IMPROVING THE QUALITY OF BASIC EDUCATION IN GHANA:

THE ROLE OF HEAD TEACHER SUPERVISION

By

Joyce Ewura Adwoa Boham

THESIS

Submitted to

KDI School of Public Policy and Management

In partial fulfillment of the requirements

for the degree of

MASTER OF DEVELOPMENT POLICY

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Professor Ju-Ho LEE

Professor Insoo JEONG

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ABSTRACT

IMPROVING THE QUALITY OF BASIC EDUCATION IN GHANA:

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Joyce Ewura Adwoa Boham

Schaeffer (2000) found that less than half of African basic school students graduate from school with the requisite basic numeracy and literacy skills.[1] The problem in Ghana has been more evident between public and private schools. The disparity in the Basic Education Certificate Examination (BECE) results of students in public and private basic schools in Ghana have over the year continued to widen. Many have attributed this to inappropriate head teacher supervision and incentives in public schools. The premise of this research is that the quality of head teachers' supervision and incentives affects students' achievements. Furthermore, the frequency and quality of such supervision is different between public and private schools. This explains the significant gap between public and private Junior High school Basic Education Certificate Exam (BECE) scores in Ghana.

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[1] Schaeffer, S. "Assessing Learning Achievement: A Global Analysis of Achievement in Developing Nations", (Senegal: World Forum, 2000).

This thesis seeks to identify therefore if there exists any relationship between head teacher supervision and incentives, on the one hand, and students' academic performance, on the other hand. It also examines whether head teacher supervision and incentives in public and private basic schools differ. Using stratified sampling, data on selected head teachers and schools in the Greater Accra Region was used.

The findings demonstrate that being in a private school increased a student's chances of obtaining high scores in English, mathematics (maths) and science. However, the adjusted R^2 illustrates that the independent variables accounted for only 64% of the variation in the dependent variable. This implies that there are other variables outside the scope of this study that may be significant determinants of students BECE scores. The findings also identified that although the difference between head teacher supervision in public and private schools were minimal, instructional supervision had a more significant effect on students' performance as compared to general supervision and incentives. The research also found that a student's high performance in English had a significant positive correlation with their math and science test scores. It is recommended therefore that head teachers should be encouraged to pay more attention to instructional supervision. It would also help if government policy also focused more on these areas.

DEDICATION

This work is dedicated to my children, Maame Efua, Baaba and Kwanstimah Orleans Boham for encouraging me to get my masters even though it meant their being without their mother for a year.

ACKNOWLEDGEMENTS

I am grateful to God for taking me through one of the most influential moments of my life. I am further gratified for the privilege of studying under Professor Paik Sung-Joon and Professor Lee, Ju-Ho the immediate past Minister of Education of South Korea. Together these wonderful men have imparted my life in a way that will stay with me forever. My gratitude also goes to my scholarship sponsors, the Seoul G20 Global Leadership Fellowship for giving me the opportunity to study in KDI School with the most diverse student body and the opportunity to exchange knowledge and experiences. Lastly many thanks to my husband Kwame Boham for his support and to all my friends for their encouragem

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INTRODUCTION

1.1 BACKGROUND

Educating and training children to develop basic competencies, knowledge and skills required for life to be productive to themselves as individuals and to the society as a whole has been one of the major priorities for the government of Ghana (GoG) in their quest to reduce poverty, increase productivity and achieve sustainable economic development. In accordance with the goals of the 1990 "Education for All" (EFA) Convention, the GoG through the Ministry of Education introduced various interventions such as The Capitation Grant and School Feeding Program in an attempt to increase the country's school enrollment rate, especially for basic education.[2]

According to the 2013 Budget Statement Report, the state planned to set aside GH¢4,412,695,383 (about $2.3 billion, an equivalent of 9.9% of Government Annual Budget) to meet the Country's Educational objectives. Approximately 49% of the stated amount is to be reallocated for Basic Education. However, less than half of the planned funds are actually disbursed for the said purpose despite the large allocated budget.[3] Unfortunately, the focus on increasing the number of children in school and the number of years they stay in school seems to have overshadowed the more important concern of the quality of the education provided. Little or less focus on the quality of education provided in school has resulted in the majority of Junior High (JH) students in public schools performing poorly in the Basic Education Certificate

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[2] Government of Ghana, *Education Strategic Plan 2003 to 2015,* Ghana: Ministry of Education, 2003,*Vol. 1*, 5.

[3] Ministry of Finance Budget Statement and Economic Policy for 2013 report, (Ghana: Ministry of Finance, 2013)

Examination (BECE) each year. This exam evaluates students regarding their knowledge and skills in English, Mathematics and Science, among others. According to Schaeffer (2000), less than 50% of African children graduate from basic school with the requisite basic numeracy and literacy skills.[4]

Each year, there are significant disparities in the BECE exams results between the public and the private schools. The differences in exam results highlights the disparity in the quality of education administered in the kind of school.[5]

The Regional Education Sector Report for 2011/2012 of the Greater Accra Region identified that in the year 2012, the mean aggregate for BECE results of the ten top private basic schools were between 6.00 and 6.35 while that of the top ten public basic schools was between 6.41 and 8.28. Additionally, during the rankings of all schools in Ghana, the top public school placed 14th, thus, behind 13 private schools.[6] Regardless of the fact that 95.3% of trained educational professionals are employed in public schools as compared to 31.3% for private schools.[7] This is a significant concern to stakeholders. Below is a disaggregation of trained teachers in public and private basic schools in the Greater Accra Region.

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[4] Schaeffer, S. "Assessing Learning Achievement: A Global Analysis of Achievement in Developing Nations", (Senegal: World Forum, 2000).

[5] Quansah, K. B. Ministry of Education "1999 report on the administration of primary 6 criterion referenced tests." (Accra: 2000)

[6] Republic of Ghana, "Regional Education Sector Performance Report- Greater Accra Region Target School Year: 2011/2012" (Ghana: May 2012.), 1-27.

[7] Educational Assessment and Research Centre (EARC) "Comparative study of public and private schools in Ghana," 2003.

Table 1.1 Trained and untrained teachers by school types and gender

	Public			Private		
Primary	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
Total	7,190	1,793	5,397	**7,526**	4,770	2,756
Trained	6,700	1,496	5,204	**1,661**	1,052	609
Percentage of teachers formally trained	**93.2%**	**83.4%**	**96.4%**	**22.1%**	**22.1%**	**22.1%**
	Public			**Private**		
JSS	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
Total	6,753	3,382	3,371	5,650	4,734	916
Trained	6,414	3,140	3,274	1,771	1,454	317
Percentage of teachers formally trained	**95%**	**92.8&**	**97.1%**	**31.3%**	**30.7%**	**34.6%**

Source: ***Educational Management Information System (EMIS) 2012, Unit of the GES, Greater Accra Region***

The suggested and possible causes of the poor BECE results of public schools are many and varied. However, the main ascribed reason is their low educational quality. While the Ghana Education Service (GES) recognizes inadequate infrastructure, inadequate teaching and learning materials and lack of sufficient incentives for teachers in public schools, their counterparts in private school enjoy sufficient resources, high teacher moral and appropriate incentive systems.

1.2 STATEMENT OF THE PROBLEM

In Ghana, the poor performance of students in public basic schools may also be attributed to low supervision from head teachers. This would eventually result in teacher absenteeism and lateness, failure to prepare lesson notes as well as using teaching and learning time for other unrelated activities. These behaviors are as a result of inadequate supervision from head teachers. These supervisors fail to effectively perform their instructional and general supervisory duties. A

major consequence of this is the highly disappointing students' achievement in public basic schools.

MacBeath (2010) identified weak supervision of head teachers on teacher classroom activities as one of the main causes of low students' achievement rate.[8] Stakeholders in the educational sector in Ghana have therefore concluded that if head teachers in both public and private schools have the same responsibilities and that public schools have the majority of trained professionals then, all things being equal, such institutions should perform better in the BECE. However, this has not been the case in Ghana.

1.3 PURPOSE OF THE STUDY

The purpose of this study is to identify the relationship, if any, between head teacher supervision and incentives on students' academic performance.

It also seeks to identify if any, differences in head teacher supervision and incentives between public and private basic schools. Although past researches have examined the difference in head teacher supervision between public and private schools, this research seeks to find out if there is any relationship between the two and also to identify the effects of the difference in students' achievement rates in public and private schools.

[8] MacBeath John. "Leadership for learning: Concepts, Principles and Practice." *Leadership for learning, The Cambridge Network*, Journal Vol.2 April 2010-March 2012.

1.4 HYPOTHESES

1.4.1 HYPOTHESIS 1

The first hypothesis to be tested states that effective supervision of instructors by head teachers can improve quality of teaching activities. This would significantly enhance students' achievement in public basic schools in Ghana. According to Oliva and Pawlas (2004), one of the basic tasks of head teachers is to engender effective teaching and learning of pupils and students.[9] This has a direct effect on students' test scores (Dipaola and Hoy, 2008).[10] As such, effective head teacher supervision is critical to accomplish this goal.

1.4.1 HYPOTHESIS 2

The second hypothesis of this thesis states that all employees including teachers need to be motivated to be productive. This will not only improve students' academic achievement but also transform students to become better future leaders. In this regard, the head teachers' ability to motivate teachers is vital.

According to Hanushek and Woessmann (2007), when head teachers develop appropriate reward systems and penalties for teachers, they will improve their students' achievement rates.[11] As such, some of the pertinent questions to be answered are: Do teachers feel sufficiently

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[9] Oliva, P. F. & Pawlas, (1997). *Supervision for today's schools.* (5th ed.). New York: Longman

[10] DiPaola, M. F., & Hoy, W. K. "Principals improving instruction: Supervision, evaluation, and professional development." Pearson, Allyn and Bacon , Boston, 2008.

[11] Hanushek, Eric, A. and Woessmann, Ludger. "Education Quality and Economic Development." (International Bank for Reconstruction and Development and World Bank Report, 2007), 12-13.

encouraged through objective feedback from supervision to deliver their best performance?. Are there appropriate explicit and implicit reward systems by head teachers?

2. RESEARCH QUESTIONS

1. What is the relationship between head teacher's instructional supervision and students' achievement?
2. What is the relationship between head teacher general supervision and teacher incentives and students' achievement?
3. Are there differences in the relationship between head teacher's instructional supervision and students' achievement when comparing public and private schools?
4. Are there differences in the relationship between teacher general supervision and incentives and students' achievement when comparing public and private schools?

3. HYPOTHESIS TESTS

a. There is a statistically significant relationship between head teacher supervision and students' achievement.

b. There is a statistically significant relationship between teacher incentives and students' achievement.

c. There is statistically significant difference relationship between head teacher's supervision and students' achievement between public and private schools.

d. There is statistically significant difference relationship between teacher incentives and students' achievement between public and private schools.

