMINARY SHS	0.7	0.9	1.2	1.1	0.9	0.7	0.9	1.2	1.1	1.0
TOTAL	**0.9**	**0.8**	**0.9**	**0.8**	**1.0**	**0.9**	**0.8**	**0.8**	**0.8**	**1.0**

Source: Field work, 2021

Table 30 gives highlights on student-furniture ratio (SFR) of the research schools from 2017 to 2021. From the Table 30, Gushegu SHS and Kumbungu SHS recorded the lower SFR in all the years among the schools whiles Dagbon State SHTS recorded the higher SFR. Study the Table 30 for more clarification on SFR.

Table 30: Student-Text Books Ratio of the Schools

Name of School	Student-Text Books Ratio of the Schools from 2017-2021				
	Student Text Books Ratio(STBR)				
	2017	2018	2019	2020	2021
	STBR	STBR	STBR	STBR	STBR
GHANA SENIOR HIGH SCHOOL, TAMALE	0.5	0.5	0.5	0.5	**0.5**
DAGBONG STATE SHTS- YENDI	1.0	1.0	1.0	1.0	**1.0**
TAMALE GIRLS SENIOR HIGH SCHOOL	0.5	0.5	0.3	0.3	**0.2**
E. P. HIGH SCHOOL, SABOBA	1.0	1.0	1.0	1.0	**1.0**
KARAGA SENIOR HIGH SCHOOL	0.3	0.3	0.3	0.3	**0.3**
PRESBYTERIAN SENIOR HIGH SCHOOL	0.3	0.3	0.3	0.3	**0.3**
GUSHEGU SENIOR HIGH SCHOOL	0.5	0.5	1.0	1.0	**1.0**
PONG-TAMALE S.H.S	1.0	0.5	0.5	0.3	**0.3**
KUMBUNGU SHS	1.0	1.0	0.5	0.5	**1.0**
ST. CHARLES MINOR SEMINARY SHS	1.0	1.0	1.0	1.0	**1.0**
TOTAL	**0.6**	**0.5**	**0.5**	**0.5**	**0.5**

Source: Field work, 2021

Table 31 gives accounts on student-text books ratio (STBR) of the sampled schools from 2017 to 2021. From the Table 31, Dagbon State SHTS, Saboba E.P. SHS and ST. Charles Minor Seminary SHS recorded enough STBR in all the years among the schools whiles Karaga SHS and Presbyterian SHS recorded the lowest STBR. Study the Table 31 for more clarification.

6.1.0 Teaching/Learning Materials, Infrastructure, Equipment, Students' Characteristics, Rules/Regulations and Discipline and Students' Performance at WASSCE from Teachers' Perspective

Table 31: Relationship between School Related or System Factors on Academic Performance: Teachers in SEIP Schools Responses(X3=TLMs)

School Code	R	P	Significant or not
Dagbon State STHS(NS1)	-.190	.599	Not significant(sign)
Ghana SHS (NS2)	.103	.791	Not sign
Saint Charles SHS (NS3)	-.015	.967	Not sign
E/P Saboba SHS(NS4)	.110	.762	Not sign
Tamale Gils SHS(NS5)	.035	.928	Not sign
Presby SHS(NS6)	-.220	.541	Not sign
Pong-Tamale SHS(S7)	.341	.305	Not sign
Kunbumgu SHS(S8)	.013	.972	Not sign
Gushiegu SHS(S9)	.317	.375	Not sign
Karaga SHS(S10)	.032	.929	Not sign
SEIP School Teachers TLMs	.013	.972	Not sign

A spearmen connection between teaching and learning materials and students' academic performance is shown in Table 32 based on instructors' comments in a sample of SEIP and non-SEIP schools. The table shows both weak negative and weak positive connections, but none of

them were statistically significant. For instance, a slight negative correlation was seen in three of the non-SEIP Schools, indicating that performance decreased as the availability of resources for teaching and learning increased. However, the SEIP Schools investigation found a tangentially positive correlation between the amount of teaching and learning resources and students' academic achievement.

6.1.0 Teaching/Learning Materials, Infrastructure, Equipment, Students' Characteristics, Rules/Regulations and Discipline and Students' Performance at WASSCE from Students' Perspective

The perspective in SEIP and Non-SEIP Schools

Table 32: Relationship Between School Related or System Factors (Teaching/learning materials) on Students' Academic Performance

School Code	R	p	Significant or not
Dagbon State STHS(NS1)	-.270	.451	Not sign
Ghana SHS(NS2)	-.433	.244	Not sign
Saint Charles SHS(NS3)	.808	.028	Sign
E/P Saboba SHS(NS4)	.221	.540	Not sign
Tamale Girls SHS(NS5)	-.146	.688	Not sign
Presby SHS(NS6)	.322	.365	Not sign
Pong-Tamale SHS(S7)	.406	.244	Not sign
Kumbungu SHS(S8)	-.013	.972	Not sign
Gushiegu SHS(S9)	-.142	.692	Not sign
Karaga SHS(S10)	-.012	.973	Not sign
SEIP Schools Students	.274	.476	Not sign

A bivariate spearmen correlation of teaching-learning materials as an example of school-based factors and students' academic performance revealed generally weak negative correlation from the perspective of the students, in contrast to the responses from the teaching of SEIP and non SEIP Schools, which were either having positive weak correlation or negative weak correlation. Table 33 demonstrates a substantial positive association that was statistically significant for one of the non-SEIP schools, which also happened to be the best-performing school from the sample

of schools. Table 33 provided evidence of a negative weak correlation where .9>-.015, which was not statistically significant, according to NS3 teachers. However, among the students, (.808 = r) and the p-value was lower than (0.05).03) were (.967.05).

Table 33: Relationship Between School Related or System Factors (physical facilities such as libraries and classrooms) on Students' Academic Performance

School Code	R	P	Significant or not
Dagbon State STHS(NS1)	-.355	.314	Not sign
Ghana SHS(NS2)	.183	.638	Not sign
Saint Charles Minor Sem.(NS3)	-.035	.924	Not sign
E/P Saboba SHS(NS4)	-.190	.599	Not sign
Tamale Girls SHS(NS5)	-.183	.638	Not sign
Presby SHS(NS6)	-.241	.502	Not sign
Pong-Tamale SHS(S7)	.372	.260	Not sign
Kumbungu SHS(S8)	-.097	.790	Not sign
Gushiegu SHS(S9)	.315	.375	Not sign
Karaga SHS(S10)	.201	.577	Not sign
SEIP School Teachers Physical Facilities	-.097	.789	Not sign

6.1.4. LIBRARIES AND CLASSROOMS AND STUDENTS' ACADEMIC PERFORMANCE FROM STUDENTS' PERSPECTIVE

Table 34: Relationship Between School Related or System Factors on Students' Academic Performance: (Physical Facilities such as libraries and classrooms)

School Code	R	P	Significant or not
Dagbon State STHS(NS1)	-.216	.548	Not sign
Ghana SHS(NS2)	-.091	.815	Not sign
Saint Charles Minor Sem.(NS3)	.408	.363	Not sign
E/P Saboba SHS(NS4)	-.199	.599	Not sign
Tamale Girls SHS(NS5)	-.142	.695	Not sign
Presby SHS(NS6)	.270	.365	Not sign
Pong-Tamale SHS(S7)	-.375	.286	Not sign
Kumbungu SHS(S8)	-.172	.637	Not sign
Gusgiegu SHS(S9)	.112	.758	Not sign
Karaga SHS(S10)	-.142	.695	Not sign

From the responses of teachers and students from senior high schools under study in the Northern Region of Ghana, Table 34 and 35 present a bivariate correlation of physical facilities, such as libraries and classrooms, as an example of school-based factors. Analysis of the data revealed a general negative weak correlation, with values for SEIP and non-SEIP schools of -.035 -.091 -.091, -.190 -.241, and -.355 respectively. Only one SEIP School (S8 = -.097) displayed a negative weak correlation. The remaining SEIP schools displayed only a weak positive correlation. The correlation (rho) between physical facilities also demonstrated that an increase in school-based factors led to lower performance in non-SEIP schools, just as the results of the bivariate correlation between teaching and learning materials example of school-based factors also demonstrated a generally weak negative correlation for non-SEIP Schools. As

indicated in tables 25 and 26, however, it led to a minor improvement in the academic performance of pupils at the majority of SEIP schools.

A bivariate spearman correlation between the availability of physical facilities, such as libraries and classrooms, and that of students' academic performance, as seen from the perspective of the students, produced a different result than that of the teachers from both the SEIP and non SEIP schools under study. According to Table 26, the majority of non-SEIP schools displayed a mild negative association, whereas one non-SEIP school displayed a high positive connection that was statistically significant. Students' responses, in contrast to teachers' opinions under SEIP Schools, exhibited a largely negative weak correlation. This indicated that pupils, from both SEIP and non-SEIP schools, believed that as their schools' physical facilities grew, so did the academic performance of their students.

Table 35:Correlation between School System Factors and Students' Academic Performance

School System Factors	Weighted Average Scores (WA)	Correlation Showing Relationship			
		SEIP Schools		Non SEIP Schools	
Availability of teaching and learning materials	WA	Not sig	-.009	Not sig	-.261
Availability of physical facilities	WA	Not sig	-.070	Not sig	-.091
Students who attend schools with teachers with at least a degree in their area	WA	Not sig	-.265	Not sig	.413
Students' riots and other disturbances in schools negatively affect their performance	WA	Sig	.557	Not sig	.079
Nature and application of rules and regulations affect the academic performance of students	WA	Sig	.610	Not sig	.165
When students attend a school where management support learning with efficiency, they perform better	WA	Not sig	.385	Not sig	.172
Teachers ability to complete the syllabus in schools in good time make students' perform better	WA	Not sig	.190	Not sig	-.045

Table 36 shows students' academic performance and school system variables are consistently unrelated, according to a bivariate Spearman correlation. In both SEIP and non-SEIP schools, the results, which range from a weakly negative relationship to a moderately favourable relationship, are not statistically significant.

6.2.1. Teaching/Learning Materials, Infrastructure, Equipment, Students' Characteristics, Rules/Regulations and Discipline and Students' Performance at WASSCE from Teachers' Perspective

From Table 36, the ANOVA S9, S8, S7, and S10, which represented SEIP School Codes, failed to reject the null hypothesis that "There is no significant effect of the school-based factors on students' performance at WASSCE in the Northern Region of Ghana.

The Square Values for the SEIP Schools under study showed that teaching /learning materials and physical facilities only contributed to the on – Out of students by 17.1%, 0.1%, 48.4%, and 19.7% for S9, S8, S7, and S10 respectively. From the foregoing data, S7'S R2 pointed to a more significant contribution of the school-based factors than the rest. It happened to have performed better than the rest of the SEIP schools under study in the 2019 WASSCE results analysis

Table 37 also shows that physical facilities such as libraries and classrooms contributed more to the effect of the school-based factors or students' academic performance, apart from S8, where teaching and learning materials contributed more to the effect with beta values of .019 for teaching and learning materials and 0.009 for physical facilities. S8 also shows the least effect of the school-based factors on students' performance at WASSCE. It must be noted that 58 had the least weighted swage sore among both SEIP and non SEIP Schools under study.

6.2.2 Outcome Of Students Of Seip Schools Responses On The Effect OF Teaching/Learning Materials, Infrastructure, Equipment, Students' Characteristics, Rules/Regulations And Discipline On Students' Performance At WASSCE

Table 36: Results ANOVA of Teaching/Learning Materials, Infrastructure, Equipment, Students' Characteristics, Rules/Regulations and Discipline and Students' Performance at WASSCE

School Code	R^2	Contribution of variables		ANOVA	Reject/Fail
		X_3	X_4		
Gushiegu SHS(S9)	.171	.241	.281	.570	Fail to reject
Kumbungu SHS(S8)	.001	.019	.009	.998	Fail to reject
Pong-Tamale SHS(S7)	.484	.290	.506	.098	Fail to reject
Karaga SHS(S10)	.197	.628	.818	.518	Fail to reject

A regression of school-based factors (teaching/ learning materials and physical facilities such as libraries and classrooms) on students' performance WASSCE from the analysis of student responses in SEIP Schools (Table 17) showed that the study failed to reject the null hypothesis. The null hypothesis in chapter one stated that "There is no significant effect of school-based factors on students' performance at WASSCE.

Table 37: Outcome Of ANOVA Of NON-SEIP Schools on Teaching/Learning Materials, Infrastructure, Equipment, Students' Characteristics, Rules/Regulations, And Discipline, And Students' Performance at WASSCE

School Code	R^2	Contribution Of X_3 And X_4		ANOVA	Rejector Fail To Reject
Gushiegu SHS (s9)	.240	X3 .334	X4 .419	.439	Fail to reject
Kumbungu SHS (s8)	.053	.052	.007	.991	Fail to reject
Pong-tamale SHS (s7)	.425	.640	.592	.191	Fail to reject
Karaga SHS (s10)	.102	.310	.015	.725	Fail to reject

The ANOVA for S9, S8, and S10 were .439, .991, .191, and .725, all greater than the 0.05 significance level. The response from the students collaborated the response from the teachers in SEIP schools that school resources such as teaching/learning materials and physical facilities did not significantly affect students' performance. The R square values, however, showed that the two independent variables had a greater effect on student's performance at WASSCE in S7, followed by S9, S10 and lastly S8, S8, which had the least weighted average scores when the resource computed students' performance from the 2019 WASSCE results. Is it the core that these resources were not being tediously used to improve students' performance at WASSCE?