4. SIGNIFICANCE OF THE STUDY

This research seeks to identify, if any, the relationship between head teacher's supervision and incentives and students' achievement. The findings are critical to all affected stakeholders (teachers, students, parents, head teachers, policy makers and the community as a whole). It will help policy makers formulate and implement appropriate and relevant laws to improve the quality of basic education. It will also help circuit supervisors in charge of supervising head teachers performance, school committee members responsible for helping to manage schools and education officers. Parents and the nation as a whole will gain more insight into the effect of instructional and general supervision as well as incentives in increasing students' test scores. It will also serve as a guideline for policies aimed at enhancing the performance of head teachers in Ghana.

The findings will aid in identifying future training and developmental needs of Head teachers for effective and efficient supervision. It can also be used to determine the most appropriate incentives needed in public basic schools in Ghana. It will further provide information for head teachers about the importance of their supervisory role and its impact on the students' test scores. Furthermore, the findings will illustrate the critical role of the head teacher in ensuring that government's investment in education achieves its desired outcome. This is mainly to develop a highly literate and skilled population capable of contributing their quota to national development. Finally, the findings of this research will raise questions that may need further research in the subject area.

5. IMPORTANT TERMS

a) Basic Education

Basic education in Ghana consists of a 2 year kindergarten, 6 years primary and 3 years Junior High School periods.

b) Education quality

In this study, the education quality is measured by students' achievement (test scores). This considers other input variables such as class size, teacher qualification, text books and pupil-teacher ratio.

c) School Management Committee

The school management committee is a body responsible for helping head teacher in managing their schools. This committee is comprised of all relevant stakeholders, these includes parents, teachers, head teachers, representatives from the Ghana Education Service (GES) and representatives from the community.

d) Cognitive skills

Cognitive skills refer to a child's ability to read, write and comprehend what they have read.

e) Head teacher

The head teacher is the manager of a school, providing both instructional and administrative leadership.

f) Junior High School

In Ghana, Junior Secondary education is the final part of the basic education process. It covers three years of lower secondary school. It is the transition time between primary and senior secondary school.

g) Instructional supervision

This form of supervision refers to all supervisory activities or practices relating to teaching and learning.

h) *General Supervision*

General supervision comprises of all non-instructional supervisory activities or practices as well as extra curriculum activities and school management.

6. LIMITATIONS

One of the limitations of this study is the large population of both private and public schools in the Greater Accra region. This precludes the possibility of collecting data from all the afore-mentioned educational institutions. Although the sample of interest for this study covers all public and private schools in the region, it was not possible to collect data from all of them due to financial, resource and time constraints. Consequently, this research study limited itself to JHSs in the region that represent the population of interest.

7. ORGANIZATION OF THE STUDY

This study is organized into six main chapters. The first section is the introduction. This provides an outline of the research topic. It also describes the salient background and overview of the selected topic. The second chapter discusses and reviews pertinent literature related to the research topic. This concerns the effect of head teacher instructional and general supervision and teacher incentives on students' achievements in basic schools. The next chapter outlines the salient demographic and institutional profile of the communities studied. The ensuing chapter, descriptive statistics and methodology, considers the preliminary salient features of private and public schools in the localities studied. It also describes the methodology by which the research will be conducted. It will explain how the research methodology and technique will be applied.

The fifth chapter will report the results of the data analysis. It will also discuss the salient findings of this research. The sixth and final chapter summarizes the study, highlights the salient conclusions and puts forth appropriate recommendations.

CHAPTER TWO

LITERATURE REVIEW

This chapter discusses past studies on the research topic of interest. This concerns the effect of head teacher supervision and teacher incentives on students' scores in basic schools. This section will review literature on supervision and incentives and their effects on the quality of learning and teaching in the classroom.

2.1 THE CONCEPT OF SUPERVISION

According to Too et al (2012), supervision refers to all activities and processes that ensure that the individual(s) responsible for a particular group achieve the specified objective.[12] According to Page (2003), "supervision" has a Latin root comprising of two words, namely: *super* meaning 'above' or 'over' and *visio* connoting 'sight'. This implies that as a supervisor, the head teacher has oversight responsibilities over the school and teachers therein.[13] Mbiti (1974) asserts that organizations require the direction and supervision of a leader (head teacher) to succeed. Since schools are also organizations with a defined mandate to achieve, inputs are made available to head teachers.[14]

Some of these are: teachers, infrastructure and teaching materials. Such resources are to enable them meet the expectations of stakeholders. In a private business concern, they would

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[12] Too, C. Kimutai, C.K., and Kosgei, Z. "The impact of Head teachers' supervision of Teachers on Students' Academic Performance," Journal of emerging Trends in Educational Research and Policy Studies (2012), 300.

[13] Page, S. and Wosket, V. "Supervising the Counselor: A cyclical Model" 2nd (USA: 2003)

[14] Mbiti, D. "Foundation of School Administration." Nairobi Oxford Press (Nairobi:1974)

have been expected to manage and use their knowledge and skills to provide the requisite services demanded by their customers, students and parents.

To do this, Ogunsaju (1983) asserts that, head teachers should encourage, motivate and supervise teachers with the objective of providing quality education.[15] Wanzare (2011) believes that the style or process of supervision depend on its context and timing.[16] Such processes are termed as 'supervisory strategies' by Wiedmer (1995) or 'styles of supervision' by Gleave (1997). While Beach and Reinhartz (2000) refers to this as 'mechanics of supervision', Sergiovanni and Starratt (2002) term it as 'supervisory options' and to Glickman et al (2009), they are 'supervisory behaviors'. Irrespective of a head teacher's (supervisor's) perspective on the objective of supervision, Beach and Reinhartz (1989) find that, the main purpose of class room supervision is to provide the necessary assistance and information to teachers to help them improve their teaching and learning activities in the classroom.[17] They do this by observing the strengths and weakness of the teacher and developing strategic techniques aimed at improving the competencies and skills of the teacher.

McQuarrie and Wood (1991) re-affirm that the ultimate aim of supervision is to help teachers formulate and use the best methods of implementing instructional activities in the classroom.[18] Baffour Awuah (2011) and Bolin, Panaritis and Bays, (2001) support this as they

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[15] Ogunsaju, S. "Educational Supervision perfectives and practice in Nigeria." Ile-Ife: Obafemi Awolowo University Press. (Nigeria: 1983:)

[16] Wanzare, Z. "Instructional Supervision in Public Secondary Schools in Kenya" Educational Management Administration and Leadership, Nairobi, 2012, 192.

[17] Beach, D. B. & Reinhartz, J.(1989). *Supervision: Focus on supervision*. New York: Harper and Row

[18] McQuarrie, F. O. & Wood, F. H. "Supervision, staff development, and evaluation connections." *Theory into Practice*, (1991). 30(2), 91-96.

find that supervision must be primarily designed at enhancing classroom practices of teachers to significantly benefit students.[19]

2.2 EVOLUTION OF SUPERVISION IN BASIC EDUCATION

According to Baffour-Awuah (2011) supervision has significantly changed over the years.[20] During the 19th century the general opinion of supervision was to provide instructions to enable teachers teach better. Any more than this could result in a dismissal. During this period, teachers were viewed as incompetent. Therefore, more experienced teachers were hired to supervise the work of other teachers. The nature of supervision during this period was more autocratic as supervisors minutely directed, controlled and oversaw the activities of teachers. Farley (2010) asserts that the role of such supervision was mainly focused on school and teacher management rather than managing teaching and learning.[21]

On the other hand, in the twentieth century supervision was more directed towards social efficiency. Sullivan and Glanz (1998) found that this form of supervision was aimed at making teaching activities more efficient.[22] This was mainly influenced by the growing application of scientific principles to business management and industrial activities at the time. It was believed that if supervision were to be objective and purposeful, it must be impersonal. It was aimed at

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[19] Peter Baffour-Awuah "Supervision of instructions in Public primary schools in Ghana: Teachers and Head teachers perspectives" Murdoch University (August: 2011), 17.

[20] Ibid, 18.

[21] Farley G.C. "Instructional supervision: a descriptive study focusing on the observation and evaluation of teachers in cyber schools," a dissertation submitted in partial fulfillment of the requirement for the degree of doctor of education university of Pennsylvania (2010). 3

[22] Sullivan, S. & Glanz, J. (2000*). Supervision that improves teaching: Strategies and techniques.* Thousand Oaks, CA: Corwin Press Inc

addressing the problems of the inspectional method of supervision and the power and control that supervisors enjoyed at the time.

A more democratic approach was introduced by theorists to ensure that teachers were not just being controlled but that they were duly respected. Furthermore, it sought to ensure that an appropriate coordination system existed between teachers and supervisors. Baffour Awuah (2011) found that current head teachers use a more participatory approach involving teachers and other co-workers to achieve the school's mandate.[23] It was, therefore, expected that head teachers show respect to teachers during supervision.

Sullivan and Glanz (2000) identified that the introduction of the scientific approach mainly occurred between the 1930s and 1950s where supervisors were expected to acquire the requisite skills and knowledge to teach both teachers and students.[24] Supervisors were expected to use measurements like rating scales and classroom observation to determine the quality of classroom instruction.

However, this was a problem as teachers fared badly on such pre-determined methods and standards. It was found that teachers performed better when they were given the power to determine the most appropriate style of teaching.

Baffour-Awuah (2011) asserts that the 1960s emerged with a more objective and result-oriented approach. This expected supervisors to practice supervision as a leadership role where they were urged to introduce instructional goals that were acceptable to both the supervisor and

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[23] Peter Baffour-Awuah "Supervision of instructions in Public primary schools in Ghana: Teachers and Head teachers perspectives" Murdoch University (August: 2011), 19

[24] Sullivan, S. & Glanz, J. (2000*). Supervision that improves teaching: Strategies and techniques.* Thousand Oaks, CA: Corwin Press Inc

teachers. In addition, they were required to significantly co-operate with teachers to improve classroom instruction and encourage teachers to undertake more research in the area of teaching and leadership skill.

Miller and Miller (1987) assert that advocators of clinical supervision, the approach adopted between 1970 and 1980, sought to enforce face to face interaction with teachers before (preconference), during (classroom supervision) and after (post supervision) teaching.[25] The late twentieth century developed a new model of supervision based on the growth rate of supervisees. Some research advocated that since individuals learn at different paces, supervisors should also customize their supervision based on supervisees' level and speed of growth. This would decrease the rate of supervision as the supervisee improves in instructional competencies and skills (Glatthorn, 1990; Sergiovanni & Starratt, 1993; Sergiovanni, 2009 and Sullivan & Glanz, 2000). When teachers or supervisees have the opportunity to teach each other they learn better, therefore supervisors (head teachers) should develop activities and programs for such interactions.

They advocate that teachers may have a better understanding and feel less intimidated when teaching is performed by their fellow teachers. Currently, however, supervision is perceived as how best to help teachers develop the best methods of teaching to improve the impact and quality of teaching and learning.