6.2.3. NON-SEIP SCHOOL TEACHERS' RESPONSES TO EFFECTS ON SCHOOL-RELATED OR SYSTEM FACTORS ON STUDENTS' PERFORMANCE AT WASSCE IN THE NORTHERN REGION OF GHANA

A regression of school-based factors (teaching / learning materials and physical facilities such as libraries and classrooms) on students' performance showed that the models for the various non SEIP schools were not statistically significant. However, the ANOVA for the non-SEIP schools was more significant than the 0.05 significance level. This, therefore, means that the Model failed to reject the null hypothesis, which stated that "There is no significant effect of the school-based factors on students' performance at WASSCE." The ANOVA for the model for the various schools as represented by the school codes was as follows: Ns1, Ns2, Ns3, Ns4, Ns5, and Ns6 were .818, .154, .990, .213, 703, and Ns6, respectively.

Table 38: Effect of School-Related or System Factors on Students' Academic Performance.

School Code	R2	Contribution of X3 And X4		ANOVA	Reject Or Fail To Reject
Dagbon State STHS(NS1)	.056	X3	X4		
Ghana SHS(NS2)	*.464*	*.099*	*.244*	*.818*	Fail to reject
Presby SHS(NS6)	*.131*	*-.807*	*.819*	*.154*	Fail to reject
E/P Saboba SHS(NS4)	*.403*	*.019*	*.371*	*.655*	Fail to reject
Saint Charles Minor Sem.(NS3)	*.003*	*.680*	*.786*	*.213*	Fail to reject
Tamale Girls SHS(NS5)	*.109*	*-.016*	*.065*	*.990*	Fail to reject

R square values for the school-based factors were generally low, except Ns2 = .464 = 46.4% and Ns4 = 0.403 = 40.3% which were moderately high. Before values or standardised coefficients were used to determine the individual's contribution in a dependent variable (X3 and X4 = teaching /learning materials and physical facilities, respectively) to the performance of students at WASSCE. Apart from Ns5, where teaching and learning materials contributed more to the effect of the two variables on output, the other five schools showed that physical facilities such as libraries and classrooms contributed more to the model.

6.2.4 Results of ANOVA of Teaching/Learning Materials, Infrastructure, Equipment, Students' Characteristics, Rules/Regulations and Discipline and Students' Performance at WASSCE

Multiple regression of school-based factors (teaching/ learning materials and physical facilities such AS libraries and classrooms) on students' performance at WASSCE, as shown in Table 18, indicated that the model was not statistically significant ANOVA from non SEIP school students' responses were all greater than the 0.05 significance level. The ANOVA for each non

SEIP school under study were, Ns3 = .985, Ns2, = .443, Ns3, = .269, Ns4 = .348, Ns5, = .820, Ns6, = .679, which were all greater than 0.05 significance level (Table 19). This meant that each school model failed to reject the null hypothesis.

Table 39: Effect of School Based Factors on Students' Performance at WASSCE

School Code	R2	Contribution of X_3 and	X_4	ANOVA	Reject or fail to
Dagbon State STHS(NS1)	.005	.076	.089	.985	Fail to reject
E/P Saboba SHS(NS4)	.297	.554	-.385	.348	Fail to reject
Ghana SHS(NS2)	.238	-.482	.023	.443	Fail to reject
Presby SHS(NS6)	.121	.208	.224	.679	Fail to reject
Saint Charles Minor Sem(NS3)	.481	.638	.112	.269	Fail to reject
Tamale Girls SHS(NS5)	.064	.222	.061	.820	Fail to reject

Analysis of the regression results showed that the R square (R2), which represented the contribution of school-based factors to the performance of students at WASSCE in each school, varied. For example, Ns1 which performed relatively poorly, had an R2 value of 0.005, while Ns3 had the last performance at WASSCE, 2019. Had an R2 value of 0.481. In percentage terms, Ns1 showed that school-based factors only contributed 0.5 per cent to students' performance in 2019, while Ns3 indicated a 48.1 per cent contribution of school-based factors to students' performance at WASSCE, 2019.

6.2.5 CONCLUSION

Analysis of the results of bivariate correlation between school-based factors involving Teaching/learning materials and physical facilities such as libraries and classrooms and students' performance at WASSCE showed generally positive weak or negative weak correlation that was not statistically significant. This was the case for both SEIP -and non-SEIP schools, which were proxies for rural and urban schools. The foregoing teachers' responses were collaborated by students' responses in SEIP and non-SEIP schools.

In a similar vein, a multiple linear regression involving school-based factors (teaching/learning materials and physical facilities) and students' performance showed for all the SEIP schools and non-SEIP schools and from teachers' and students' responses for each situation. As stated in chapter one, the null hypothesis says that "there is no significant effect of school-based factors on students' performance at WASSCE'. What the foregoing analysis of the results implies is that school-based factors such as teaching/learning materials and physical facilities may matter, but this, by their provision per se, does not improve performance regardless of the level of the endowment of the school or for that matter, whether the school is rural or urban.

6.5 DISCUSSION OF RESULTS

The idea of the Education Production Foundation (EPF) refers to an analogy made by economists to explain the learning process in a similar fashion industry during a firm's production process. In this way, schools are seen as places where education resources or school inputs such as; teachers, books, libraries, classrooms, students, equipment interact to produce output, which is student performance, usually expressed in test scores. Stakeholders in education continue to express worry over the performance of students at the West African Secondary School Certificate Examination (WASSCE), which culminated in the use of the WASSCE league table to rank

schools. The government of Ghana made a case in 2014 to the World Bank to support low-performing schools that were generally seen as deprived, hence implementing the Secondary Education Improvement Project (SEIP).

Therefore, there is a need to find out the difference in the performance of SEIP and Non-SEIP schools even as the researcher tries to find out how school inputs influence students' performance generally in the Northern Region of Ghana. The SEIP schools are used as proxies for rural schools, while non-SEIP schools are used for urban schools. This chapter discusses the results of the study according to the research objective.

The school factor in this study considered how the availability of teaching/learning materials and physical facilities such as classrooms and libraries affect students' performance at WASSCE. This study showed that school factors had a negative weak correlation with students' performance and were also found to be statistically insignificant. The finding from the multiple regression analysis also showed that teaching/learning materials and physical facilities such as classrooms and libraries were not statistically significant. Hanushek (1997) found that physical facilities were only 9% statistically significant positive and 5% negative but statistically significant from 91 estimates. The foregoing showed that 91 per cent of the 91 studies/estimates were negative and were not statistically significant, which to a more considerable extent agreed with this study. Furthermore, the 1966 Coleman Report pointed out that measured school resources explained only a small portion of the student achievement variance. This fact was supported by this study, which found that the three independent variables can explain only 31 per cent of the variation in student performance in this study's multiple regressions.

Furthermore, (Nascimento, 2008) also found small effects of school resources on students' academic performance in several studies he analysed from the United Kingdom. Gamoran and

Long (2006, as cited in Nascimento, 2008, p.20) were of the view that the majority of studies of EPFs that were conducted in the 1990s were done in the U.S, which tended to agree with Coleman Report's controversial finding that, variation in student outcomes was primarily explained by family background than school resources, was not the case in developing countries with low income. Nascimento, (2008) analyzed several studies conducted in developing countries and concluded that the effects were relatively small, particularly as was reported by Harbinson and Hanushek (1992, as cited in Nascimento,2008). Glewe and Jacoby (1993, as cited in Nascimento, 2008, p.21) also reported that the majority of estimated effects of school resources on students' outcomes were small and insignificant in a study conducted in Ghana. This conclusion supports the finding of this study that school-related factors such as teaching/learning materials and physical facilities such as classrooms and libraries were found to have a weak correlation with students' performance at WASSCE, which were not statistically significant. Glewe and Jacoby's finding also supported this study's finding that the ANOVA showed statistical insignificance.

Hanushek 2005 and Susan 2012 agreed that there is a relationship between school inputs and academic performance but disagreed over the extent of the relationship between them. The league table developed by the Government of Ghana appears to agree with Hanushek's view that there is no direct relationship between resource endowment and academic performance. This is because the league table ranks senior high schools from the top who score 100% quality passes to the bottom who probably score zero per cent quality passes without regard to resource disparities in the various schools. The researcher holds a different view that an integrated measurement of both academic performance and working performance indicators is required to tell whether a school is more efficient in its utilisation of inputs than another if it is performing

better than it. That is necessary because Susan (2012), suggested that there is a direct relationship between school resources and students' academic performance.

6.6 SECTION C: STUDENT CHARACTERISTICS AND ACADEMIC PERFORMANCE

The study's main objective was to find how the school-based resources or inputs influence the academic performance of students in sample Schools. The first section used correctional analysis to determine the relationship between students' academic performance using weighted average scores and students' characteristics. The second section presents analysis of open-ended questions on the students' questionnaire on the influence of such student factors as sex, prior performance (entry grade), attendance, and discipline on the academic performance of students.

Table 40: Results of correlational Analysis of students' class attendance and quality of entry grade on students' performance at WASSCE, using weighted average scores (X5)

School Code	R	P	Significance
Dagbon State STHS(NS1)	.328	.354	Not Significant
Ghana SHS(NS2)	.037	.924	Not Significant
Saint Charles Minor Sem.(NS3)	-.137	.725	Not Significant
E/p Saboba SHS(NS4)	.224	.563	Not Significant
Tamale Girls SHS(NS5)	.040	.919	Not Significant
Presby SHS(NS6)	-.183	.638	Not Significant
Pong-Tamale SHS(S7)	.201	.578	Not Significant
Kumbungu SHS(S8)	.708	.033	Not Significant
Gushiegu SHS(S9)	.173	.656	Not Significant
Karaga SHS(S10)	.229	.553	Not Significant

A bivariable Spearman correlation between student factor (leaning attendance) and students' performance at WASSCE, using weighted average scores of students in 2019 as shown in Table 20, indicated a generally positive weak and some weak negative correlations after analysing the data from teacher responses in both SEIP and non-SEIP Senior High School under study in the

Northern Region, except S8. It is worthy of note that S8 is a secondary education improvement project (SEIP) school with the least performance at WASSCE in the period under study. The results suggested that learner attendance in classes is more critical for a poorly performing school. For example, NS3 is the best performing school that had a Spearman r = −. 137, showing not only a weak correlation but also a negative correlation. NS2 and NS5, which followed NS3 in terms of performance at 2019 WASSCE, also had only a positive correlation of .037 and .040, respectively.

This further suggested that learner attendance to classes may be helpful but not a critical factor in determining students' performance at WASSCE.SEIP and non-SEIP schools with relatively stronger attendance and student performance trailed those SEIP and non-SEIP schools with a weaker relationship.

Table 41: Spearman Correlation between Students Factor (Student Prior Performance and Student Performance at WASSCE

School Code	R	P	Significance
Dagbon State STHS(NS1)	.661	.037	Significant
Ghana SHS(NS2)	-.346	.361	Not Significant
Saint Charles Minor Sem.(NS3)	.274	.476	Not Significant
E/P Saboba SHS(NS4)	.484	.186	Not Significant
Tamale Girls SHS(NS5)	-.548	.127	Not Significant
Presby SHS(NS6)	.010	.980	Not Significant
Pong-Tamale SHS(S7)	.201	.578	Not Significant
Kumbungu SHS(S8)	.708	.033	Significant
Gushiegu SHS(S9)	.173	.656	Not Significant
Karaga SHS(S10)	.229	.553	Not Significant

A bivariate correlation between student factor (student prior performance) and students' performance at WASSCE from responses in SEIP (S) and non-SEIP (NS) schools, as shown in Table 42, showed that some schools had a strong positive correlation, while others had a weak positive correlation.

Some other schools had a moderate negative association between student characteristics (factors) and students' academic performance. For example, NS, had a positive strong correlation (.661) which was statistically significant (ٜĕ $p = 0.037 < 0.05$). S8, a SEIP school, had a positive strong correlation that was equally statistically significant (ٜĕ $r = 0.708$, $p=0.033< 0.5$). All others, both SEIP (S) and non-SEIP (NS).

Either had e moderate positive correlation, weak positive correlation, or moderate negative correlation which were not statistically significant. The forgoing goes without saying that there was no consistent relationship between student characteristics (student factor) and performance. Anon-SEIP school had shown a strong positive correlation and a SEIP school also showed a strong positive correlation was a nonissue because they both perform poorly at WASSCE and might share similar characteristics. However, analysis of the data from Tables 24 and 25 did not generally show any consistent relationship between the variables.