Available literature illustrates that school supervision is either internal or external. According to the head teachers' hand book from the Ministry of Education of Ghana, external

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[25] Miller, R. & Miller, K. (1987). "Clinical supervision: History, practice perspective." *NASSP Bulletin*, 71 (18), 18-22.

supervision is undertaken by outside officials. Examples are circuit supervisors and School Management Committee from the Ministry. On the other hand, internal supervision is conducted by the head teacher together with the Assistant head teacher and subject heads.

The supervisory role of the head teacher covers both the input and process stages of teaching and learning continuum at school. Pearson (2009) posits that, the supervisory responsibilities of a head teacher include among others, visiting teachers as they teach, reviewing teachers' lesson plans, asking questions about teaching methods and providing additional relevant information on best teaching methods.[26] These also involve appraising teachers' work and providing feedback and professional developmental training. Such training can take the form of both in-service and out-of-school training directly linked to teachers' teaching goals.

Wanzare (2012) classifies the supervisory practices of the head teacher into direct and indirect supervisory practices, while Nzabonimpa (2009) categorizes supervision as instructional and general supervision.[27]

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[26] PEARSON, C. 2009. Principles & Theories of Educational Supervision & Leadership. Retrieved on September 25, 2013 from http://www.ehow.com/info_8149786_principles-theories-educational-supervision-leadership.html#ixzz1PHEIZYop

[27] Wanzare, Z. "Instructional Supervision in Public Secondary Schools in Kenya" Educational Management Administration and Leadership (Nairobi: 2012), 192

[27] Nzabonimpa Buregeya J. "Influences of Head Teachers General and Instructional Supervisory Practices on Teachers' work performance in Secondary Schools in Entebbf Municipality" Wakiso District (Uganda ; 2011)

Table 2.1: Evolution of supervision

Year	Phase of Supervision	Problems with supervision style	Method of supervision
Pre-1900	Supervision as Inspection	Incompetent teachers	▪ Directing activities ▪ Controlling activities ▪ Overseeing activities
1900-1919	Supervision as Social efficiency	Teachers are lazy by nature and will not perform unless supervised	▪ Use of teacher rating ▪ Impersonal supervision
1920s	Democracy in supervision	Lack of participation by teachers	▪ Co-operative problems solving approach. ▪ Helping to improve instructions
1930-1950	Scientific Supervision	Lack of supervisory skill by supervisors.	▪ Rating scales and observational instruments
1960s	Supervision as Leadership	Inspections and social efficiency approaches to supervision are not viable – too autocratic.	▪ Introduce mutually acceptable goals ▪ Extend co-operative and democratic method. ▪ Improve classroom instruction. ▪ Promote research. ▪ Promote professional leadership
1970-1980	Clinical Supervision	Weakness in traditional model of supervision	▪ Face-to-face interaction with teachers to identify problems and find sustainable solutions through (pre-conference, classroom supervision and Post conference supervision)
1998	Developmental Supervision	Individual supervisees grow at different pace.	▪ Based on the growth rate of the supervisee (directive, collaborative , non directive)
21st century	Collegial supervision	Supervisees learn better from colleagues than from superiors	▪ A teacher, preferably subject head, may teach others and colleagues new ways to teach.

Source: Baffour-Awuah (2011), Bolin, Panaritis and Bays (2001), Glatthorn (1990), Farley (2010), Miller and Miller (1987), Nzabonimpa (2009), Pearson (2009), Sergiovanni (2009), Sergiovanni and Starratt (1993), Sullivan and Glanz (1998 and 2000) and Wanzare (2012).

2.3 INSTRUCTIONAL SUPERVISION

Instructional supervision relates to teaching and learning activities in the classroom while general supervision encompasses activities outside the classroom. According to Farley (2010), instructional supervision includes all activities aimed at improving teaching.[28] These include observing classroom instruction and teachers' meetings. Such processes will improve the development and execution of teaching plans to effectively learn and acquire reading, arithmetic and other educational skills. Furthermore, the organization or alteration of teaching curriculum and methods are further examples of supervisory activities.

The Head Teachers' hand book stipulates that their responsibilities include but are not limited to ensuring that teaching and learning is carried out effectively. It encourages head teachers to closely monitor the activities of teachers and pupils in the classroom by ensuring that educators prepare sufficiently for their lessons and that they properly manage their classes. Instructional supervision is one of the most important responsibilities of a head teacher (supervisor). According to Too et al (2012), this form of supervision is a tool used to help teachers teach more effectively and become more productive.[29] It is important for the supervisor to provide direct assistance to the teacher by helping him / her to perform his / her duty and having a personal contact with the teacher before (pre-conference observation), during

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[28] Farley G.C. "Instructional supervision: a descriptive study focusing on the observation and evaluation of teachers in cyber schools," a dissertation submitted in partial fulfillment of the requirement for the degree of doctor of education university of Pennsylvania (2010). 3

[29] Too, C. Kimutai, C.K., and Kosgei, Z. "The impact of Head teachers' supervision of Teachers on Students' Academic Performance," Journal of emerging Trends in Educational Research and Policy Studies (2012), 300.

(classroom observation) and after (post conference observation) teaching to discuss difficulties and promptly address challenges and problems.

Wanzare (2012) agree that instructional (direct) supervision includes the following activities performed by the head teacher: class room visits, use of learning resource centres, holding assemblies, providing opportunities for teachers to discuss school curriculum, adherence to and implementation of approved curriculums, helping teachers identify the most appropriate teaching and learning activities, helping to set school level instructional standards and addressing teachers' instructional concerns.

Too et al (2012) confirms the findings of Ngala (1997) that the instructional practice of supervisors includes ensuring the following: prompt planning of lessons, appropriate structuring of lessons, daily revision of previous lessons, proper use of teaching aids and the maintenance of a cordial relationship with students.[30] Also, Baffour Awuah (2011) asserts that as a head teacher, informal visits to a teacher, classroom visits or observations, monitoring, quality of relationship with supervisor, supervisory evaluations as well as incentives influence the success of his / her instructional supervision.[31]

Informal visits play a vital role in improving teacher's classroom activities. It is a good monitoring practice. Also, during such visits head teachers monitor activities in the classroom and suggest ways to improve teaching where necessary. A World Bank report on education in Ghana found that about 82 days in the school year teachers spend the time either attending

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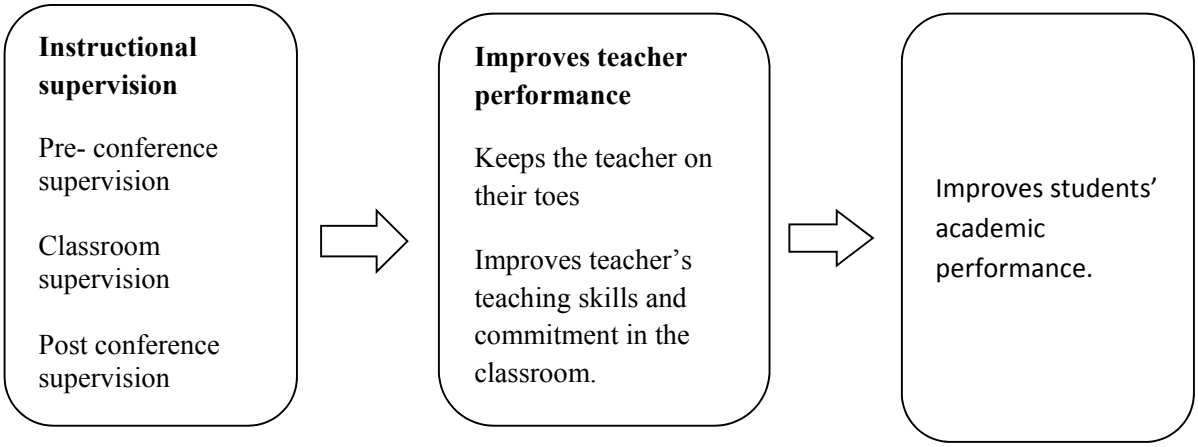
[30] Too, C. Kimutai, C.K., and Kosgei, Z. "The impact of Head teachers' supervision of Teachers on Students' Academic Performance," Journal of emerging Trends in Educational Research and Policy Studies (2012), 300.

[31] Peter Baffour-Awuah "Supervision of instructions in Public primary schools in Ghana: Teachers and Head teachers perspectives" Murdoch University (August: 2011), 17.

funerals or travelling long distance to school and asserts that effective informal visits will reduce the drastically. Classroom visits or observation is a very important activity. The head teacher or supervisor sits in the class to observe as the teacher teaches. The aim of this is to identify the teacher's strengths and weaknesses and develop appropriate strategies to improve teaching activities. Effective feedback is critical to improving the teaching process. These help the teacher to be more creative and innovative in teaching. Head teachers should also listen to teachers, praise them and build a relationship of trust and respect with them. Research demonstrates that instructional activities complement general supervisory activities (Blasé and Blasé, 1999 and Rous, 2004).[32]

Figure 1. Summary of instructional supervision



[32] Blasé, J. & Blasé, J. "Principals instructional leadership and teacher development: Teacher perspectives." (Educational Administration Quarterly, 1999), 35, 349- 378

Rous, B. Perspectives of teachers about instructional supervision and behaviour that influence pre-school instruction. Journal of Early Intervention, (2004), 26 (4), 266-283. doi:10.1177/105381510402600403

2.4 GENERAL SUPERVISION

Learning does not end after leaving the classroom. Some take place outside normal class hours. These are referred to as co-curricular or extra-curricular activities. They form an integral part of the school curriculum. General supervision comprises of all activities undertaken by the head teacher to monitor teachers' activities outside the classroom. These may be used to evaluate conduct and performance outside the classroom. According to Nzabonimpa (2011), such activities may include but are not limited to study trips and sports activities.[33] He finds that research on the efficacy of head teacher's general supervisory activities is limited. Nevertheless, Wanzare (2012) purports that, indirect or general supervision by the head teacher focuses on the internal and external physical environment where students learn and emphasis that the responsibility of the head teacher as a supervisor is a shared responsibility between the head teacher, departmental heads, assistant head teachers, teachers and other relevant personnel.[34]

2.5 CHALLENGES OF SUPERVISION

Some of the salient problems affecting quality head teacher supervision are: insufficient time emanating from the many responsibilities of head teachers, inability to perform as required by persons delegated to act on their behalf as well as lack of knowledge and skills in specific subjects (Wanzare 2011, and Nzabonimpa 2011). Sergiovanni and Starratt (1998) also find that the perception of the teacher about the supervision process as a potential form of victimization

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[33] Nzabonimpa Buregeya J. "Influences of Head Teachers General and Instructional Supervisory Practices on Teachers' work performance in Secondary Schools in Entebbf Municipality" Wakiso District (Uganda ; 2011)

[34] Wanzare, Z. "Instructional Supervision in Public Secondary Schools in Kenya" Educational Management Administration and Leadership (Nairobi: 2012), 192

process is another challenge.[35] It is therefore important for head teachers to develop a relationship of trust with teachers. Beach and Reinhartz (2000) find that one of the major challenges of supervisors is communication problems between supervisors and teachers.[36] As such, an honest and open dialogue is needed as a foundation for successful supervision. Above all, head teachers must understand their role as partners with those they supervise to improve the quality of education through strategic and effective supervision.

2.6 THE RELATIONSHIP BETWEEN SUPERVISION AND STUDENTS' RESULTS

Effective supervision improves students' academic and non-academic achievements (Sackney et al, 1998). This enhances the teacher's career, professional and personal development as well as reinforces his / her classroom activities. Branch et al. (2013) finds that efficient head teachers improve student achievement within two to seven months of learning in a single academic year. On the other hand, an ineffective head teacher decreases this in the same time period. The influence of such supervisors is significant because it affects the whole school, not only students taught by a very good teacher. Mbiti (1974) suggests that the combination of the teacher's experience, knowledge and skills and a highly effective head teacher significantly increase academic performance.

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[35] Sergiovanni, T. J. & Starratt, R. (1998). Supervision: A redefinition (7th ed.). New York: MacGraw-Hill.

[36] Beach, D. B. & Reinhartz, J.(1989). Supervision: Focus on supervision. New York: Harper and Row.

2.7 INCENTIVE SYSTEMS IN BASIC SCHOOLS

Despite the importance of factors such as making available teaching and learning materials and adequate infrastructure towards improving teachers' performance, it has been found that the leadership style of the head teacher has a more significant influence on morale and productivity of teachers. Also, teachers were found to be more productive when they participate in the decision making process (Miller, 1981). Constructive feedback, appropriate instructional and technical leadership as well as being supportive of teachers' professional growth all had a positive impact on teacher morale and performance. In a mixed method study, 97% of the respondents identified leadership as a major determinant of high teacher morale (Huysman, 2008; Lumsden, 1998 and Mackenzie, 2007).[37]

As well, Balogun (1984) believes that the quality of the relationship between the headmaster and staff is critical.[38] This can be achieved by developing an open communication channel with all stakeholders, encouraging staff participation in decision-making, providing opportunities for professional growth and promotion, praising and commending deserving teachers, providing adequate facilities and equipment as well as being tactful. It is also important to be empathic of personal and other problems and needs of staff. Being fair and just in all interactions with other staff is crucial. However, a school environment governed by intimidation and fear from head teachers will impede teacher and student performance.

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[37] Huysman, J. T. (2008, Winter). Rural teacher satisfaction: An analysis of beliefs and attitudes of rural teachers' job satisfaction. Rural Educator, 29(2), 31-38

[38] Balogun, T.A. (1982). Improvisation of Science Teaching Equipment. Journal of the Science Teachers Association, Vol. 20, No. 2, 72-76.

2.8 THEORETICAL FRAMEWORK

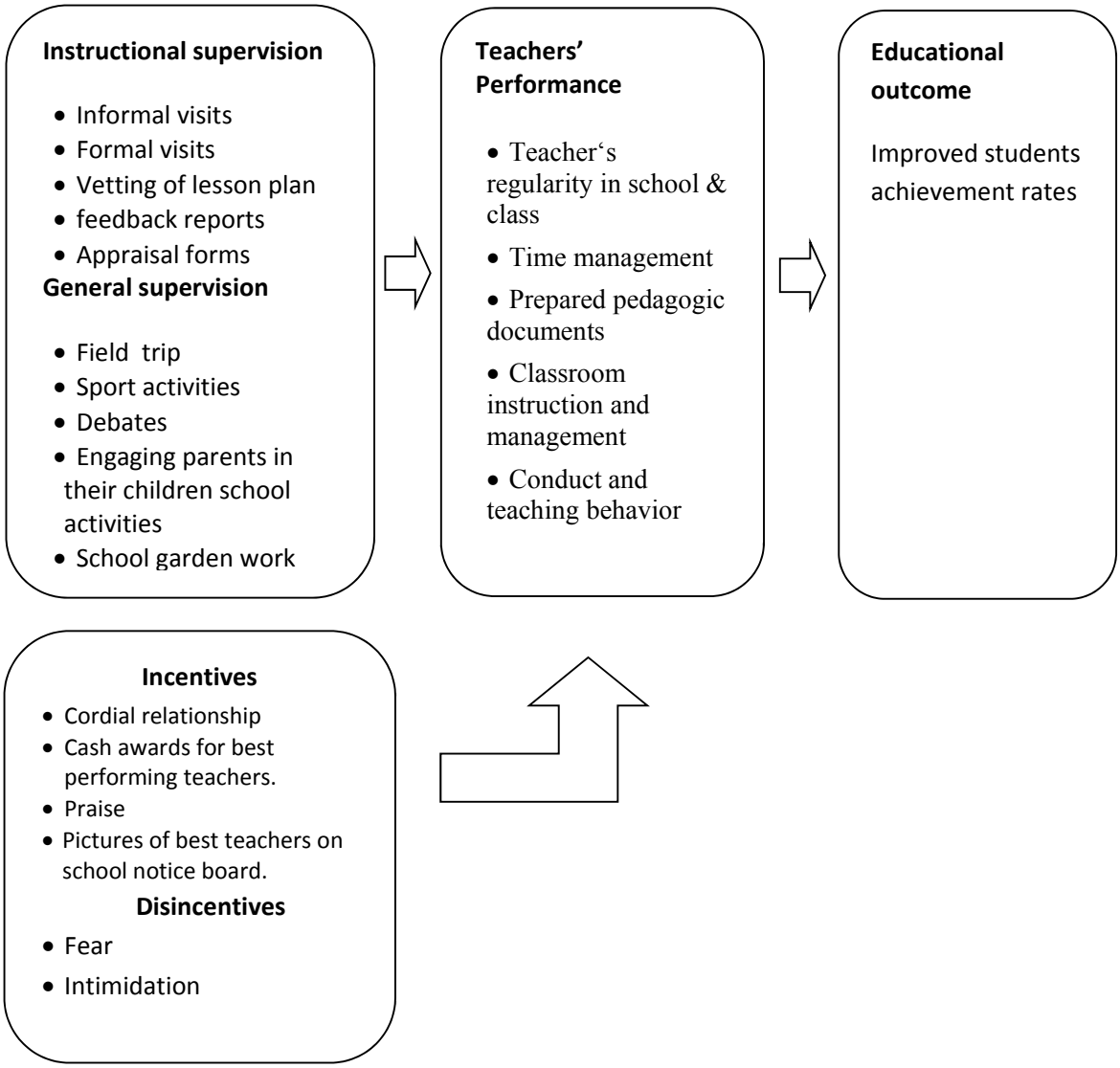
This thesis is based on a theoretical framework referred to as *Symbolic Interactionism* (Blumer, 1969). According to this hypothesis, how individuals construct meaning from their social interaction with each other by using symbols in the communication process will influence their behavior in the interactive process. This theory was selected because it aptly demonstrates how the supervisory role of supervisors influences teachers' teaching activities and therefore improves students' test score. The theory is founded on three main concepts, namely:

1. Individuals respond to symbols depending on their perceived meaning
2. Such perceptions are developed through social interactions.
3. These perceptions are then transformed through an interpretive process which informs an individual's response to outside stimuli

Based on this theory, it is evident that teachers' behavior will be influenced by their continuous interaction and class room visits of the head teacher. In other words, the more the head teacher interacts with teachers and students, the more teachers transform the implied and stated expectations of their supervisors into improving their teaching practices.

Consequently, the quality of supervision may positively or negatively affect teaching activities. The assumption for the following diagram is that the performance of the teacher is given. The activities of the head teacher automatically affects the teachers' behavior. The diagram on the next page illustrates the relationship between head teacher supervision, teachers' teaching activities and students' achievement rates.

Figure 2. Synopsis of symbolic interactionism[39]



[39] Synthetized by author based on afore-mentioned literature.

CHAPTER THREE

BACKGROUND OF EDUCATIONAL SECTOR IN GHANA

This chapter provides a demographic profile and relevant descriptive statistics of the sampled locality where the research was undertaken. Furthermore, it explains how the data will be collected and analyzed. The following chapter will describe the analytical methodology that will be used.

3.1 Basic Education in Ghana

Ghana's economic development at independence was comparable with countries such as Malaysia, Singapore, South Korea and Taiwan. Today these countries are described as the "Asian Tigers", while Ghana for many years has been a low income country, even a highly indebted poor country in the recent past. Only recently, did it graduate to enter into the lower middle-income country category. World Bank (1993) emphasizes the key role of education in Korea's famous five year economic development plan. It used education and training in its race to rapidly improve economic development over the past fifty years. At its independence, the first president of Ghana, Dr. Kwame Nkrumah, also envisioned the key role of education in the socio-economic well-being of and overall economic development of the country as demonstrated in his inaugural speech on 6th March, 1957. In that speech, he highlighted the objective to develop an appropriate educational system from childhood to tertiary level. This would be based on studies of the needs and problems of the country. At the time, there were about five million people living in Ghana with only half a million children accessing primary education. He perceived that Ghana

could only address its development challenges and raise its standard of living by equipping the population with appropriate education suited to the circumstances of the country.

Acheampong (2007) identifies two main goals from the afore-mentioned speech of the first President of the country.[40] Firstly, he sought to use education as a tool to develop the scientific knowledge and skills required for economic development. Secondly, programs and measures had to be devised to significantly improve Ghana's low productivity and harness the country's economic potential. Unfortunately, from independence till the current moment, Ghana has not been able to sufficiently attain the afore-stated goals.

Several policies, programs and regulations were formulated to try to achieve the previously mentioned objectives such as introducing free compulsory primary and middle school education combined with a highly trained and motivated teaching staff. For a time this was very successful as was evidenced in the increased access to education, especially at the primary level. Furthermore, a number of teacher training schools were established soon after independence.

Table 3.1. Number of primary schools and teacher training schools built from 1951 to 1966

Level	**1951**		**1966**	
	Schools	Students	Schools	Students
Primary	1,083	153,360	8,144	1,137,495
Teacher Training	22	1,916	83	15,144

Source: Achaempong (2007)

However, after the overthrow of Kwame Nkrumah in 1966, his educational reform policy was criticized for laying too much emphasis on access to education at the expense of quality. To remedy the situation, each successive government introduced a different educational ideology in

[40] Acheampong Kwame. "Educational Expansion and Access in Ghana": A review of 50 Years of Challenge and Progress (UK: University of Sussex, 2007), 3.

an attempt to improve the quality of education. This has resulted in an unstable educational system that is ever changing with a change in government.

3.2 EDUCATIONAL REFORMS IN GHANA

Under the Rawlings administration, educational systems were focused on giving students a more practical skill at an earlier stage. This was to help students acquire technical and vocational skills to make them employable, even if they did not receive secondary education. During those years, students spent six years in primary school, three years in junior high and three years in senior high and a final three years at university.

With a change of political leadership to the Kufour administration, it was felt that students needed more time at the secondary level, as the universities complained of lower than expected quality of incoming tertiary students from secondary schools. Consequently, the government altered the system again. Students now spent six years at the primary level, three years in junior high, four year in senior high and four years at the university.