Table 42: Spearman Correlation between Learner Attendance to Classes and Students Performance WASSCE

School Code	R	P	Significant
Dagbon State STHS(NS1)	-.137	.725	Not Significant
Ghana SHS(NS2)	.106	.785	Not Significant
Saint Charles Minor Sem.(NS3)	-.612	.144	Not Significant
E/P Saboba(NS)	.091	.815	Not Significant
Tamale Girls SHS (NS5)	.593	.092	Not Significant
Presby SHS(NS6)	-.347	.360	Not Significant
Pong-Tamale SHS(S7)	. -045	.909	Not Significant
Kumbungu SHS(S8)	.373	.323	Not Significant
Gushiegu SHS(S9)	-.671	.048	Significant
Karaga SHS(S10)	-.104	.791	Not Significant

Table 43: shows results analysis from a bivariate Spearman correlation between student factors or characteristics (learner attendance to classes) and students' performance at WASSCE. The table shows that apart from S9, which was a SEIP school that had a strong negative correlation was statistically significant (ؔ r = - .671, p = .048 < .05), all other schools showed either positive weak or negative weak correlation, which one or two showed positive strong or negative strong correlation which was all not statistically significant. The best performing school had a negative strong correlation (i.e., NS3; r = -.612, p = .144 > .05), which was not statistically significant.

A strong negative correlation meant learner attendance to classes rather decreased for students' performance to increase. On the other hand, the worst-performing school (ؔ, S8) had a moderate positive relationship between learner attendance in classes and student performance at WASSCE. That also means that, as learner attendance to classes increased, students' performance at WASSCE also increased. On the contrary, NS2, which was the second-best performing school, also had a weak positive correlation between the variables. Again, this points to the fact that

there seemed not to be a consistent relationship between student factors and academic performance.

Correlation between student factors (learner attendance to classes and student prior performance) and students' performance at WASSCE, from students' responses in SEIP and non-SEIP schools understudy in the Northern Region of Ghana.

6.6.1 Correlation Between Students' Prior Performance (entry grade) and Students' Performance at WASSCE from the Responses of Students in both ` (S) and Non-SEIP (Ns) Schools under Study

A bivariate Spearman Correlation between student factors (student prior performance) and students' performance at WASSCE showed a generally negative or positive weak correlation that was not statistically significant except NS3 (ؔě r = -.791, p = .034<.05), which had a strong negative correlation which was statistically significant. It is worth noting that from the student's perspective. There was an indirect relationship between learner attendance and students' prior performance and that student's performance at WASSE in NS3.

Table 43: Spearman Correlation between student prior performance and student's performance at WASSCE.

School Code	R	P	Significance
Dagbon State STHS(NS1)	-.018	.964	Not Significant
Ghana SHS(NS2)	-.477	.195	Not Significant
Saint Charles Minor Sem(NS3)	-.791	.034	Significant
E/P Saboba SHS(NS4)	-.258	.502	Not Significant
Tamale Girls SHS(NS5)	.125	.770	Not Significant
Presby SHS(NS6)	.224	.563	Not Significant
Pong-Tamale SHS(S7)	-.433	.244	Not Significant
Kumbungu SHS(S8)	-.199	.607	Not Significant
Gushiegu SHS(S9)	.124	.750	Not Significant
Karaga SHS(S10)	.000	1.000	Not Significant

However, generally, the analysis above did not show any consistent relationship between student prior performance and students' performance at WASSCE.

Table 44: Spearman Correlation between Students' and Students' Academic Performance

Student Related Factors	Weighted Average Scores (WA)	Correlation Showing Relationships			
		SEIP Schools		Non SEIP Schools	
Learners with high self-esteem are motivated to perform better	WA	Not sig	.321	Sig	.528
Drug abuse reduces the ability of students to perform	WA	Not sig	-.014	Not sig	-.649
Teenage pregnancy negatively affects students' performance	WA	Not sig	-.085	Not sig	.142
Peer influence affects the ability of students to perform	WA	Not sig	.055	Not sig	-.114
Learners' attendance to classes their ability to perform	WA	Sig	.730	Not sig	-.121
Schools that receive BECE graduates with very good grades perform better	WA	Not sig	-.218	Not sig	.152

A bivariate Spearman correlation between students-related factors and academic performance of sampled senior high schools, as shown in table 23, does not portend any consistent significant relationship. The table shows that learners' self-esteem has a moderate positive correlation with students' academic performance in both SEIP and non-SEIP schools, which was statistically insignificant. Drug abuse has a weak negative and strong negative correlation for SIEP and non-SEIP schools, respectively, which were also statistically insignificant. The shows that teenage pregnancy has negative weak and positive weak relation with students' academic performance in SEIP and non-SEIP schools, respectively. Peer influence also has a positive weak and negative weak Spearman correlation with students' academic performance for SEIP and non-SEIP schools, respectively. For students' attendance to classes, the table shows it has a positive, strong Spearman correlation, which was statistically significant, while the non-SEIP schools showed a weak negative correlation. Finally, students' prior performance has a negative weak, and positive Spearman correlation with students' academic performance, which was not statistically significant.

6.6.3 Results

Regression Analysis of student factors on Students' Academic Performance At WASSCE

Learner attendance to classes and student prior performance on students' performance at WASSCE in SEIP (S) and non-SEIP (NS) schools under study 6.3/Between Multiple Regression Analysis the student factors (learner attendance to classes and student prior performance) and students' performance at WASSCE in SEIP (S) and non-SEIP (NS) schools, based on the responses of teachers to a five-point (5) Likert scale questionnaire.

Table 45: Results of Regression Analysis of student factors and student performance at WASSCE from teachers' responses in SEIP and non-SEIP and Schools under study

		% CONTRIBUTION OF I.VS			
SCHOOL CODE	**R2**	X5	X6	**ANOVA**	**TEST RESULT**
Dagbon State STHS(NS1)	.478	.171	.616	.103	Fail to Reject
Ghana SHS(NS2)	.098	.187	-.299	.735	Fail to Reject
Saint Charles Minor Sem.(NS3)	.106	-.226	.254	.714	Fail to Reject
E/P Saboba(NS4)	.256	.219	.454	.411	Fail to Reject
Tamale Girls SHS(NS5)	.192	.097	-.431	.528	Fail to Reject
Presby SHS(NS6)	.160	-.357	.277	.593	Fail to Reject
Pong-Tamale SHS(S7)	.161	.189	.316	.540	Fail to Reject
Kumbungu SHS(S8)	.442	.616	.139	.174	Fail to Reject
Gushiegu SHS((S9)	.064	.149	.182	.021	Fail to Reject
Karaga SHS(S10)	.067	.129	.225	.811	Fail to Reject

Table 46 shows a multiple regression analysis of student factors (learner attendance to classes and student prior performance) and student performance at WASSCE from teachers' responses to the 5-point Likert scale.

The results showed the model was not statistically significant in any schools, whether SEIP (S) or non-SEIP (NS).

The ANOVA from the analysis of the data for both SEIP and Non-SEIP Schools showed that the study failed to reject the null hypothesis as stated in chapter one that "there is no significant

effect of student factors on student performance at WASSCE" The values of ANOVA in all the schools exceeded the 0.05 significance level. For example, NS, = .103, NS2 = 0.735 NS3 =.714, NS4 = .411, NS5 = .528, NS6 = .821 and S10 = .811, which were all more than o.05 significance level.

R Square (R2) values for the non-SEIP schools were generally higher than that of the SEIP Schools from table 45; it was evident that there was no consistent influence of the independent variables on the dependent variable, as the two schools with the highest R2 were not the best performing schools, that is, NS, = 48.8% and S8 = 44.2% of the output is explained by learner attendance to classes and student prior performance. At the same time, the two top-performing schools had very low R2 values of 10% and 10.6% for NS2 and NS3, respectively.

The Beta values or standardized coefficients showed that students' prior performance contributed more to the output than learner attendance in non-SEIP and SEIP schools except in NS6 and S8.

6.3.2 Effect of student factors (learner attendance and student prior performance) on students' performance at WASSCE, from responses of students in SEIP (S) and non-SEIP (NS) schools, understudy in the Northern Region of Ghana.

Table 46: multiple regression of student factors on students' performance at WASSCE

SCHOOL CODE	R2	CONTRIBUTION OF I.VS (BETA)		ANOVA	RESULTS
		X5	X6		
Dagbon State STHS(NS1)	.003	-.046	-.014	.992	Fail to Reject
Ghana SHS(NS2)	.146	.159	-.374	.623	Fail to Reject
Saint Charles Minor Sem.(NS3)	.847	-.265	-.727	.024	Reject H_o
E/P Saboba SHS(NS4)	.766	.426	-.881	.073	Fail to Reject
Tamale Girls SHS(NS5)	.425	.836	-.715	.251	Fail to Reject
Presby SHS(NS6)	.505	-.616	.485	.121	Fail to Reject
Pong-Tamale SHS(S7)	.049	.128	-.176	.860	Fail to Reject
Kumbungu SHS(S8)	.134	.310	-.131	.649	Fail to Reject
Gushiegu SHS(S9)	.158	-.387	-.094	.598	Fail to Reject
Karaga SHS(S10)	.038	-.042	-.169	.889	Fail to Reject

Table 47 shows an analysis of multiple regression of student factors (learner attendance and student prior performance) and students' performance at WASSCE from students' responses to a 5-point Likert scale questionnaire. The results of the analysis of data showed the model was not statistically significant in most of the schools except in one non-SEIP (NS3) school where ANOVA =0.013 < 0.05. in all other SEIP and non-SEIP schools, the ANOA values exceeded the 0.05 significance level, which meant that the model failed to reject the null that "there is no significant effect of student factors on students' performance at WASSCE."

6.6.4 CONCLUSION:

Analysis of the data on a bivariate Spearman correlation between students' factors (learner attendance to classes and student's prior performance) and students' academic performance using weighted average scores from 2019 WASSCE did not show any consistent relationship between the variables in either SEIP (S) or non-SEIP (NS) schools in the Northern Region of Ghana.

Generally speaking, therefore, it could be concluded that the study could not accurately state that student characteristics (factors) such as learner attendance to classes or student prior performance significantly affected student performance at WASSCE. The results of the data analysis from teacher and student responses generally confirmed that these student factors did not affect substantially student output (WASSCE). Furthermore, results from the regression analysis from both SEIP (S) and non-SEIP (NS) schools also pointed to the fact that student factors did not significantly influence students' performance at WASSCE.

SECTION D: Analysis of Results Open-Ended Questions on Teaching/Learning Materials, Infrastructure, Equipment, Students Characteristics, Rules/Regulations, and Discipline on Students' Academic Performance at WASSCE

The study's goal was to investigate the flaws in the WASSCE grading system considering how school resources or inputs affect students' academic performance. The researcher employed a qualitative approach in this section to gain a deeper understanding of factors influencing students' performance at WASSCE by distributing questionnaires to both students and teachers to elicit their opinions on how these factors affect academic performance.

5 Results of Analysis of Open-ended questions on the Influence of School-Based Factors on Students' Academic Performance Based on Teachers' Responses

Table 39 shows the various Teachers' opinions on School-Based Factors that influence students' academic performance in schools. From table 1, both female and male teachers constituting 22 % opined that the Provision of adequate TLMs, infrastructure, and making available well-trained and qualified teaching staff in the schools would improve students' academic performance in schools. Also, 19 % of the respondents were of the view that enforcement of discipline in the school at all times would improve students' academic performance in schools.

Table 47: Teachers' response to school-based factors that influence students' academic performance

Response of teachers on School Based Factors that influence Students' Academic Performance	Percentage (%) of Responses by Sex		
	% Female (F)	% Male (M)	Total % (%FM)
Reduction of class size in schools	0	3	3
Ensuring teachers and students punctuality and regularity of attendance to school	1	1	2
Motivation of teachers, provision of adequate TLMs and infrastructure	1	14	15
Providing good and conducive environment for teaching and learning	1	2	3
Effective monitoring and supervision of teaching and learning	1	11	12
Enforcement of discipline in the school at all times	3	16	19
All stakeholders in education (Parents, Teachers, Government, etc) should support quality teaching and learning in the school	1	3	4
Admission of qualified students from JHS to the SHS	0	1	1
Parents participation of decision making in the school and show interest in their ward's academic performance	1	1	2
Provision of adequate TLMs, infrastructure and making available well trained and qualified teaching staff in the schools	2	20	22
Organization of extra classes for students to learn more	0	3	3
Proper Measures must be put in place to stop Cybercrime 'Sakawa' in the country	0	1	1
Set competitive cut off point for BECE graduates to SHS and encourage regular student assessment	0	4	4
Formation of functional learning clubs among students to motivate each other to learn very well	0	1	1
Severe punishment to teachers and students involves in girlfriend and boyfriend relationship in the school	0	1	1
Encourage guidance and Counselling of students and parents to support their children academic performance	0	1	1
Designing suitable programmes at Technical Vocational Education Training (TVET) Institutes for students who performed very poorly in BECE	0	2	2
Abolishing of mass promotion of students at all levels and encouraging them to study very well	0	2	2
Organisation of quiz competition among students and conduction of regular exercises	0	1	1
Reduction various subjects' topics contents or increasing the number of years in the SHS	0	1	1
TOTAL	11	89	100

Source: Field Survey 2021

Consider table 48 for more details of teachers' opinions on School-Based Factors that influence students' academic performance in schools.