Currently, under the Mahama-led administration, students spend six years in primary school, three years in junior high, three years in senior high and four years at the university. All such modifications were aimed at improving the quality of education they receive moving from one stage of schooling to another. The basic premise was that the number of years spent in the educational system had a direct effect on the inherent quality of education.

In spite of these attempts to improve education quality, basic education is still faced with the challenge of low student achievement rates. Akyeampong, Djangmah, Oduro, Seidu, and Hunt (2007) find that an increasing number of primary students lack requisite cognitive skills to

meet basic literacy and numeracy standards.[41] Due to inconsistent government policies in the past, public schools have been plagued with chronic deteriorating quality of education. Consequently, private schools sprang up to fill such deficiencies and gaps in the educational system. As parents want the best education for their children, middle-income parents preferred to send their children to private schools with better educational quality. They wanted to ensure that their wards developed the requisite cognitive skills.

Hanushek (2011) argues that the major challenge of developing countries is to develop policies that improve educational quality as compared to increasing the quantity that attend school. He emphasizes that increasing access to education does not necessarily translate into improving the quality of education. In fact, it is possible that increasing the number of students could decrease educational quality.

The definition of quality education differs from country to country depending on their geographical, economic and socio-cultural contexts. According to United Nations International Children's Educational Fund (2000), quality education includes the following components:

1. STUDENT: The children should have the support of their families and must be healthy.

2. ENVIRONMENT: The learning environment must be safe, healthy and well protected from possible injury.

3. CONTENT: the school curriculum should provide children with the required literacy and numeracy skills.

4. PROCESS: Well trained teachers must use the required pedagogical tools and methods in their teaching and learning activities.

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[41] Akyeampong. K, Djangmah J., Oduro A., Seidu A., & Hunt F "Access to Basic Education in Ghana: The Evidence and the Issues – Country Analytic Report: CREATE,"(UK: University of Sussex 2007)

5. OUTCOME: The education provided must meet the country's developmental goals. For example developing or less developed countries must focus on vocational and technical education, a tool for solving socio-cultural and educational problems.[42]

One of the main purposes of education is to prepare individuals to be productive in society. The World Education Forum (2000) recognizes that quality education should be a basic aim for achieving equity in any society and as a nation. However, it surmises that such education should be measured according to enrolment and retention rates and most importantly, students' test scores.[43]

3.3 Quality education in Ghana

To better appreciate the specific challenges of improving the quality of education in Ghana, it is important to understand the cultural, economic, geographical and social context. In accordance with the Ghana Education Strategic Plan 2003 - 2015, quality education must reduce poverty and related health challenges such as HIV/AIDS (Government of Ghana, 2003). This requires that children graduating from basic school have the expected life, literacy and numeracy skills. This must be the yardstick to measure all quality education indicators.

According to Ankomah et al (2005), such indicators must be evaluated on the following continuum: from input, process to output. With regard to input, the following are needed: *curriculum, environment, infrastructure, pedagogical materials*, student-teacher ratio, *school location and trained teachers*. The process focuses on the following: *arrival and departure times for teachers and students, duration at school for a day and for a term, teacher contact hours with*

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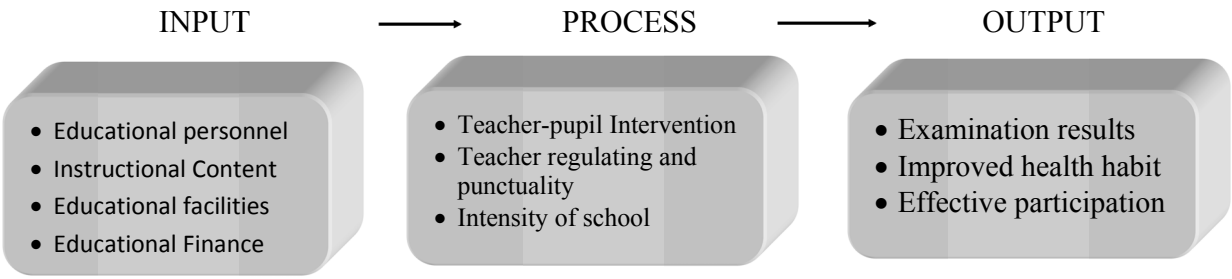
[42] UNICEF, "Defining Quality in Education" (Italy: June 2000), 3.

[43] World Education Forum "Dakar Framework for Action, Article 7" (Dakar: 2000).

students and teaching and learning activities. The output component concerns the following: *effective participation in economic and social activities, examination results and improved health habits.*[44]

Figure 3. Educational quality continuum



Source: Ankomah, et al, 2005.

On the other hand, Ampiah (2010) finds that quality education in Ghana focuses more on input resource and outcomes.[45] This implies that measuring educational quality includes achieving school curriculum and providing needed inputs such as equipments, infrastructure and text books. The final benchmark would then be an outcome such as students' cognitive achievement. Alternatively, Hanushek and Woessmann (2007) propose that the quality of an educational system must be measured by the knowledge and skills of students.[46]

Irrespective of the definition of quality of education, there is a basic recognition that it must improve the living standards of those receiving such education. However, it is important to note that this cannot be achieved without monitoring the processes within the system. This

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[44] Ankomah, et al, "Implementing Quality Education in Low Income Countries"(Ghana: 2005).

[45] Ampiah J.G. "Quality Basic Education in Ghana, Prescriptions, praxis and problems", (Ghana: January 2010), 2.

[46] Hanushek, Eric A., Woessmann Ludger. "Education Quality and Economic Development." International Bank for Reconstruction and Development and World Bank Report 2007

includes the work of the school leader (the head teacher) who supervises the process of education. It is important therefore to find a place in the definition of quality education for the head teacher, who has the sole responsibility of ensuring quality education at the school. Sackney et al. (1998) affirms that a school with quality education has an effective head teacher.[47]

In 2011, Dr. Yaw Ankomah and Warren C. Hope professors at the University of Cape Coast Ghana and Florida A&M University respectively, published the findings of their research on "A comparison of public and private basic school heads supervision" as a factor responsible for the disparity between public and private basic school examination results over the years.[48] The research sort to identify the differences between head teacher supervision in public and private basic schools in the Brong Ahafo Region of Ghana. Comparing the extent to which supervision was performed in public and private basic school through an independent a t-test, the research found that the differences in the overall head teacher supervision between public and private basic school was minimal and suggested further research to identify other factors causing the disparity.

Though research identified the difference in the extent to which head teacher supervision was performed between public and private basic school, the research failed to identify whether there is a relationship between supervision and students' academic performance, because the problem that necessitated the research was the disparity between public and private basic school academic performance in their BECE exams.

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[47] Sackney, L. Walker, K., & Hajnal, V. "Principal and teacher perspectives on school improvement." Journal of Educational Management, 1(1), (1998), 45-63.

[48] Ankomah, et al, "Implementing Quality Education in Low Income Countries"(Ghana: 2005)

To identify whether such a relationship exists and whether the result of their findings will differ from other regions which may be more urban but with rural or slum-like dimensions, the Greater Accra Region was chosen for this research.

3.4 THE GREATER ACCRA REGION

Though smallest in geographical size, the Greater Accra region is the most populous region in Ghana. Covering about 3.24 thousand square kilometers, the region accommodates approximately 4.5 million people according to the Greater Accra Regional report 2011. Although it is mostly an urban area, the natives of the region are mainly Gas and Dangmes. Their main economic activities are petty trading and fishing. As the capital city of Ghana, it is the home of the seat of government and provides a variety of significant business opportunities.

The Greater Accra Region has 10 districts listed in table 3 below. Each of these districts has its own educational directorate in charge of pre-tertiary education. Table 3 below indicates the 10 districts of the Greater Accra Region and their capitals.

Table 3.2: Districts and their Capitals in the Greater Accra Region

No.	Name of District	Capital
1	Accra Metropolis	Accra
2	Tema Metropolis	Tema
3	Ga East Municipal	Abokobi
4	Ga West Municipal	Amasaman
5	Ga South Municipal	Weija
6	Ledzokuku-Krowor Municipal	Teshie-Nungua
7	Adentan Municipal	Adenta
8	Ashaiman Municipal	Ashaiman
9	Dangme East	Ada
10	Dangme West	Dodowa

Source: Greater Accra Regional Report 2011/2012

In this region, there are about 5,076 pre-tertiary schools (both public and private schools). These are made up of 1,645 kindergartens, 1,886 primary schools, 1,457 Junior High Schools, 76 Senior High Schools and 12 Technical and Vocational Education Centres. In all, there are 2,218 public schools and 2,858 private schools respectively.

Table 3.3: Number of schools in Greater Accra Region

Level of school	Public	Private	Total
Kindergartens	644	1,001	1,645
Primary	860	1,026	1,886
Junior High	667	790	1,457
Senior High	40	36	76
TVET	7	5	12
TOTAL	**2,218**	**2,858**	**5,076**

Source: Greater Accra Regional Report 2011/2012

Below are the pertinent details of the various districts in the region with their respective number of schools, students, teachers and head teachers.

Table 3.4 Number of schools, students, teachers and Head teachers in Greater Accra Region

Districts	Schools			Students			Teachers			Head Teachers		
	Publi	Private	**Tota**	Public	Privat	**Total**	Publi	Privat	**Tota**	Publi	Private	**Tota**
ACCRA METRO	242	167	**409**	54100	3040 7	**8450 7**	2760	1313	**4073**	242	167	**409**
ADENTAN MUNICIPAL	15	53	**68**	3173	3860	**7033**	181	322	**503**	15	53	**68**
ASHAIMAN MUNICIPAL	19	77	**96**	4418	5198	**9616**	229	447	**676**	19	77	**96**
GA WEST MUNICIPAL	75	19	**94**	8730	6934	**1566**	596	568	**1254**	75	19	**94**
LEDZOKUKU KROWOR MUNICIPAL	31	89	**120**	8085	6801	**1488 6**	449	584	**1033**	31	89	**120**
TEMA	69	120	**189**	17373	1143	**2880**	780	966	**1746**	69	120	**189**
GA EAST	43	65	**108**	11357	5606	**1696**	561	428	**989**	43	65	**108**
GA SOUTH	83	171	**254**	10681	1018	**2087**	528	792	**1320**	83	171	**254**
DANGME	47	15	**62**	5833	1151	**6984**	358	75	**433**	47	15	**62**
DANGME	75	19	**94**	7732	937	**8669**	519	77	**596**	75	19	**94**
Grand Total	699	795	**1494**	13148	8251	**2139**	6961	5495	**1245**	699	795	**1494**

Source: ***Educational Management Information System (EMIS) 2012, Unit of the GES, Greater Accra Region***

CHAPTER FOUR

METHODOLOGY

4.1 SUMMARY

Chapter four outlines the data sources, dependent and independent variables, target population and statistical methods used to derive the research output.

The purpose of the study is to identify the effect of head teacher supervision and incentives on students' academic performance. The data was collected from head teachers. This was gathered from both public and private schools. The research uses data from schools in the Accra Metropolitan Area of the Greater Accra Region. The survey also collected data from both primary and secondary sources. Primary data was sourced from a survey administered directly to head teachers in randomly selected public and private Junior High schools. Secondary data on schools, teachers, students and head teachers statistics was obtained from the EMIS database and reports.

The mean examination results of JHS students in three core subjects, English, Mathematics and Science were also sourced from the Ministry of Education. This thesis uses both quantitative and qualitative research methods to aid in the collection and analysis of data.

4.2 RESEARCH QUESTIONS AND HYPOTHESES

As outlined in chapter one, the main research questions that this thesis seeks to answer to are:

1. What is the relationship between head teacher instructional supervision and students' achievement?

2. What is the relationship between teacher general supervision and incentives and students' achievement?
3. Are there differences in the relationship mentioned above (1) in relation to private and public schools?
4. Are there differences in the relationship mentioned above (2) in relation to private and public schools?

4.3 HYPOTHESIS

a. There is a statistically significant relationship between head teacher supervision and students' achievement.
b. There is a statistically significant relationship between head-teacher incentive systems and students' achievement.
c. There is a statistically significant difference between head teacher supervision in public schools as compared to private schools.
d. There is a statistically significant difference between incentives systems in public and private basic schools.

4.4 TARGET POPULATION

This research comprises of two different populations: public and private basic schools. The dependent variable is students' test scores of final year students who took part in the BECE exam for 2012. The other variables include information on teachers who taught Science, Mathematics and English Language and head teachers in the sampled schools. The table on the

next page, highlights the number of schools, students, teachers and head teachers in the Accra Metropolitan Area (AMA).

Table 4.1: Number of schools, students, teachers and Head teachers in Accra Metropolitan Area

Schools			Students			Teachers			Head Teachers		
Public	Private	**Total**	Public	Private	**Total**	Public	Private	**Total**	Public	Private	**Total**
242	167	**409**	54,100	30,407	**84,507**	2,760	1,313	**4,073**	242	167	**409**

Source: *Educational Management Information System (EMIS) 2012, Unit of the GES, Greater Accra Region*

QUANTITATIVE RESEARCH DESIGN

a. SURVEY SAMPLING DESIGN

The thesis uses two sampling processes. Firstly, purposive random sampling was used to select head teachers of JHS schools. This is because not all the sampled schools had a junior high school. Secondly, in the selected head teachers' schools, another purposive sampling process was used to select teachers who taught English, Mathematics and Science. Two sets of questionnaire (teacher questionnaire and head teacher questionnaire) was administered to teachers and head teachers respectively. The survey collected data on instructional and general supervision and incentive systems in both private and public schools.

The data illustrates that there are 409 head teachers with a Junior High department in the Accra Metropolitan Area. This is made up of 167 private schools and 242 public schools. Using random sampling, a list of all head teachers in the selected public and private schools were arranged alphabetically and every fifth head teacher was selected for the sample. This was to ensure that all head teachers have equal likelihood of being selected. Purposive sampling was used to select teachers. 1 teacher was randomly selected from teachers teaching Junior High English, Maths and Science in schools headed by the selected head teachers. As such, one

teacher was selected for English, another for mathematics and another for science. Such data was to enable the researcher determine the correlation between head teachers' instructional and general supervision and incentives and students' English, Math and Science scores.

b. SURVEY INSTRUMENT

Based on previous literature, a survey instrument was designed by the researcher to test for the relationship between head teacher supervision and incentives on students' tests scores. This was administered for two different target samples: head teachers and teachers. Although the questionnaire for both head-teachers and teachers were similar, they had some differences. This is because head-teachers acted as supervisors of teachers. Furthermore, the instrument was designed to help identify differences or similarities of responses of the two respondent groups. This format was preferred because previous research such as Ankomah and Hope (2011) used a similar method**.** The survey's main aim was to test the relationship between head teacher supervision of teachers and incentives systems and students test scores. It also sought to determine whether this relationship is different for private and public schools. The main information the survey collected were:

1. Basic demographic data on teachers and head teachers;
2. Frequency of head teachers' supervision on teachers' instructional activities,
3. Frequency of head teacher supervision on teachers' activities with student outside the classroom,
4. Incentive systems available to teachers and its effect on their work.

c. SURVEY SAMPLE SIZE

The total sample of head teachers was 81, constituting 48 from public schools and 33 from private schools. The sample of teachers, on the other hand, totaled 243. 144 were from public schools while 99 were from private schools respectively. Below is the table representing the teacher and head teacher samples.

Table 4.2: Number of Head teacher by type of school

Head teachers					
Public		**Private**		**Total**	
Population	Sample	Population	Sample	Population	Sample
242	48	167	33	409	81
Teachers					
Public		**Private**		**Total**	
Population	Sample	Population	Sample	Population	Sample
2,760	144	1,313	99	4,073	243

d. VARIABLE

The questions in the survey were based on previous research mentioned in the literature review. The variables for this study were selected based on reviewed literature. The dependent and independent variables on which the research was conducted are therefore as follows.

- Dependent variable – The mean examination results of Junior High students in three core subjects English, maths and science served as the dependent variables. This implies that there will be three different regression models for each subject test score
- The independent variable – data from the survey on instructional and general supervisory practices and incentive systems in selected schools were used as independent variables. These variables are head teacher supervision and incentives.

e. ANALYTICAL METHODOLOGY

The basic premise of this research is that the quality of head teachers' supervision and incentives affects students' achievements and the frequency of this supervision is different between public and private schools. This, therefore, accounts for the gap between public and private BECE test scores. Consequently, this research will provide in-depth information that can be used to either accept or reject the alternative hypothesis.[49]

f. DESCRIPTIVE ANALYSIS

The descriptive statistics provides a first step analysis of pertinent demographic data. This will highlight underlying data relationships between different variables. Furthermore, frequencies and percentages of all the variables will be computed.

g. INFERENTIAL STATISTICS

This thesis will compute salient inferential statics to help identify the influence of independent variables on the dependent variables.

1. MULTIPLE REGRESSION

To measure the effect of head teacher supervision and incentives on students' achievement, three different multiple regressions will be used. The regressions will identify the relationship between head teacher supervision and incentives on students' English, Math and Science test scores.

[49] For greater detail on how the collected data was arranged, coded and sorted, see Appendix 2.

h. REGRESSION MODELS FOR RESEARCH QUESTIONS

Research Question 1: "What is the relationship between head teacher instructional supervision on students' achievement?"

1. *Measuring the effect of instructional supervision on students' science test scores*

$$Y_j = \beta_0 + \sum \beta_i x_i + \varepsilon_j$$

Where Y is the dependent variable – Science test scores. $\sum \beta_i x_i$, is a vector of the independent variables**.** The set of independent variables are listed below:

x_1 - Vetting teachers' lesson plans.

x_2 - Formally sitting in class to observe the teachers teaching and learning activities.

x_3 -. Making unannounced visits to classrooms

x_4 - Ensuring that teachers have adequate teaching and learning materials.

x_5 . Monitors to ensure that instructional time starts and ends at the time stipulated by the Ghana Education Service

x_6 . Discussion with teachers after classroom observation is focused on teacher's problem areas

x_7 – Dummy variable- Type of school, private = 1, public = 0

Variables x_1 to x_6 are instructional supervision variables. x_7 dummy variable public and private basic schools. ε_j is the residual error. This summarizes the effects of all other variables that have been excluded from the regression model.

2. *Measuring the effect of instructional supervision on students' maths test scores*

$$Y_j = \beta_0 + \sum \beta_i x_i + \varepsilon_j$$

Where Y is the dependent variable – Math test scores. The same independent variables used above for the regression on science test scores are used for the maths test scores.

3. *Measuring the effect of effect of instructional supervision on students' English test scores.*

$$Y_j = \beta_0 + \sum \beta_i x_i + \varepsilon_j$$

Where Y is the dependent variable – English test scores. The same independent variables used above for the regression on science test scores are used for the maths test scores.

Research Question 2: "What is the relationship between head teacher general supervision and incentives on students' achievement?"

4. *Measuring the effect of effect of general supervision and teacher incentives on students' English test scores*

$$Y_j = \beta_0 + \sum \beta_i x_i + \varepsilon_j$$

Where Y is the dependent variable – English test scores. $\sum \beta_i x_i$, is a vector of the independent variables**.** The set of independent variables are:

x_1 - Monitor Students' debates

x_2 - Taking part in sports activities

x_3 - Holding staff meetings

x_4 - Checking conditions and tidiness of school environment (school block, urinals, sports fields

x_5 - There is a cordial relationship between head teachers and the teachers

X_6 - Pictures of teachers with outstanding performance are posted on the school notice board

X_7 - Best performing teacher receive cash award

X_8 - Dummy variable- Type of school, private = 1, public = 0

Variables x_1 to x_5 are general supervision variables. X_6 and x_7 are teacher incentive variables. x_8 is a dummy variable denoting public and private basic schools. ε_j is the residual error. This summarises the effects of all other variables that have been excluded from the regression model.

5. *Measuring the effect of effect of general supervision and teacher incentives on students' math test scores*

   $$Y_j = \beta_0 + \sum \beta_i x_i + \varepsilon_j$$

   Where Y is the dependent variable – math test scores. The same independent variables used above for the regression on English test scores are used for the maths test scores.

6. *Measuring the effect of effect of general supervision and teacher incentives on students' Science test scores*

   $$Y_j = \beta_0 + \sum \beta_i x_i + \varepsilon_j$$

   Where Y is the dependent variable – Science test scores. The same independent variables used above for the regression on Math and English test scores are used for the Science test scores.

Research Question 3: "Are there differences in the relationship mentioned above (1) in relation to private and public schools?"

7. *Measuring the effect of instructional supervision on students' science test scores*

$$Y_j = \beta_0 + \sum \beta_i x_i + \varepsilon_j$$

Where Y is the dependent variable – Science test scores. $\sum \beta_i x_i$, is a vector of the independent variables**.** The set of independent variables are the same as mentioned above and the dummy variable - Type of school, private = 1, public = 0 ε_j is the residual error. This summarises the effects of all other variables that have been excluded from the regression model.

8. Measuring the effect of instructional supervision on students' maths test scores

$$Y_j = \beta_0 + \sum \beta_i x_i + \varepsilon_j$$

Where Y is the dependent variable – Math test scores. The same independent variables used above for the regression on science test scores are used for the maths test scores.

9. Measuring the effect of effect of instructional supervision on students' English test scores.

$$Y_j = \beta_0 + \sum \beta_i x_i + \varepsilon_j$$

Where Y is the dependent variable – English test scores. The same independent variables used above for the regression on science test scores are used for the maths test scores.

Research Question 4: "Are there differences in the relationship mentioned above (2) in relation to private and public schools?"