1. **Results Of Analysis Of Open-Ended Questions On Influence Of School-Based Factors On Students' Academic Performance,**
2. **Based On Students As Respondents**

Table 48: Students' response on School-Based Factors that influence students' academic performance

Response of students on School-Based Factors that influence Students' Academic Performance	**Percentage (%) of Responses by Sex**		
	% Female (F)	% Male (M)	Total % (% FM)
Enforcement of discipline in the school at all times	2	4	6
Provision of adequate TLMs, infrastructure and making available well trained and qualified teaching staff in the schools	33	43	76
Encourage guidance and Counselling of students and parents to support their children academic performance	1	1	2
Organisation of quiz competition among students and conduction of regular exercises	1	1	2
Appointment of qualified teaching staff into school	0	3	3
The authority should not allow students to copy during examinations	1	1	2
Unlawful punishment of students must be stopped	1	2	3
Authority should allow students to use modern technology devices such as phones, tablets among others to do more online studies	0	1	1
Organization of extra classes for students to learn more	1	1	2
Effective monitoring and supervision of teaching and learning	2	1	3
TOTAL	42	58	100

Source: Field Survey 2021

Table 49 shows the suggestions provided by students, both female and male, on School-Based Factors that influence students' academic performance. From table 49, the majority of respondents who suggested that the Provision of adequate TLMs, infrastructure, and making available well-trained and qualified teaching staff in the schools would improve academic

performance were 76 %. Consider table 49 for more details of students' suggestions on School-Based Factors that influence students' academic performance in schools. The table also reveals that 6% of students agreed or strongly agreed—which ranked second in importance—that maintaining discipline in schools would boost academic success.

ANALYSIS OF OPEN-ENDED QUESTIONS ON THE INFLUENCE OF STUDENT-RELATED FACTORS ON STUDENTS' ACADEMIC PERFORMANCEBASES ON TEACHERS' RESPONSES

Table 49: Teachers' responses on the influence of Student Related Factors on students' academic performance

Response of teachers on influence of Student Related Factors on Students' Academic Performance	Percentage (%) of Responses by Sex		
	% Female (F)	% Male (M)	Total (% FM)
Students accepting and practising discipline among themselves in school	6	21	27
Students' punctuality and regularity in class attendance	0	29	29
Students should avoid drug abuse and concentrate on learning hard	2	1	3
Students should be guided and motivated to develop the habit of effective group studies/learning	4	11	15
Students should be learning on their own after normal class teaching	3	23	26
TOTAL	15	85	100

Source: Field Survey 2021

Table 50 contains the opinions expressed by both female and male teachers on the influence of Student Related Factors on students' academic performance. From table 50 above, 29 % of the respondents suggested that Students' punctuality and regularity in class attendance would improve their academic performance, 27 % opined that Students accepting and practising discipline among themselves in school would improve their academic performance, while 26 %

of respondents were of the view that Students should be learning on their own after normal class teaching would improve students' academic performance in schools. For more opinions of teachers on the issue of the influence of Student Related Factors on students' academic performance, table 50 provides details on that.

ANALYSIS OF OPEN-ENDED QUESTIONS ON THE INFLUENCE OF STUDENT-RELATED FACTORS ON STUDENTS' ACADEMIC PERFORMANCE BASED ON STUDENTS' RESPONSES

Table 50: Students' response on influence of Student Related Factors on students' academic performance

Response of students on Student Related Factors on Students' Academic Performance	Percentage (%) of Responses by Sex		
	% Female (F)	% Male (M)	Total % (% FM)
Students should avoid drug abuse and concentrate on learning hard	2	13	**15**
Students should be punctual and regular to the attendance of school	7	15	**22**
Avoiding pre-marital sex and teenage pregnancy	7	0	**7**
Students accepting and practising discipline among themselves in school	6	4	**10**
Students should work very hard academically and pray	6	5	**11**
Students should be learning on their own after normal class teaching	7	10	**17**
Students should be guided and motivated to develop the habit of effective group studies/learning	9	9	**18**
TOTAL	44	56	**100**

Source: Field Survey 2021

Table 51 records the opinions of both female and male students on the influence of Student Related Factors on students' academic performance. From table 50, 22 % of the respondents

were of the view that Students should be punctual and regular in attendance of school would improve their academic performance, and 18 % of them held the view that Students should be guided and motivated to develop the habit of effective group studies/learning, 17 % opined that Students should be learning on their own after normal class teaching. Consider table 6 for more highlights of students' opinions on the influence of student Related Factors on students' academic performance in schools.

According to Table 51, there is a statistically insignificant but moderately positive link between students' academic achievement in SEIP and non-SEIP schools and their self-esteem. For SIEP and non-SEIP schools, respectively, drug misuse indicated a weakly negative and strongly negative connection that was both statistically insignificant. The table also indicates that, for SEIP and non-SEIP schools, respectively, adolescent pregnancy has a weakly negative and weakly positive relationship with students' academic achievement. For SEIP schools and non-SEIP schools, respectively, peer impact has a weakly positive and weakly negative Spearman association with students' academic performance. The table demonstrates a positive, high Spearman correlation for student attendance to classes, which was a statistically significant field (Collett, 2007), in contrast to non-SEIP schools, which displayed a weak negative connection (Paisey & Paisey, 2004).

To investigate the impact of factors connected to students on student performance, a bivariate Spearman rho (r) correlation was done, as shown in Table 51. The results were negative, weak, and statistically insignificant.

Student-related factors had no discernible influence on students' performance on the WASSCE, according to a multiple regression analysis conducted to investigate this. It was inferred by that

that student-related factors have little influence on how well students learn. The success of students in the past is a good indicator of their future performance, according to Marzano (2000, as stated in Yunus, 2014, p. 50). He went on to say that other elements affect student performance and achievement and that the internal efficiency of the school is just one of them. Marzano said that other elements that affect students' performance are innate and learned skills, personality, learning preferences, family, and social influences. The reasons could explain why students' earlier academic success and class attendance had no impact on their performance at the WASSCE.

From the students' responses to a 5-point Likert scale survey, Table 51 displays an analysis of multiple regression of student characteristics (learner attendance and student prior performance) and students' performance at the WASSCE.

Except for one school that was not a part of the SEIP (Saint Charles-NS3), the analysis of the data revealed that the model was not statistically significant in most of the schools. The model failed to reject the null that "there is no significant effect of student variables on students' performance at WASSCE" in all other SEIP and non-SEIP schools where the ANOA values were above the 0.05 significance level. Table 51 revealed that the study could not conclusively state that elements (student characteristics) like learner attendance in classes or earlier achievement had a substantial impact on student success at the WASSCE. The data analysis from teacher and student responses typically supported the conclusion that these student characteristics did not significantly affect student performance (WASSCE). Additionally, the regression analysis from both SEIP (S) and non-SEIP (NS) schools revealed that student factors had a minimal impact on student's performance at the WASSCE.

From table 51, the majority of the teachers, comprising 22 per cent indicated the provision of adequate teaching and learning materials, infrastructure, and making available well-trained teaching in the school. A good of teachers, consisting of 19 per cent, were of the view that enforcement of discipline was the second most important factor that could improve students' academic performance. Numerous academics and educators have debated which school-based resources have enhanced students' academic performance the most (Darling-Harmond, 2000). According to Abe (2014), the teacher's credentials were the primary factor affecting the academic performance of the students. Yeboah-Appiagyei, Joseph, and Fentim showed a positive correlation between student academic achievement and teacher professionalism (2014). A professionally qualified teacher or subject specialist is someone who has followed a rigorously formal, methodical study of a particular subject, according to the researchers (Adenti, 2005). Additionally, they claimed that a teacher who has received formal training serves as a repository for important knowledge and has the required pedagogical skills.

Additionally, 15 per cent of respondents strongly agreed or agreed that the motivation of teachers and students affected students' academic performance. There have been varied research conducted on motivation and how it impacts success or learning. While some of these studies examined the concepts of individual proficiency in certain tasks, others addressed the requirement to achieve (Whittington, 2014; Campbell, 2007). There was discussion of the need to succeed in some earlier studies (Whittington, 2014). Whittington continued by stating that an important factor in determining academic performance was motivation. Whittington added that extrinsic motivation was defined as a tangible incentive resulting from the anticipation of receiving an external reward, in contrast to intrinsic drive, which was described as a person's inherent desire to achieve. Extrinsic and intrinsic motivation were utilised by Harackiewicz

(2014) to illustrate how motivation affects academic achievement. This indicates that the person is motivated to act, either intrinsically or extrinsically. The fourth important factor that affects students' performance was effective monitoring and supervision of teaching and learning, constituting 12 per cent of respondents. Look at table 26 for the other views expressed by teachers from both SEIP and non-SEIP schools.

According to table 41, many respondents (76%) believed that academic performance will be improved by providing appropriate TLMs, and infrastructure, and making qualified teaching staff available in the schools. Ugbe and Agim revealed a substantial correlation between students' academic achievement and teachers' efficacy (2008). They also included students who were being taught by competent teachers, who far outperformed those being taught by less qualified teachers in terms of academic performance. Additionally, there is disagreement among researchers regarding the effect of teachers' credentials on students' academic progress. Kola and Sunday (2015) identified a connection between favourable teacher traits and students' academic success. These qualities included years of experience, professional growth, pedagogical aptitude, and subject matter expertise. They did not, however, mention whether the connection was statistically significant. In their 2007 study, Adediwura and Tayo discovered a link between students' academic success and their opinions of teachers' subject knowledge, work ethics, and instructional skills.

Table 51 also shows that 6% of students agreed or strongly agreed—which rated second in importance—that upholding discipline in schools will increase academic success. The ability to manage one's time effectively, whether for students or teachers, is directly related to academic achievement. Academic achievement is aided by punctuality, which must be upheld by pupils, instructors, administrators, and non-teaching personnel (Ethiane, 2014). Ethiane also said that

teachers must set a good example for time management if they want students to succeed. Academic achievement typically improves when students and teachers use their time wisely (Nasrullah, 2015). Not only is discipline seen to help with academic success, but it also tends to make pupils study more, which has a significant impact on academic performance. To put it another way, agree that maintaining discipline has a positive impact on academic success, but add that more study time also has a significant impact.

The views of male and female teachers on the impact of student-related factors on academic performance are presented in table 28. According to the responses in the table, 29% of respondents believed that students' academic performance would be improved by their punctuality and regularity in class attendance, and 27% believed that students' academic performance would be improved by their acceptance of and application of discipline in the classroom, and 26% believed that students should be learning independently after regular class instruction. The views corroborate the earlier opinions expressed in Tables 50 and 51.

From table 51, 22% of the respondents believed that students' academic performance would be improved by their regular and punctual attendance at school. Various studies have also been conducted on the effect of class attendance on the academic performance of students (Ajaja, 2012; Collett, 2007; Koshal et al., 2004). (Koshal et al., 2004) concluded that although resources or money were important for some improvement in the academic performance of students, students’ attendance at school together with its explanatory issues, such as parents’ socio-economic status and school location, was even more important. Table 30 further demonstrates that 18 per cent of respondents believed that students should be encouraged to form the habit of doing effective group studies and learning, and 17% believed that students should be learning independently after regular class instruction. The overwhelming conclusion of several studies on

motivation and academic success is that motivation affects academic achievement. 2007 (Campbell). A motivated, skilled, and biologically capable human engaging with a responsive environment leads to genuine "accomplishment and competence," according to a mathematical formula developed by Ford (1992, P. 70).

CHAPTER SEVEN

MEASUREMENT OF THE ACADEMIC PERFORMANCE OF STUDENTS OF PUBLIC `SENIOR HIGH SCHOOLS

7.1 Introduction

This section examined the frequently adopted method of measuring school performance, which uses a percentage of raw scores to grade students, and Amakyi (2017) proposed weighted average scores. However, the weighted average scores also failed to account for resource disparities in schools, such as differences in teacher factors, school-related factors, and student characteristics or student-related factors. Therefore, the researcher noted that even though Amakyi's method accounted for quality of grades and number of students presented, the coefficient of efficiency-weighted average approach accounts for internal efficiency in addition, which makes the latter a better and more integrated approach to measuring school performance.