10. *Measuring the effect of effect of general supervision and teacher incentives on students' Science test scores*

$$Y_j = \beta_0 + \sum \beta_i x_i + \varepsilon_j$$

Where Y is the dependent variable – Science test scores. $\sum \beta_i x_i$, is a vector of the independent variables**.** The set of independent variables are the same as mentioned above in the general

supervision and incentive variables and the dummy variable - Type of school, private = 1, public = 0 ε_j is the residual error. This summarises the effects of all other variables that have been excluded from the regression model.

11. *Measuring the effect of general supervision and teacher incentives on students' maths test scores*

$$Y_j = \beta_0 + \sum \beta_i x_i + \varepsilon_j$$

Where Y is the dependent variable – Math test scores. The same independent variables used above for the regression on science test scores are used for the maths test scores.

12. *Measuring the effect of effect of general supervision and teacher incentives on students' English test scores.*

$$Y_j = \beta_0 + \sum \beta_i x_i + \varepsilon_j$$

Where Y is the dependent variable – English test scores. The same independent variables used above for the regression on science test scores are used for the maths test scores.

CHAPTER FIVE
DATA ANALYSIS, RESULTS AND FINDINGS

This research was conducted based on the premise that the achievement gap between students in public and private schools is influenced by a difference in supervisory activities and incentive systems in private and public basic schools. To examine this, it was necessary that this research verified whether head teacher supervision and incentives had any effect on students' achievement rates to begin with. After this, the thesis sought to consider whether there was a difference between head teacher supervision and incentives in public and private schools. The conclusion for this research is thus based on the analysis of the results from the survey. This chapter describes the data analysis, results and findings.

Table 5.1 on the following page presents information about the variables used in the analysis. There are three main categories of variables. The first are the dependent variables. These are the mean score of English, maths and science for the BECE exams. The independent variables can be divided into two. The first group are instructional supervision variables. The second category are general supervision variables and incentives.

The first instructional variable is q101. This represents head teachers monitoring teachers to ensure that classes commence and end on time. As a qualitative variable, it has 5 categories. Table A2 in the appendix presents the different categories for each independent variable. The first category, 1, implies that the head teacher never monitors teachers to ensure that classes commence and end on time. A value of 2 means that the head teacher monitors 1-3 times a term while 3 represents a frequency of 4-6 times. 4 and 5 denote that such monitoring occurs 7-9 times and 10 or more times respectively.

Variables q102, q105, q109, q110, q202, q204, q205 and q209 have the same qualitative categories. Table 5.1 on the following page provides further detailed description of each of the afore-mentioned variables on instructional supervision.

Table 5.1. Matrix of variables included in data analysis

CODE	VARIABLE
	INSTRUCTIONAL SUPERVISION VARIABLES
Q101	Monitors to ensure that instructional time starts and ends at the time stipulated by the Ghana Education Service
Q102	Vetting teachers' lesson plans
Q105	Ensuring that teachers have adequate teaching and learning materials
Q109	Making unannounced visits to classrooms
Q110	Formally sitting in class to observe the teachers teaching and learning activities
Q312	Discussion with teachers after classroom observation is focused on teacher's problem areas
typesch	Type of school, private = 1, public = 0 (dummy variable)
	GENERAL SUPERVISION AND INCENTIVES
Q202	Monitoring students' debates
Q204	Taking part in sports activities
Q205	Holding staff meetings
Q209	Checking conditions and tidiness of school environment(school block, urinals,
Q309	There is a cordial relationship between I and the teachers
Q311	Best performing teacher receive cash award
Q308	Pictures of teachers with outstanding performance are posted on the school notice board

Of the variables on instructional supervision, Q312 has only three categories. A value of 1 denotes that the discussion the head teacher has with teachers after classroom observations is focused on their problem areas. A value of 2 means that the discussion is not focused on their problem areas. A value of 3 implies that that the response given to the afore-said question is not applicable. The variables q308, q309 and q311 have the same categories and are similarly coded. The last dummy variable, typesch, represents the type of school being examined.

The base category has a value of 0. This represents a public school. A value of 1 represents a private school.

The dependent variables namely: English, maths and science scores range from 1 to 8. Those closest to 1 denote very high scores. Consequently, a score of 1 for any subject represents distinction. 2 is foe an excellent score. Therefore, the higher the final score for a subject, the lower the academic result or performance of a student in that course. As such, if the beta regression coefficient for a particular independent variable is negative, for instance variable q102, it will mean that when the head teacher increases the number of times he or she vets the lesson plans of teachers in a term, the eventual BECE score of students in the examined subject improves.

5.1 Head teacher Demographic Data

The sample for this research is made up 50 percent private and 50 percent public basic schools. These schools were randomly selected. Head teachers in these schools responded to the survey instrument, a questionnaire.

Table 5.2. BECE English, Maths and Science scores disaggregated by type of school

TYPE OF SCHOOL	ENGLISH SCORE	MATHS SCORE	SCIENCE SCORE
Private	1.80	2.05	2.03
Public	4.46	5.27	5.39

Source: own computation

Table 5.2 above presents data on BECE English, science and maths scores for both private and public schools. These courses are vital for basic literacy and numeracy skills. The table illustrates that private schools had higher BECE scores than public schools. This is because the lower the score, the better the academic results. This implies that for all English, science and maths course, private schools were significantly better than public schools.

BECE scores of 1 and 2 denote distinction and excellent respectively. However, score of 4 and 5 represent average pass scores. The information in table 5.2 demonstrates that public schools on average obtain a pass in the afore-mentioned critical subjects. Consequently, it may be inferred that private schools have better academic quality as compared to public schools in Ghana. This is the salient underlying reason for this study. The thesis examines whether the difference in academic quality between private and public schools may be attributed to whether head teachers undertake instructional and general supervision in the two different types of schools. According to the hypothesis of this thesis, in private schools head teachers undertake both general and instructional supervision. This accounts for the better academic performance of their students. On the other hand, it is assumed that there is little or no general and instructional supervision in public schools. This may explain the poor academic performance of their students.

Table 5.3 on the next page contains data on the pertinent demographic characteristics of the sampled head teachers. It examines the age, average class size, experience, professional qualification and rank of the sampled head teachers. It illustrates that majority of head teachers, approximately 59% do not have an advanced degree. 11.8% have a certificate A while 20% have diplomas. Only 21.2% have a first degree. 35% have a Masters degree.

Table 5.3. Professional and educational qualification of respondents

VARIABLE	***DEMOGRAPHIC FEATURES OF THE DATA***	
	NUMBER	**PERCENT**
Professional qualification		
-Certificate A	10	11.8%
-Diploma	17	20%
-First degree	18	21.2%
-Masters	35	41.2%
Experience		
-1-4 years	27	31.8%
-5-9 years	35	41.2%
-10 years or more	18	21.2%
Rank		
-Assistant Director 1	55	64.7%
-Assistant Director II	16	18.8%
Principal superintendent	9	10.6%
Age		
-30-34	8	9.4%
-40-44	8	9.4%
-45-49	19	22.4%
50-54	45	52.9%
Average class size		
-20-29	18	21.2%
-30-39	17	20%
-40-49	36	42.4%
50-59	9	10.6%

Source: own computation

Also, 41.2% of head teachers have worked in the said position for 4-9 years. About 21.2% have worked as head teachers for 10 years or more. This implies that the largest group, those with 4-9 years' experience, have considerable experience. However, a significant majority are ranked as Assistant Director 1. Few are Assistant Director II, while very few are Principal

Superintendents. Moreover, a large section of them are between the ages of 50-54 years. Only a small fraction are relatively young.

This suggests some potential preference or bias for older staff as head teachers. The data indicates that on the whole, the average class size is between 40-49, although a sizable portion have classes between 20-29 and 30-39 respectively. A small segment have extremely large classes exceeding 50 students.

As a first approximation of the influence of instructional supervision on the three dependent variables, the study computes a correlation matrix for the afore-mentioned indicators. This is presented below in table 5.4. It is worth noting that this study computes pearson correlation coefficients.

Table 5.4. Correlation matrix of dependent and independent variables (instructional supervision)

	Type of school	**English**	**Science**	**Maths**	**Q102**	**Q105**	**Q109**	**Q110**	**Q312**
Type of school		0.539**	0.714**	0.694**	0.00	-0.014	0.039	0.000	0.058
English			0.692**	0.649**	-0.023	0.101	-0.07	-0.114	-0.104
Science				0.859**	-0.03	0.059	-0.037	-0.111	-0.083
Maths					0.061	0.033	0.103	-0.094	0.008
Q102						0.381**	0.391**	0.296**	-0.154
Q105							-0.269*	-0.027	-0.572**
Q109								0.01	0.746**
Q110									0.257*
Q312									

*NOTE: ** and * denote that the reported correlation coefficient is significant at a significance level of 1% and 5% respectively. These were obtained using a 2-tailed test.*

A significance test was also conducted for the reported correlation coefficients. A 1% and 5% significance level were used in the test. Table 5.4 illustrates that being in a private school increased the likelihood of obtaining higher BECE scores for English, maths and science. The

correlation coefficient between the dummy variable, type of school, and the previously mentioned exam results were 0.539, 0.694 and 0.74 respectively.

The correlation matrix further indicates that doing well in English increased the likelihood of obtaining very good scores in the other subjects, namely: maths and science. Conversely, very good results in maths positively influenced one's English and science scores.

It was found that private and public schools had very similar head teacher supervisory practices. The correlation between type of school and the different instructional variables was not significant. Therefore, at a first glance the correlation matrix does not find a difference in instructional supervision between private and public schools. The only variables that were found to have a linear relationship were q304, q310, q312, q315 and q402.

REGRESSION RESULTS

Research Question 1: What is the relationship between head teacher instructional supervision on students' achievement?

Table 5.5 below presents the results of the regression with English scores as the dependent variable and instructional supervision indicators as the independent variables. The table also reports pertinent regression diagnostic data. Using the general convention of 5% as the significance level, table 5.5 demonstrates that the type of school the student attends influences his or her English scores. The regression results confirm the findings of the correlation matrix that private schools obtain better English scores as compared to public schools. The regression beta of 1.553 for typesch implies that attending a private basic school has quite a significant effect on students' BECE English score. Unfortunately, q101, the variable for head teacher vetting teachers' lesson plans, was dropped from the regression due to missing correlations or values in the raw data.

Table 5.5. Regression (English - dependent variable, instructional supervision - independent variables)

	Unstandardized coefficients		**Standardized coefficients**		
	Beta	**Standard error**	**Beta**	**T-statistic**	**P-value**
Constant	-0.686	3.155		-0.217	0.829
Typesch	1.553	0.753	0.636	2.062	0.043*
Q102	-0.105	0.214	-0.051	-0.49	0.626
Q105	-0.537	0.496	-0.2217	-1.082	0.284
Q110	-1.392	0.723	-0.829	-1.925	0.059
Q109	4.193	2.039	0.82	2.056	0.044*
Q312	-2.723	0.246	-0.799	-11.048	0.000*
REGRESSION DIAGNOSTICS					
Degrees of freedom	*6*		*R*	*0.819*	
F-stat	*21.65*		*R-*	*0.67*	
P-value of F-stat	*0.000*		*Adjusted R-*	*0.639*	

Source: own computation. NOTE: q101 was dropped from the regression due to missing correlations or values in the raw data.