Table 51: Students' Performance in WASSCE in the Schools

Name of School	Percentage of Students Performance in WASSCE in the Schools from 2016-2020														
	Students Percentage (%) Pass Rate in the Schools														
	2016			2017			2018			2019			2020		
	Boys	Girls	Over All	Boys	Girls	Over All	Boys	Girls	Over All	Boys	Girls	Over All	Boys	Girls	Over All
GHANA SENIOR HIGH SCHOOL, TAMALE	31.2%	20.0%	**27.5%**	15.1%	8.9%	**12.8%**	20.6%	8.6%	**16.1%**	34.1%	18.2%	**28.7%**	40.1%	32.4%	**37.4%**
DAGBONG STATE SHTS-YENDI	3.2%	1.1%	**2.2%**	1.1%	0.6%	**0.9%**	1.9%	0.4%	**1.3%**	0.6%	0.0%	**0.4%**	1.8%	1.3%	**1.7%**
TAMALE GIRLS SENIOR HIGH SCHOOL	0.0%	13.6%	**13.6%**	0.0%	8.5%	**8.5%**	0.0%	4.3%	**4.3%**	0.0%	17.1%	**17.1%**	0.0%	4.2%	**4.2%**
E. P. HIGH SCHOOL, SABOBA	1.2%	0.0%	**0.8%**	1.9%	0.0%	**1.3%**	1.7%	0.0%	**1.1%**	1.3%	1.1%	**1.2%**	3.5%	1.7%	**2.8%**
KARAGA SENIOR HIGH SCHOOL	0.8%	0.0%	**0.5%**	0.0%	0.0%	**0.0%**	0.0%	0.0%	**0.0%**	3.9%	1.4%	**2.8%**	38.8%	29.0%	**34.2%**
PRESBYTERIAN SENIOR HIGH SCHOOL	11.8%	2.2%	**8.6%**	1.8%	1.3%	**1.6%**	8.5%	1.2%	**5.3%**	3.4%	3.8%	**3.6%**	6.0%	2.1%	**4.1%**
GUSHEGU SENIOR HIGH SCHOOL	1.0%	0.0%	**0.6%**	0.5%	0.0%	**0.3%**	0.3%	0.5%	**0.4%**	0.0%	0.4%	**0.2%**	0.9%	0.0%	**0.6%**
PONG-TAMALE S.H.S	12.7%	9.8%	**11.8%**	7.8%	6.1%	**7.2%**	2.3%	0.8%	**1.8%**	5.0%	2.8%	**4.2%**	5.0%	2.4%	**4.0%**
KUMBUNGU SHS	1.8%	0.0%	**1.1%**	0.7%	0.0%	**0.4%**	0.0%	0.0%	**0.0%**	0.0%	0.0%	**0.0%**	0.3%	1.0%	**0.6%**
ST. CHARLES MINOR SEMINARY SHS	59.0%	0.0%	**59.0%**	61.5%	0.0%	**61.5%**	40.3%	0.0%	**40.3%**	62.1%	0.0%	**62.1%**	51.1%	0.0%	**51.1%**

Source: Northern Region Education Statistics Unit, 2021

The Table 52 displays the percentages of students' performance in WASSCE of the sampled schools from 2016 to 2020. From the Table 52, ST. Charles Minor Seminary SHS recorded the highest total percentage pass rate in all the years among the schools and followed by Ghana SHS. Consider the Table 52, for more details of the rest of the schools.

Table 52: Students' Performance in WASSCE in the Schools

Name of School	Percentage of Students Performance in WASSCE in the Schools from 2016-2020														
	Students Percentage (%) Pass Rate in the Schools														
	2016			2017			2018			2019			2020		
	Boys	Girls	Over All	Boys	Girls	Over All	Boys	Girls	Over All	Boys	Girls	Over All	Boys	Girls	Over All
GHANA SENIOR HIGH SCHOOL, TAMALE	31.2%	20.0%	**27.5%**	15.1%	8.9%	**12.8%**	20.6%	8.6%	**16.1%**	34.1%	18.2%	**28.7%**	40.1%	32.4%	**37.4%**
DAGBONG STATE SHTS-YENDI	3.2%	1.1%	**2.2%**	1.1%	0.6%	**0.9%**	1.9%	0.4%	**1.3%**	0.6%	0.0%	**0.4%**	1.8%	1.3%	**1.7%**
TAMALE GIRLS SENIOR HIGH SCHOOL	0.0%	13.6%	**13.6%**	0.0%	8.5%	**8.5%**	0.0%	4.3%	**4.3%**	0.0%	17.1%	**17.1%**	0.0%	4.2%	**4.2%**
E. P. HIGH SCHOOL, SABOBA	1.2%	0.0%	**0.8%**	1.9%	0.0%	**1.3%**	1.7%	0.0%	**1.1%**	1.3%	1.1%	**1.2%**	3.5%	1.7%	**2.8%**
KARAGA SENIOR HIGH SCHOOL	0.8%	0.0%	**0.5%**	0.0%	0.0%	**0.0%**	0.0%	0.0%	**0.0%**	3.9%	1.4%	**2.8%**	38.8%	29.0%	**34.2%**
PRESBYTERIAN SENIOR HIGH SCHOOL	11.8%	2.2%	**8.6%**	1.8%	1.3%	**1.6%**	8.5%	1.2%	**5.3%**	3.4%	3.8%	**3.6%**	6.0%	2.1%	**4.1%**
GUSHEGU SENIOR HIGH SCHOOL	1.0%	0.0%	**0.6%**	0.5%	0.0%	**0.3%**	0.3%	0.5%	**0.4%**	0.0%	0.4%	**0.2%**	0.9%	0.0%	**0.6%**
PONG-TAMALE S.H.S	12.7%	9.8%	**11.8%**	7.8%	6.1%	**7.2%**	2.3%	0.8%	**1.8%**	5.0%	2.8%	**4.2%**	5.0%	2.4%	**4.0%**
KUMBUNGU SHS	1.8%	0.0%	**1.1%**	0.7%	0.0%	**0.4%**	0.0%	0.0%	**0.0%**	0.0%	0.0%	**0.0%**	0.3%	1.0%	**0.6%**
ST. CHARLES MINOR SEMINARY SHS	59.0%	0.0%	**59.0%**	61.5%	0.0%	**61.5%**	40.3%	0.0%	**40.3%**	62.1%	0.0%	**62.1%**	51.1%	0.0%	**51.1%**

Source: Northern Region Education Statistics Unit, 2021

Table 53 displays the percentages of students' performance in WASSCE of the sampled schools from 2016 to 2020. From the Table 53, ST. Charles Minor Seminary SHS recorded the highest total percentage pass rate in all the years among the schools and followed by Ghana SHS. Consider the Table 53, for more details of the rest of the schools.

Table 53: Ranking of the Schools in WASSCE Performance

Name of School	Ranking of the Schools in WASSCE Performance at the Regional level using the National Ranking				
	Rank / Position of the Schools at the Region level in the following Years				
	2016	2017	2018	2019	2020
	School Rank	School Rank	School Rank	School Rank	School Rank
ST. CHARLES MINOR SEMINARY SHS	1st	1st	1st	1st	1st
GHANA SENIOR HIGH SCHOOL, TAMALE	3rd	6th	4th	4th	4th
TAMALE GIRLS SENIOR HIGH SCHOOL	7th	8th	9th	6th	13th
PONG-TAMALE S.H.S	8th	9th	13th	14th	15th
PRESBYTERIAN SENIOR HIGH SCHOOL	11th	15th	7th	15th	14th
DAGBONG STATE SHTS- YENDI	16th	18th	17th	25th	18th
KUMBUNGU SHS	20th	19th	23rd	27th	22nd
E. P. HIGH SCHOOL, SABOBA	21st	17th	19th	20th	16th
GUSHEGU SENIOR HIGH SCHOOL	22nd	21st	21st	26th	23rd
KARAGA SENIOR HIGH SCHOOL	23rd	24th	26th	17th	5th

Source: Northern Region Education Statistics Unit, 2021

Table 54 shows the ranking of schools' performance in WASSCE at the Northern Regional level from 2016 to 2020. From the Table 54, ST. Charles Minor Seminary SHS recorded the ranking of first (1st) position in all the years among the schools in Northern Region. Consider the Table 54, for more details on the ranks of the rest of the sampled schools.

8.1.1 WAEC METHOD TO MANAGE STUDENT PERFORMANCE WITH APPROACH OF COEFFICIENTS OF EFFICIENCY BY WEIGHTED AVERAGE (C.E X WA = SP) APPROACH

8.1.2 PERCENTAGE RANKING OF SCHOOLS IN SIX (6) TO EIGHT (8) SUBJECTS PASSED

The formula for calculating percentage ranking:

The number of students who obtained between 6 to 8 passes X 100%

the total number of students presented

Table 30 shows the summary of the use of percentage ranking to measure students' performance by the West African Examination Council (WAEC).

Table 54: Percentage ranking of both secondary Education Improvement Project (SEIP or S) schools and Non-SEIP (or NS) schools (WASSCE, 2019)

Rank	Code of School	Number of students presented for WASSCE	Students Passed in 6 to 8 Subjects	Percentage
1	Saint Charles	203	195	96.06
2	GHANA SHS	799	634	79.35
3	TAMALE GIRLS	411	363	57.42
4	PONG TAMALE	692	363	52.46
5	KARAGA SHS	517	188	36.36
6	PRESBY SHS	371	111	29.92
7	E/P SABOBA	261	66	25.29
8	GUSHEIGU	626	122	19.49
9	DAGBON STATE	566	95	16.78
10	KUMBUNGU	713	79	11.08

From table 54, it can be seen that the non-SEIP (NS) schools generally performed better than the SEIP(S) schools. This generally confirms the criteria used by the Ministry of Education (MOE) in conjunction with the World Bank in deciding that the SEIP(S) schools were deprived and resulted in low performance. But from the table, it could also be seen that some SEIP (S) schools also performed better in the ranking than some Non-SEIP (NS) schools.

8.1.3 USING WEIGHTED AVERAGES TO DETERMINE THE PERFORMANCE OF STUDENTS IN SEIP (S) AND NONSEIP (NS) SCHOOLS

Table 54 shows the weighted average scores of SEIP (S) and Non-SEIP (NS) schools by applying this formula:

A weighted average over N items is defined as

(1/N) * SUM [wi * fi], where wi represents the weight (value or significance) of a single occurrence of type I, and fi represents the frequency of item i.

Table 55: Weighted Average scores of SEIP (S) and Non-SEIP (NS) schools under study.

Rank	Code of School	Number of students presented for WASSCE	Weighted Average
1	Saint Charles	203	7.4
2	GHANA SHS	799	5.93
3	TAMALE GIRLS	411	4.11
4	PONG TAMALE	692	3.60
5	KARAGA SHS	517	2.45
6	PRESBY SHS	371	2.13
7	E/P SABOBA	261	1.74
8	GUSHEIGU	626	1.33
9	DAGBON STATE	566	1.13
10	KUMBUNGU	713	0.72

Table 55 shows that the use of weighted averages has not changed the position of the individual schools. The use of weighted average scores might have several factors that were not added

when using the raw percentage scores (Amakyi, 2017), but the results were the same here in terms of ranking.

8.1.4 MEASURING SCHOOL PERFORMANCE BY MULTIPLYING THE OUTCOME OF THE COEFFICIENT OF EFFICIENCY (CE) BY THE WEIGHTED AVERAGE SCORES OF THE SELECTED SEIP (S) AND NON-SEIP (NS) SCHOOLS UNDER STUDY.

The formula of efficiency:

CEg = X 100

Where:

CEg Coefficient of Efficiency for a pupil-cohort g.

Gg,n Number of pupils graduating from cohort g in final grade n after n years of study (Without repetition).

Gg,j Number of pupils graduating from cohort g in final grade n after j years of study.

Dg, j Number of pupils (of the cohort g) dropping out after j years of study.

K Number of repetitions allowed.

n Normal duration of study for a cycle or level of education.

Table 56: Measuring School Performance through the coefficient of efficiency – weighted average approach

Code of School	Coefficient of Efficiency (C.E)	Weighted Average (W.A)	C.E × W.A
Saint Charles	80.97	7.4	599.18
GHANA SHS	89.01	5.93	527.83
TAMALE GIRLS	81.15	4.11	333.53
PONG TAMALE	87.07	3.60	313.45
KARAGA SHS	100.00	2.45	245.00
PRESBY SHS	100.00	2.13	174.00
E/P SABOBA	67.69	1.74	144.1
GUSHEIGU	91.42	1.33	121.59
DAGBON STATE	80.07	1.13	91.50
KUMBUNGU	77.98	0.72	56.45

Table 56 shows that a school's position can change its coefficient of efficiency is very low even though it may have performed better than another. For example, the weighted average of NS4 was higher than that of NS6, but it trailed it. Table 56 further shows that the non-SEIP (NS) schools did better than the SEIP (S) schools in general, even with the coefficient of efficiency–weighted average method.

The mean scores of SEIP, which were proxies for rural schools and that of non-SEIP schools, were also proxies for urban schools were as follows: the mean for SEIP schools was 254.807 with a lower bound of 105.47 and upper bound of 404.14 while the mean for the non-SEIP schools was 283.36 with lower bound 145.13 and upper bound 421.59 comparing the performance of SEIP and Non-SEIP schools, it is clear from the means that the non-SEIP schools which were proxies for urban schools generally showed better performance than the SEIP schools.

Rowe and Livesley (April 2002:4) explained that learning achievement is one of the most important measures of the quality of education. They explained that learning achievement is intricately linked to school efficiency because the promotion and repetition rates are directly related to the student's learning achievement, to which school dropout can be attributed. The foregoing explanation of learning achievement as one of the most important measures is supported by Manno's assertion that "when judging educational quality, either we focus on what schools spend – or one of its variants – or we focus on what students achieve, what they know and can do." What this means is a measure of school spending by using the reconstructed method to determine the internal efficiency and relating to students' learning achievement, which combines two major ways of measuring quality education is even a better measure in the researcher's opinion. From the foregoing, the internal efficiency of the education system and

students' academic performance is almost an analogy of an egg and chicken relationship about which one is important. Therefore, this study assumes that they should be measured spontaneously to obtain a better and more integrated outcome.

It was found in the study that the 10 SEIP (S) and Non-SEIP (NS) schools maintained their positions in the raking that was done with percentage raw scores used as grades. Amakyi (2017) reckoned that its percentage raw scores do not take the quality of passes and the number of students presented for the examination. He argued that weighted average (WA) was a more integrated approach to computing the scores used to do the ranking. However, after using the weighted average scores, the schools maintained their positions as follows: ranking from 1st to 10th; Saint Charles SHS, Ghana SHS, Tamale Girls, Pong-Tamale SHS, Gushiegu SHS, Presbyterian SHS in Tamale, Karaga SHS, Dagbon State SHTS, and Kumbungu SHS.

This might have come about due to the huge differences in the number of students presented for the West African Secondary School Certificate Examination (WASSCE) and the number who passed in six to eight subjects.

The researcher proposed that a more integrated and better approach must consider not only the quality of passes and number of students presented for the West African Secondary School Certificate Examination (WASSCE) but also the process of producing the education outcome – internal efficiency, hence the use of the coefficient efficiency – weighted average approach (C.E x W.A). The researcher used a cross tabulation of the coefficient of efficiency for the various SEIP (S) and Non-SEIP (NS) schools to determine the school's performance. The analysis from table 11 showed that the use of weighted average scores did not change the schools' positions, not because it is not essential, but possibly due to other factors. From table 11, NS6 was able to maintain its position because it had a higher coefficient of efficiency (C.E), which was 100.00

over and above NS4 with a 67.69 coefficient of efficiency (C.E), even though the latter had a higher weighted average score (2.13) than the former with a weighted average of 1.74. It is the view of Akolo (1998, as cited in Akinsolu 2018), which was confirmed by Egurudi's position (2015, as cited in Akinsolu 2018), that there was the need to re-assess the mode of the conduct of Senior Secondary School Certificate Examination (SSSCE) in Nigeria to reduce wastage and improve the quality of the certificate and thereby

Promoting the efficiency of secondary education

The foregoing view further corroborates Durosaro's (1985, as cited in Akinsolu, 2018) view that the concept of efficiency in education largely refers to the ability of the education system to turn out graduates with minimum wastage.

Hanushek (2013, as cited in Akinsolu, 2018, p.41) explained internal efficiency in terms of students' academic performance. This means that there is a relationship between internal efficiency and students' performance, and that is the learning outcome.

This view of Hanushek agrees with Durosaro's view that educational efficiency, when treated as production efficiency, can be measured as students' academic performance. So, by measuring the coefficient of efficiency of the school system, we are measuring the schools' academic performance. When the coefficient of efficiency is combined with the weighted average scores, it means that the entirety of student and school performance is measured. One can then conclude whether a school is performing or not performing.

As discussed in the foregoing, students' performance is measured in Ghana by the West African Examination Council (WAEC). WAEC uses percentages of the raw scores of students to calculate their grades from A1 to F9. The requirement for entry into tertiary is by obtaining a quality pass, which is operationally defined as obtaining A1 to C6 in six subjects, including three

or four core subjects. However, Amakyi (2017) thought that this was not an adequate representation of students' performance in schools. He, therefore, suggested the use of 'weighted averages. But even the use of weighted average does not fully account for all the so-called attributes of students' performance, such as students' characteristics, school factors, and teacher characteristics (Eshiwami 1986, and Sifuna 1989, as cited in Wanyangu, 2009. p 12.)

Amakyi (August 2017, p 184 to 185) proposes using weighted averages to calculate the schools' performance. Amakyi argues that first, the use of percentages does not give a fair representation of the performance of schools. Second, he believed that the quality of passes is not reflected in the percentages, where grades A, B, C, D, and E, are all equated as passes. Similarly, the performance of schools with six passes is equated to schools with eight passes the number of students who obtain six passes. He also pointed out that the use of weighted averages resolves the weakness of using percentages by considering the number of students each school presents to take the examination. This way, the use of weighted averages can show each school's contribution to human resource development in the nation. But the researcher thinks both methods do not consider the various schools' resource disparities into consideration. There are glaring resource disparities between the various schools in terms of the teacher characteristics; the qualification and experience of teachers in the various schools differ significantly; the availability of teaching and learning materials and essential equipment vary; and in much the same way; the students' characteristics in terms of students' innate ability which reflects in their prior performance at BECE and commitment which shows in the attendance of the students to school. All these are not shown in either percentage calculation or weighted average calculation.

The results from the analysis data from the selected senior high schools under study did not change the positions of schools when the study compared the ranking of schools when only the

percentage raw scores were used to rank schools with the weighted average scores or even the use of coefficient of efficiency-weighted average approach. This means that, even though the coefficient of efficiency-weighted average approach may be a better and more integrated way of measuring school performance, it is possible for it to sometimes agree with some of the rankings that are done using the percentage raw scores.

CHAPTER EIGHT

COMBINED INFLUENCE OF SCHOOL INPUTS (TEACHER DEMOGRAPHICS, TEACHER QUALIFICATION AND EXPERIENCE, TEACHING AND LEARNING MATERIALS, INFRASTRUCTURE, EQUIPMENT, STUDENT DEMOGRAPHICS, RULES/ REGULATIONS, AND DISCIPLINE) ON THE ACADEMIC PERFORMANCE OF PUBLIC SENIOR HIGH SCHOOLS

8.0 Introduction

This study aimed to find out how the school inputs influence the academic performance of students in selected public senior high schools in the Northern Region of Ghana. To address this objective, the researcher conducted a multiple linear regression after testing for the multiple linear regression assumptions for SEIP schools' teachers and students and Non-SEIP school teachers and students. The results showed that the population was normally distributed, and more importantly, the independent variables were not multi-collinear.

The multiple linear regression analysis results on school inputs in determining school performance were used to answer the main research question. It was also used to test the hypothesis. The IBM SPSS version 22 was used to analyse and prepare summaries in tables.

8.1 Analysis of Variables in the Regression Model

This section utilizes Chapter two's regression equation from the Education Production Function (EPF). The regression statistical technique was used to fit the equation already derived to evaluate the relationship between the school system factors (independent/i.vs) and students' academic performance (dependent variable/d.v) in both secondary education improvement project (SEIP) schools and non-SEIP schools. The regression statistical technique was also used

to evaluate the relationship between student-related factors (i.vs) and students' academic performance (d.v) in SEIP and non-SEIP schools. The technique helped establish the direction, strength, and extent of association among these variables.

The coefficients in the regression model and t-statistic for each independent variable used in the model are shown in Tables 33 and 34. Each table contains analysis from SEIP and non-SEIP schools on school system factors and student-related factors.

N= **265 (116 Sample SEIP and 149 non-SEIP School Teachers**

8.1.1 Multiple Regression: Input-Output Model

Table 45: Hypothesis Testing of Influence of School System Factors on Student's Academic Performance in Sampled SEIP and Non-SEIP Schools

Table 57: Hypothesis Testing of Influence of School System Factors on Students' Academic Performance in Sampled SEIP and Non-SEIP Schools

	SEIP SCHOOLS				NON-SEIP SCHOOLS			
Model	Standardised Coefficients Beta	T-Statistic T	Alpha (P)	Remarks	Beta	t	Alpha (p)	Remarks
1 (Constant)		-.369	.775			.148	.907	
Availability of teaching and learning materials	-.097	-.121	.924	Fail to reject	-.304	-.447	.733	Fail to reject
Availability of physical facilities	-.270	-.307	.810	Fail to reject	-.625	-.794	.573	Fail to reject
Students who attend schools where teachers at least first degree in their area	-.076	-.111	.930		.659	1.000	.500	
When students attend schools where teachers have more than five years' experience					-.232	-.362	.779	
Students' riots and other disturbances in schools negatively affect their performance	.412	.547	.681		.102	.164	.897	
Nature and application of rules and regulations affect students' performance								
When students attend schools where management support learning with efficiency, they perform better	.446	.701	.611		.080	.139	.912	
Teachers ability to								

complete the syllabus in schools in good time make students perform better	.479			.591	.773		
Constant		.507	.701			.581	
	-.213						
		-.265	.835	.228	-.322	.802	
				-3.226			**1.338**

The coefficient of determination from the regression statistical analysis, the coefficient of determination R2=.621. This means that about 62.1 percent of the variability in students' academic performance in SEIP schools can be explained by the school system factors, While in non-SEIP schools, the coefficient of determination R2=.766, which means about 76.6 percent of the variation in students' performance in these schools can be explained by school system factors. This implies that the school system factor has more influence in non-SEIP schools than in SEIP schools. However, the study is not statistically significant based on the values of analysis of variance (ANOVA) in both non-SEIP schools. This means that the model cannot accurately predict students' academic (outcomes).

The ANOVA was used to test the null hypothesis as follows:

R2=.621 for SEIP schools

R2=.766 for non-SEIP schools

Table 58: Coefficient of Determination

Coefficient	SEIP SHS	Non-SEIP SHS
R^2	.621	.766
F	.234	.468
Df	7	7
Significance level at 95% CI	.05	.05
P value	.923	.813
Std Error	8.747	9.048
Constant	**-3.226**	**1.338**

Table 57 and Table 58 show variables that can be represented in the multiple regression model for both SEIP and non-SEIP schools as follows:

X=-3.226-.369x1-.097x2-.270x3-.076x4+.412x5+.446x6+.479x7-.213x8 (1)

Where=students' academic performance

X1= t-statistic

X2=availability of teaching and learning materials

X3=availability of physical facilities

X4= schools where teachers have at least a first degree in their (teacher qualification)

X5= students' riots and other disturbances (indiscipline)

X6= nature and application of school rules and regulations

Schools where management support learning with efficiency

X8= schools where teachers complete the syllabus

Note. Schools where teachers have more than five years' experience (teaching experience) for SEIP schools, as an independent variable could not be computed as its addition made the model perfectly correlate (indicating multicollinearity). However, it was computed under non-SEIP schools.

Equation two is for non-SEIP schools' school system factors

X= 1.338+ .148x1-.304x2-.625x3+.659x4-.232x5+102x5+.080x6+.228x7

Where x= students' performance

1.338=constant

X1 =t-statistic

X2=availability of teaching and learning materials such as textbooks

X3=physical facilities such as classrooms and libraries

Schools where teachers have at least a first degree in their area (teachers' qualification

X5= schools where teachers have more than five years' experience (teaching experience)

X6= schools where students riots and other disturbances occur negatively affect performance (indiscipline)

X7= nature and application of school rules and regulations (discipline)

X8= When students attend schools where management support learning with efficiency

Schools where teachers complete the syllabus

No significant multicollinearity was observed from the SEIP school data after teacher qualification was removed to prevent the model from showing perfect correlational tendencies. There was no significant multicollinearity from the non-SEIP school data analysis. It was observed that no variable had a tolerance value less than .10 or VIF greater than 10.

From the prediction in equation one (1), that is for SEIP schools where 1-strongly disagree, 2-disagree, 3-undecided, 4-agree, and 5-strongly agree. In a case where all responses are positive, that is 5; then the prediction is as follows;

x=-3.226-.369(5)-.097(5)-.270(5)-.076(5) +.412(5) +.446(5) +.479(5)-.213(5) =-1.111

For

Non-SEIP schools, that is, equation two (1), the prediction is as follows;

X=1.338+.148(5)-.304(5)-.625(5) +.659(5)-.232(5) +102(5) +.080(5) +.228(5) = 1.508\

Given a standard error of 8.747 for SEIP schools and 9.048 for non-SEIP schools, then 95 percent of the time for strongly agree responses, the school system factors for SEIP schools will have students' academic performance improved by a factor(-1.111 + 8.747=7.636), that is 7.636 points improved, if the resources and the necessary conducive environment is provided, or students' academic performance will decline by a factor (-1.111-7.747=8.858), that is 8.8.858 decline points if facilities and other school system factors are not adequately provided. On the other hand, the student's academic performance in non-SEIP schools will improve by a factor (1.508+9.048= 10.556). 10.556 points improved if resources and other school system factors are time and adequately provided. While students' performance will decline by a factor (1.508-9.048=7.540), that is a 7.540 decline if teaching and learning and other school system factors are timely and adequately provided. The foregoing results show that improvement in students' performance in non-SEIP schools was higher if resources were provided, but it also shows that when the right resources and environment were not provided, students' performance declined more heavily than in SEIP schools.

8.2 Hypothesis Testing

To test the hypothesis stated in Chapter One, the study used a t-test of the regression coefficient to evaluate the contribution of the school system factors (independent variables-i.vs) that were covered in the questionnaire to the prediction of student's academic performance (dependent variable-d.v) in SEIP and non-SEIP schools at .05 significance level. In addition, the standardized coefficients were used to establish the contribution of each school system factor to the model.

The procedure used in the study is as follows:

a) Determine the null and alternate hypotheses: HO=0, null hypothesis; Ha≠0, alternate hypothesis

b) Desire level of significance is .05

c) Defining the degrees of freedom, thereby determining the critical region, rejecting or failing to reject regions.

The study chose the two-tailed t-test because of the way the null and alternate hypotheses were framed; to reject or fail to reject the null hypothesis depends on the following rules.

1. If the computed alpha value was equal to or less than .05, the null hypothesis was rejected
2. If the computed alpha value was greater than .05, the study failed to reject the null hypothesis

The results of the hypothesis tested on the influence of school system factors on students' academic performance in both SEIP and non-SEIP schools in table 42 were as follows;

Ho: There is no significant influence of school system factors on students' academic performance at WASSCE.

Ho=There is a significant influence of school system factors on students' academic performance at WASSCE

a) There is no significant influence of teaching and learning materials on students' academic performance at WASSCE.

Ha=o, and Ha≠ 0

The calculated p-values of .924 for SEIP schools and .733 for non-SEIP are greater than the .05 significance level. Therefore, since the p-values are greater than the .05 significance level, the study failed to reject the null hypothesis. This implies no significant influence of teaching and learning materials on students' academic performance in both SEIP and non-SEIP schools.

b) There is no significant influence of physical facilities such as classrooms and libraries on students' academic performance at WASSCE.

Ho=0, Ha≠0.

The calculated p values for SEIP and non-SEIP schools were .810 and .573, respectively. Therefore, since p is greater than the .05 significance level, the study failed to reject the null hypothesis. This means that physical facilities have no significant influence on students' academic performance at WASSCE in both SEIP and non-SEIP schools in the Northern Region of Ghana.

c) There is no significant influence of qualification on students' academic performance at WASSCE.

Ho=0, Ha≠ 0.

The calculated p values for SEIP and non-SEIP and non-SEIP schools were .933 or .500. Therefore, since p=.930 and .500 are greater than .05 significance, the study failed to reject the null hypothesis. This means that no significant influence of teacher qualification on students' academic performance at WASSCE.

d) There is no significant influence on teachers' teaching experience and students' academic performance at WASSCE.

The calculated p-value for non-SEIP schools was .779. Therefore, since p=.779 is greater than the .05 significance level, the study failed to reject the null hypothesis. This means that there is no significant influence of teachers' teaching experience on students' academic performance at WASSCE in public senior high schools in the Northern Region of Ghana. The influence of teachers' teaching experience could not be computed as it appeared to have a very high

correlation with one or some of the school system factors (independent variables). For that matter, the researcher removed it from the model.

e) There is no significant influence of students' riots and other disturbances (indiscipline) on students' academic performance at WASSCE.

HO=0, H≠0.

The calculated p values for SEIP and non-SEIP schools were .681 and .757, respectively. Therefore, since p=.681 or .757 is greater than the .05 significance level, the study failed to reject the null hypothesis. This implies that there is no significant influence of indiscipline on students' academic performance at WASSCE.

f) There is no significant influence of the nature and application of school rules and regulations (discipline) on students' academic performance at WASSCE.

HO=0, Ha≠0.

The calculated p values for SEIP and non-SEIP schools were .611 and .912, respectively.

Therefore, since p=.611 and .912 are greater than the .05 significance level, the study failed to reject the null hypothesis. This means that there is no sign of discipline as a school system factor on students' academic performance at WASSCE.

g) There is no significant influence of management support for learning with efficiency as a school system factor on students' academic performance at WASSCE.

HO=0, Ha≠0.

The calculated p values for SEIP and non-SEIP schools were .701 and .581, respectively.

Therefore, since p=.701 and.581 are greater than the .05 significance level, the study failed to reject the null hypothesis.

h) There is no significant influence of the completion of the syllabus as a school system factor on students' academic performance at WASSCE.

HO=0, Ha≠ 0.

The calculated p values for SEIP and non-SEIP schools were .835 and .802, respectively. Therefore, since p= .835 and .802 are greater than the .05 significance level, the study failed to reject the null hypothesis. This means that there is no significant influence of teachers' completion of the syllabus as a school system factor on students' academic performance at WASSCE.

8.3 Hypothesis Testing of Student-Related Factors on Academic Performance at WASSCE

To test the hypothesis in chapter one, which states that "there is no significant effect of student-related factors on students' academic performance," the t-test of multiple regression statistical technique was used to establish the contribution of each student-related factor (independent variables-i.vs) to the prediction of student's academic performance (dependent variable-d.v) at WASSCE at .05 significance level. The study tested the hypothesis on a sample of 265 teachers from SEIP (116) and non-SEIP (149) schools.

8.4 Multiple Regression: Input-Output Model

Table 59: Hypothesis Testing of Student Related Factors on Students' Academic Performance.

	SEIP SCHOOLS				NON-SEIP SCHOOLS			
	Standardised Coefficients Beta	T-Statistic	Alpha (P)					
Model		T		Remarks	Beta	t	P	Remarks
1(Constant)		-.830	.494			.145	.892	
Learners' with high self-esteem are motivated to perform	.078	.198	.861		.512	1.235	.284	
Drug abuse reduces the ability of students to perform	-.071	-.144	.898					
Teenage pregnancy negatively affect students' performance								
Peer influence affects the ability of students to perform	-.074	-.131	.908		.375	.750	.495	
Learners' attendance to classes increases their ability to perform	-.540	-1.075	.395		-.502	-.912	.414	
Schools that receive graduates with very good grades perform better than their counterparts	.883	2.087	.172		-.308	-.652	.550	
	.274	.781	.517		.322	.880	.428	

From table 57, the coefficient of determination for and non-SEIP schools R2 were .766 and .481, respectively. What the foregoing means is that 76.6 percent of the variation in students' academic performance can be explained by the student-related factors in SEIP schools, while student-related factors can explain 48.1 percent in non-SEIP schools. However, the study is not statistically significant based on the results of analysis variance (ANOVA) for both SEIP and non-SEIP schools. The p values from the overall model were .550 and .632 for SEIP and non-SEIP schools, respectively, which were both greater than the .05 significance level.

Table 48 shows the coefficient of determination, F statistic, degrees of freedom, and the significance level of the model, p values, standard error, and constant for SEIP and non-SEIP schools.

Table 60. Coefficient of Determination

Coefficients	SEIP	Non SEIP
R^2	.766	.481
F	1.093	.741
Df	6	5
Significance	.05	.05
P-Value	.550	.632
Std Error	5.652	6.412
Constant	**-4.690**	**.927**

Variables shown in table 58 can be represented in the following equations for SEIP and non-SEIP schools:

X= -4.690-.830x1+.078x2-.071x3-.074x4.540x5+.883x6+.274x7 (1)

For non-SEIP schools

X= .927+.145x1+.512x2+.375x3-.502x4-.308x5+.322x6

Drug abuse appeared to correlate with one or more student-related factors and was therefore removed from the model in non-SEIP schools' student-related factors. No significant multicollinearity was observed among SEIP school's student-related factors.

From the prediction of student-related factors in equation one (1), which is SEIP schools, where 1-strongly disagree, 2-disagree, 3-undecided, 4-agree, and 5-strongly agree, in a case where all responses are affirmative, then the prediction is as follows:

For equation (1)

X= -4.690-.830(5) +.078(5)-.071(5)-.074(5)-.540 (5) +.883(5) +.274(5) = -1975

For non-SEIP schools;

X= .927+.145(5) + .512(5) +.375(5)-.502(5)-.308(5) +.322(5) = 3.522

Considering a standard error of 5.652 for SEIP schools and6.412 for non-SEIP schools, then 95 percent of the time, for strongly agree responses, the student-related factors will improve the student's performance by a factor (-1.975+5.652=3.677). That is, 3.677 points improvement in students' performance if students' characteristics are favourable, or performance will decline by a factor (-1.975-5,652=-7.627), that is, 7.627 points decline if student-related factors are unfavourable. On the other hand, non-SEIP schools' student-related factors will help students' academic performance improve by a factor (3.522 + 6.412=10.172). This means that performance will improve by 10.172 points if student-related factors are favourable. In contrast, students' academic performance will decline a factor (3.522-6.652=-3.078), that is the 3.078-point decrease in performance if students' related factors are not favourable.

8.4.1 Hypothesis Testing

To test the hypothesis as stated in Chapter One of the study, the researcher followed procedures set in 8.4.1. The results of the hypothesis tested on the effects of student-related factors on students' academic performance showed that the model was not statistically significant, as the p values for SEIP and non-SEIP schools were .550 and .632, which were both greater than the .05 significance level at 95 percent interval from the analysis of variance (ANOVA). This implies that the model cannot accurately predict students' performance at WASSCE. There is, however, no significant multicollinearity observed from the SEIP school data; the likely occurrence of perfect correlation between some students-related factors in non-SEIP schools led to the removal of the effect of drug abuse on students' academic performance from the model.

From table 49, learners' attendance to classes contributed most to the model in schools, whereas learners' self-esteem contributed the most to the model in non-SEIP schools. This further points to the view that there was no consistent significant influence of student-related factors on students' academic performance.

Again, from table 49, the p values of the individual student-related factors compared to the .05 significance at a 95 percent confidence interval in both SEIP and non-SEIP schools showed that the model failed to reject the null hypothesis for each one of them. The foregoing means that while student-related factors may matter, they neither collectively nor individually significantly affect students' academic performance.

8.5 Conclusion

It has become evident from all the analysis in this chapter the study failed to reject the null hypotheses as stated in chapter one as follows: "

3 Ho: There is no significant influence of Teacher Factors on students' performance at WASSCE.

H1: There is a significant influence of Teacher Factors on students' performance at WASSCE.

4 Ho: There is no significant influence of School Factors on students' performance at WASSCE

H1: There is a significant influence of school factors on student performance at WASSCE.

5 Ho: There is no significant influence of Students factors on students' performance at WASSCE.

H1: There is a significant influence of Students' factors on Student' performance at WASSCE."

CHAPTER NINE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

9.1 INTRODUCTION

This chapter summarises the findings, conclusion, recommendations, and the researcher's suggestions for further studies.

9.2 SUMMARY OF RESEARCH FINDINGS

This study's objectives aimed to review the defects in the method used to compute WASSCE results of students at selected senior high schools under the secondary education improvement project (SEIP) and some non-SEIP schools. This allowed the researcher to examine the influence of school inputs on students' academic performance in SEIP (rural) and non-SEIP (urban). The study adopted descriptive and correlational designs and a quantitative method of research. Descriptive statistics such as means, percentages, and weighted average scores were used to calculate, and regression analysis was done.

The purpose of the descriptive research design was to describe, compare, classify, analyse, and interpret data on the defects in the WASSCE grading system, in relation to the effects of school inputs or resources on academic performance (Frankel & Wallen, as cited in Appeanti, 2014). The researcher used the descriptive design of the ex-post-facto type because the researcher could manipulate the variables as they had occurred earlier (Owoeye & Yara, 2011). At the same time, the correlational design involved using multiple linear regression analysing the data from the questionnaire.

The data were collected from 10 senior high schools in the Northern Region of Ghana. The number comprised six non-secondary education improvement (non-SEIP) schools and four from

SEIP schools. The researcher collected data from both Primary and Secondary sources from selected Public Senior High Schools in the Northern Region by using questionnaires (closed-ended questions and Likert scale) for Headmasters/ Headmistress, Teachers, and students at Public Senior High Schools selected, as well as specially designed schedules for collecting data on students, teaching and learning materials. The study used a stratified random sampling technique. Stratified random sampling was used because the entire population needs to be divided into smaller groups or strata based on shared characteristics of the elements (Hayes, MARCH 3, 2020). After which simple random sampling technique was used to select the proportion of schools in each stratum within the population. Stratified sampling provides more precision than other probability sampling techniques, such as cluster sampling. Because it provides precision, stratified sampling often requires smaller samples which is more economical. The researcher divided the 29 Public Senior High Schools using Secondary Education Improvement Project (SEIP) schools and Non-SEIP schools as a proxy for rural and urban schools, respectively. Therefore, there are 19 Non-SEIP schools and 10 SEIP schools in the Northern Region of Ghana. The researcher took 35% of SEIP schools (i.e., 0.35 X 10 = 3.5=4), that will be four schools and 35% of Non SEIP schools (i.e., 0.35 X1 9 =6.7=6) and that will be six schools.

9.3 SUMMARY OF RESEARCH FINDINGS

9.3.1 Relationship between Teacher Qualification/ Experience and Students' Academic Performance

It was found that there was no consistent relationship between teacher qualification or teacher experience using percentage raw scores to represent student performance. However, the result showed the same trend for both weighted average scores and even the coefficient of efficiency of the efficiency-weighted average scores method. The foregoing trend was observed in responses coming from teachers and students in both secondary education improvement project (SEIP) schools and non-SEIP Schools. This finding differed from that of Amakyi (2017) when some schools that ranked higher when the raw percentages were used dropped or even went out of the ranking compared with the weighted averages in 2004. However, schools that topped the Ministry of education ranking as Amakyi (2017) presented still ranked highest in the researcher's ranking.

It was also found that teacher qualification and experience had a weak positive correlation with student performance, which was not statistically significant. The foregoing finding was similar in both SEIP and Non-SEIP schools.

A bivariate Spearman (rho) correlation for both SIEP and non-SEIP teachers' responses showed negative weak to moderate correlation coefficients, respectively (SEIP=-0.345, p=0330>0.05; and non-SEIP=-0.597, p=0.102>0.05), which were not significant. In addition, the Spearman rho correlation for teachers' teaching experience also showed a negative weak (r=-0.100, p=0784>0.05) and negative strong (r= -0.547, p=0.102>0.05) correlation between teachers'

experience and student performance from teachers' responses in SEIP and non-SEIP schools respectively, which were equally not statistically significant.

An in-depth regression analysis of the relationship between teacher qualification and teacher experience and student performance at WASSCE further revealed that the study failed to reject the null hypothesis that – there is no significant relationship between teacher-related factors and student performance at WASSCE. Therefore, it was established that teacher qualification and experience did not contribute significantly to students' performance.

These results align with meta-data analysis that was concluded from 377 separate studies, which revealed that 91% of those studies showed negative statistically insignificant outcomes. 58 (Hanushek, 1997 as cited in Wanyango, 2009, PP-2-3). Hanushek (1997) P.148) also indicated that a review of 40 studies showed none had a statistically significant positive correlation, 10% of those studies had statistically significant negative correlations.

A larger number of those studies (35) had a positive, statistically insignificant contribution to students' performance. The foregoing means that many of these studies support the researcher's finding of a positive week or strong relationship that was not statistically significant. This knowledge is critical for policy planning and implementation that would take on board all the other variables that affect students' performance to improve performance. Following the controversies surrounding whether teacher factors significantly contribute to students' academic performance, Hanushek (2008, P.7) asked whether teachers and schools matter. And for that matter, whether families and peers alone affect students' performance Hanushek (1992, Rivkiri, Hanushek, and Kain, (2005) concluded that student performance was not closely correlated with teacher characteristics. This view was supported by (Boyed et al. 2005), Rockoff and Stagier (2006) when they also concluded that teacher credentials and teacher training did not make a

consistent difference when assessed against student achievement going. Hanushek (2008, P.7) concluded that it was not because teachers and schools did not matter, but the finding pointed to inefficiency in the provision of schooling. The researcher agrees that inefficiencies exist in the provision of schooling. This view can be seen in the results of data analysis of the coefficient of efficiency where schools with greeter weighted average scores recorded lower coefficients of efficiency.

A spearman rho correlation was conducted to establish how school factors affect student performance at WASSCE and found a weak correlation that was not statistically significant. It was found that school factors (teaching and learning materials, and physical facilities such as classrooms and libraries) had these coefficients; teaching and learning materials, r=-0.013, while physical facilities, r=0.097. The results for non-SEIP schools were not different, as the Spearman r=-0.174 and 0.038 for teaching/learning materials and physical facilities, respectively. Which meant the correlation between school-based factors was negative weak for teaching/learning materials and positive weak for physical facilities.

9.3.2 Effect of School Resources or Inputs on Students' Academic Performance

The results from an ANOVA in the multiple regression analysis tables showed that the model was not statistically significant. The coefficient of school facilities against weighted average scores showed that school facilities did not significantly contribute to the model. Comfort and veronica (2016) conducted a study on the impact of physical facilities on student motivation and academic performance and found that school facilities contributed significantly to student performance. The difference in the foregoing results and the researcher's finding may be due to data collection or inefficiency in using resources in the schools sampled for this study.

The foregoing findings suggest that school-related factors such as teaching/learning materials and physical facilities, including classrooms and libraries, did not directly contribute significantly to students' performance at WASSCE. But finding comfort and veronica (2016, P4) pointed out that the availability of these facilities will motivate students to improve their performance.

The policy implication for this is that whether school facilities contribute directly or indirectly to learning outcomes due to multitudinous variables that affect academic performance, their availability in adequate quantities and teachers' use will culminate in improved performance.

A bivariate spearman rho (r) correlation of a student-related factor such as learner attendance to classes showed a positive, strong correlation that was not statistically significant. The coefficient of correlation (r) was 0.444 at p= 0.199 >0.05. Correlation and regression analysis conducted on the diploma and degree students by Sukri et al. (2018) used Pearson correlation because the researcher collected data on attendance and examination scores, which were both quantitative and found (P-value = 0.008) with weak positive correlation. The R square in that study showed that attendance contributed 2.82% to students' performance.

Both studies agreed that better attendance was neither having a strong positive correlation nor correlated positively, but the extent of association was weak. This requires policy intervention to enforce that learner is motivated to participate by attending classes.

9.3.3 Effects of Student-related Factors on their Academic Performance

A bivariate spearman rho correlation between schools that received BECE graduates with very good grades and students' performance at WASSCE found a strong positive correlation where r = 0.360 but was also not statistically significant as p-valve equalled 0.307 >0.05 significant level. It was also found from the student's perspective that, there existed an indirect relationship

between both learner attendance and student's prior performance and that of student's performance at WASSE in Saint Charles Senior High School.

However, generally, the analysis above did not show any consistent relationship between student prior performance and students' performance at WASSC.

Also, a bivariate Spearman correlation between student-related factors and academic performance of sampled senior high schools as shown by table 17 does not portend any consistent significant relationship. The results showed that learners' self-esteem had a moderate positive correlation with students' academic performance in both SEIP and non-SEIP schools, which were statistically insignificant. Drug abuse has a weak negative and strong negative correlation for SIEP and non-SEIP schools respectively, which were also statistically insignificant. The table shows that teenage pregnancy has negative weak and positive weak relation with students' academic performance in SEIP and non-SEIP schools respectively. Peer influence also has a positive weak and negative weak Spearman correlation with students' academic performance for SEIP and non-SEIP schools respectively. For students' attendance to classes, the table shows it has a positive strong Spearman correlation, which was statistically significant, while the non-SEIP schools showed a negative weak correlation. Finally, students' prior performance has a negative weak, and positive Spearman correlation with students' academic performance, which was not statistically significant.

The ANOVA from the analysis of the data for both SEIP and Non-SEIP Schools showed that the study failed to reject the null hypothesis as stated in chapter one that "there is no significant effect of student factors on student performance at WASSCE" The values of ANOVA in all the schools exceeded the 0.05 significance level. For example, NS, = .103, NS2 = 0.735 NS3 =.714,

NS4 = .411, NS5 = .528, NS6 = .821 and S10 = .811, which were all more than o.05 significance level.

9.3.4 Determination of a Better and more Integrated Approach to Measuring Students' Academic Performance.

For the researcher to be able to determine a better more integrated approach, the research used cross-tabulation of the percentage raw scores, which did not take into account the quality of passes of the individual students and also the number of candidates presented by each school and weighted them to take into account the quality of passes and number of candidates presented.

It was found that the coefficient of efficiency table of schools that did not do very well in the student academic performance topped the list. In contrast, the second-best school in academic performance became third, and the first and third schools in academic performance became 5th and 6th respectively. It means that a school could be more internally efficient than another and yet perform more poorly. It also means that schools that are seen to be doing well academically could also be wasting more school inputs in the process. In the latter situation, if resource inputs were managed better, the school would be better off for it.

Therefore, the researcher's considered view is that the coefficient of efficiency-weighted averages approach would have a more holistic view of school performance and not just the total student performance being used as a measure of school performance.

Obinga (2011) found that physical facilities influenced internal efficiency in any secondary school. Obinga added that the availability and judicious use of these facilities counted a lot in improving internal efficiency. Obinga further stated that inadequacy of such physical resources

as classrooms, textbooks, restrooms, and libraries, among others, cannot enhance quality teaching, and that Staff would not be motivated to be efficient in the classroom.

Hanushek (2007) also pointed out that "accumulated economic analysis of education suggests that the current provision of education is very inefficient. "The foregoing studies by Obinga, Farrant, and Hanushek all support the researcher's suggestion of a better and more integrated approach that considers the quality of passes, the number of students presented, and internal efficiency of the school system, by computing school performance using the coefficient of efficiency-weighted average approach. This will enable policymakers, educational planners, and administrators to communicate actual school performance.

9.4 CONCLUSION

Teacher qualification and experience were used by the researcher to explain the relationship between teacher-related factors and student performance at WASSCE from the responses of SEIP school teachers. Both were found to have a strong negative correlation with student performance but were not statistically significant. When the Spearman rho correlation was also conducted for teachers of non-SEIP schools, it was similarly found that teacher qualification had a strong negative correlation with student performance but was also not statistically significant. An ANOVA from multiple linear regression of these variables on student performance found that teacher qualification and experience did not contribute significantly to variation in student performance. The R square of 0.071 from teachers' responses from SEIP schools meant that the two variables representing teacher-related factors contributed only 7.1% of the variation in student-related factors. Therefore, it can be concluded that teacher qualification explains the variation in student performance only to a small extent.

On the other hand, the R square for teacher qualification and experience for non-SEIP schools was 0.517, which meant that 51.1% of the variation in student performance for the non-SEIP schools could be explained by these two variables representing teacher-related factors. However, ANOVA with a p-value of 0.078 showed that the study failed to reject the null hypothesis. Therefore, even though the study cannot conclude that teacher qualification and experience do not matter, their contribution to student performance at WASSCE was not statistically significant.

The standard multiple regression analysis for school inputs comprising; teacher qualification and experience, teaching/learning materials and physical facilities, learner attendance to classes, and schools receiving BECE graduates with very good grades showed that the model contributed 31.1% to student performance for SEIP schools and 65.2% for non-SEIP schools. In both models, the ANOVA showed statistical insignificance. Therefore, it can be concluded that teacher qualification and experience may have much more influence on student academic performance in urban (non-SEIP) schools than in rural low-performing (SEIP) schools, but the ANOVA showed that they would not be able to accurately predict the contribution of these factors to students' performance at WASSCE.

UNESCO (2004, as cited in Kagan and Smith, 2005) explained quality education to include the indicators of internal efficiency and external efficiency of education. The coefficient of efficiency was used to measure the internal efficiency of SEIP and non-SEIP schools under study.

Therefore, one way of measuring the quality of education at any level is to measure its internal efficiency indicators.

The indicators of internal efficiency of the education system include such issues as pupil-teacher ratio, pupils' cost of education, repetition rate, dropout rate, average attendance, examination passing rates, average instructional space (classroom space per student), and adequate teaching and learning materials among others. It was found that the coefficient of efficiency for the selected public senior high schools changed the ranking positions of some of the schools at the top. This means that some low-performing schools were more internally efficient than the high-performing schools.

It was found that the weighted average scores were a better measure of students' performance, as it took the quality of passes and the number of students presented to take the examination (Amakyi, 2017). But the use of the coefficient of efficiency-weighted average approach was used to measure the weighted average scores and the internal efficiency of the schools. The researcher concludes that a more inclusive and integrated approach that considers the availability and efficient application of all the resources to improve learning outcomes is the coefficient of the efficiency-weighted average approach.

9.5 RECOMMENDATIONS

Teacher qualification can be made more relevant through regular in-service training tailored toward improving knowledge and skills to enhance professional practice. If this is well planned to consider the teacher's interest, teachers will be motivated to give off their best.

The timely availability of teaching and learning materials and physical banalities will bring about an effective and efficient combination of these resources to improve performance.

A conducive and supportive school environment is equally important to attract and keep students, engage them to participate meaningfully, and not just attend classes. The performance

will improve if this is done with home, community, school, and government timely support for schools.

The efficiency of the school system will ensure that teachers are motivated to teach, and students participate willingly. And government provides a necessary physical, material, and enabling school environment that ensures not by policy of mass promotion but a smooth transition that virtually eliminates repetition and dropout and improves performance.

Stakeholders should remove the "free flow" concept and support the school system to eliminate inefficacies and make judicious use of resources for improved performance.

Analysis of data on percentage on raw scores, weighted average scores, and even the coefficient of efficiency – weighted average score method did not change the ranking of the various schools. Results also showed that some SEIP schools are doing better them some non-SEIP schools.

Those findings call for some more inadept investigation. Policymakers should also review the secondary education improvement project policy to possibly take out SEIP schools that are now doing well and bring in schools that are still struggling, or letters still include low-performing schools to benefit from the project. It was not established in this study exist it was not its purpose to find out whether the project contributed significantly to some schools that were not doing well to now overtake some of those that were ahead of them.

Educational planners and administrators should keep proper records covering; the availability, adequacy, and judicious use of these resources. The foregoing will enhance the computation of efficiency outcomes concerning school performance. Organizing data into performance indicators can responsibly guide policy, engender monitoring and evaluation, as well as provide relevant feedback for improved student performance (ROWE and Lievesley, 2002, p.21}.

9.6 SUGGESTIONS FOR FURTHER RESEARCH

Firstly, the researcher suggests further studies into possibly all known independent variables to the dependent variable students' academic performance to determine just how many are having a strong positive correlation with it and are statistically significant or what other resources, when combined, can make each attain statistical significance with student performance?

Secondly, the researcher suggests further research into the extent to which the weighted average scores influence school performance under the coefficient of the efficiency-weighted average approach.

Thirdly, the researcher suggests further study into the contribution of enforcement of discipline to students' academic achievement in senior high schools in Ghana.

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