Furthermore, the variable q109, denotes that an increase in unannounced visits by head teachers to the classrooms to monitor the work of teachers has an adverse influence on student's BECE English scores. While this result may be unexpected, it may be possible that when the head teacher makes unannounced visits to the class, the teacher perceives this as a way to find a fault with his or her teaching. Consequently, instead of focusing on ensuring that students learn what they are expected to, the teacher spends more time impressing the head teacher. Furthermore, it may be possible that such unannounced visits make the students tense and more interested in staying out of trouble. In such an environment, appropriate learning may not be taking place. For instance, students may become very self-conscious in order to avoid getting punished. Such anxiety precludes absorption and retention of what has been taught. In addition, it may happen that such unannounced visits are not for the whole period. The head teacher may

have other several classes where he or she has to make more unannounced visits. This implies that the head teacher does not stay for the whole period and is unable to ensure that teaching and learning is appropriate. Conversely, the negative connotation of the unannounced visit as a way to victimize or find a fault with the teacher may outweigh the use of this instructional supervisory method as a monitoring mechanism. Therefore, instead of having a positive effect on students' general academic performance, such unannounced visits may interrupt the class. Unfortunately, such interruptions have a negative effect.

Also, head teachers discussing their comments and suggestions with teachers after observing them teach significantly positively influences students' English scores. This is variable q312. The absolute value of q312, (2.723), denotes that discussing of teachers' limitations and weaknesses in a constructive way after observing them has a significant effect on students' eventual performance. It may help counter the potential negative connotation of q109.

Consequently, the regression results found that three main independent variables affected BECE English scores, namely: type of school, head teachers making unannounced visits to class as well as discussing their comments and observations with teachers after observing them teach. However, the adjusted R-square illustrates that there must be some other variables that are significant determinants of students' BECE scores. This is because the included independent variables account for only 64% of the variation in the dependent variables.

Table 5.6 on the next page presents the regression results where science is the dependent variable with the same instructional variables used in the previous regression for English. The table illustrates that being a private school student increases one's BECE science scores. This further confirms the demographic features and findings in the correlation matrix that suggest that private schools have better academic quality. The size of typesch beta is quite significant 1.972.

This implies that being a private school student highly increases the chance of one performing well in the BECE science exam.

Similar to the findings for the English regression, making unannounced visits to classes decreases a students' BECE science score. This suggests that it has a potential negative connotation for teachers. They may perceive as a form of victimization or an avenue to find fault with them. Such negative reports can be relayed by the head teacher to higher authorities to the detriment of teachers. Also, it may be an adverse interruption that disrupts a conducive learning atmosphere. The regression beta of q109 is large 5.673, implying that it has a sizable negative significant effect on students' eventual scores.

Furthermore, table 5.6 indicates that head teachers sitting in class to observe and monitor a teacher's teaching was found to increase a student's science scores. This may help teachers ensure that they cover the assigned and planned teaching material.

It may be possible also that the presence of the head teacher may instill greater discipline in students. Similar to the results for English, ensuring that the discussion with the teacher after classroom observation is focused on addressing the problem areas of the teacher has a positive effect on students' science score. This is variable q312.

In contrast to q109, variables q110 and q312 were found to significantly improve students' BECE science scores. It may be inferred from these results that some forms of instructional supervision have the desired positive effect while others, although well-meaning, have the opposite effect.

Table 5.6. Regression (science - dependent variable, instructional supervision - independent variables)

	Unstandardized coefficients		**Standardized coefficients**		
	Beta	**Standard error**	**Beta**	**T-statistic**	**P-value**
Constant	-1.305	3.701		-0.353	0.726
Typesch	1.972	0.883	0.653	2.233	0.029*
Q102	-0.119	0.251	-0.047	-0.472	0.639
Q105	-0.766	0.582	-2.51	-1.316	0.193
Q110	-1.855	0.848	-0.895	-2.187	0.032*
Q109	5.673	2.392	0.899	2.372	0.021*
Q312	-3.45	0.289	-0.821	-11.937	0.000*
REGRESSION DIAGNOSTICS					
Degrees of freedom	*6*		*R*	0.838	
F-stat	*25.107*		*R-*	0.702	
P-value of F-stat	*0.000*		*Adjusted R-*	0.674	

Source: own computation

Table 5.7 below presents the regression results for maths with the same instructional supervision variables. The table illustrates that the same variables that influenced students' science scores also affected their maths scores. This highlights that science and maths scores have similar determinants.

The results in table 5.7 illustrate that the typesch variable had greater effect on maths scores as compared to English scores. This may mean that being in a private school increases one's performance in maths relative to English. The same results were found for q109, q110 and q312. The similarities in the results for science and maths may imply that the technical nature of such courses require more instructional supervision. Perhaps, on average, students find these courses more difficult to understand and therefore need more assistance from their teachers.

Table 5.7. Regression: maths - dependent variable, instructional supervision - independent variables

	Unstandardized coefficients		Standardized coefficients			
	Beta	Standard error	Beta	Standard error	T-statistic	P-value
Constant	-0.849	3.564			-0.238	0.812
Typesch	2.216	0.85	0.773		2.606	0.011*
Q102	-0.284	0.242	-0.119		-1.174	0.245
Q105	-1.113	0.56	-0.384		-1.986	0.051
Q110	-1.862	0.817	0.946		-2.28	0.026*
Q109	5.437	2.303	0.907		2.361	0.021*
Q312	-3.253	0.278	-0.815		-11.69	0.000*
REGRESSION DIAGNOSTICS						
Degrees of freedom	*6*		*R*	0.833		
F-stat	*24.13*		*R-square*	0.693		
P-value of F-stat	*0.000*		*Adjusted R-square*	0.665		

Source: own computation

The regression results in tables 5.5 – 5.7 indicate that not all forms of instructional supervision are vital to helping students attain excellent BECE scores. As such, some are essential while others are not. In this regard, the results imply that those that were not significant may be not of much importance in ensuring quality teaching and learning.

These results may imply that the non-significant variables may be important but not essential. Rather, the results illustrate that making unannounced visits to class, q109, may need to be discontinued. One reason is that the regression results for all the examined courses demonstrate that it has adverse effects on students' scores. Possibly, such unannounced visits have been used to find fault with teachers. They may have been used as a basis for providing negative reports about them. On the other hand, sitting in class, q110, has better effects.

It improves students' performance. It may be that there is a fundamental flaw with unannounced visits as compared to sitting in class to observe the teacher teach and help students learn. Perhaps, teachers perceive actual sitting in class by the head teacher as a more helpful way of assisting them as teachers. Furthermore, in such instances, it is possible that teachers are then able to use head teachers as resource persons. They are able to provide valuable input into the lessons being taught. Furthermore, it may connote a more caring and empathic posture of the head teacher instead of being a distant supervisor. Such a relationship of trust and empathy can motivate teachers to be more effective in the classroom. Moreover, since making visits to the classroom to observe teachers at work is also significant, these two variables may imply that the physical presence of the head teacher has greater effect than other systems designed to monitor and evaluate teachers. The other significant instructional variable, head teacher discussing observations with the teacher after visiting the class (q312) provides feedback to teachers. When conducted appropriately, this can be a very effective tool for improving teaching and learning in the classroom.

The afore-mentioned findings suggest that direct detailed monitoring of teachers by head teachers may not be the requisite mode and manner to ensure that instructional supervision is being conducted. Rather, class visits and feedback afterwards have greater influence on teaching and learning and eventually on students' BECE scores. This may imply that there is a need to assist teachers to be more motivated and proactive in carrying out their duties.

While the other instructional variables may help in special or extreme cases, the results found herein indicate that they are not generally significant in improving students' academic results.

This finding may help educational institutions develop a more effective supervisory system. Also, this finding would be of significant assistance to policymakers in the educational sector. As such, instead of spending large amounts of money on micro-supervising and developing systems that seek to account for each second of the time the teacher is at school, these findings suggest that more effective instructional supervision can be achieved in a different manner.

A possible reason for the need for more instructional supervision for science and maths as compared to English may be that it is less difficult and technical as compared to the latter mentioned courses. Consequently, the teacher and student could make up for shortfalls in head teacher supervision and the teacher's teaching and learning quality management. Students can achieve this by self- or group study. However, even with the requisite textbooks and learning materials, it would be difficult for students to attain very good scores in science and maths without a teacher and an effective head teacher. This implies that assistance and an enabling environment is essential.

These findings imply that a one-size-fits-all approach for all courses may not be appropriate. Science and maths have been found to require more instructional supervision than English teaching and learning.

For further exploration of the data, the mean response of each independent variable for both private and public schools was computed. It was found that most of the values of the independent variables for the private schools was similar or the same as those for public schools.

Table 5.8: Comparison of mean value of each variable disaggregated by type of school

VARIABLE	PRIVATE SCHOOL (MEAN VALUE)	PUBLIC SCHOOL (MEAN VALUE)
q102	4.75	4.75
q105	3.88	3.90
q109	4.03	3.95
q110	2.53	2.53
q312	1.89	1.85
q202	1.97	2.00
q204	3.27	3.225
q205	3.07	3.075
q209	4.65	4.65
q309	1.00	1.00

Source: own computation

Table 5.8 illustrates that the mean response of q102 for both private and public schools were the same, 4.75. For q105, the mean value for private schools was 3.88, while for public schools it was3.90. The difference is marginal and not significant. This implies that for both q102 and q105, the response by head teachers from private and public schools were the same. For q109, there was a variation of 0.08 (4.03 – 3.95). In terms of size, this was still marginal. The mean response of head teachers for both private and public schools was the same, 2.53.

Thus illustrates that the manner in which this form of instructional supervision was implemented in both types of schools was similar. Also, the mean response to q312 for private and public schools was 1.89 and 1.85 respectively. The difference is marginal and not significant. The main conclusion and inference from table 5.8 is that instructional supervision in private and public schools is not significantly different. Thus, it is surmised that the difference in BECE scores between the two types of basic schools must be due some other factors not covered in this thesis. Finding such determinants is beyond the scope of this thesis.

Research Question 2: "What is the relationship between head teacher general supervision and incentives on students' achievement?"

Tables 5.9 – 5.11 on the succeeding pages present the results for general supervision and incentives. These are illustrated for the three selected BECE scores. Table 5.9 contains the regression results for English. It indicates that only the type of school is significant. All the pertinent general supervision and incentive variables do not affect English scores. The constant and adjusted R-square denote that there are other variables not included in the regression that have significant influence on students' BECE scores. As such, general supervision and incentives have little or no effect on such results.

Table 5.9. Regression: English - dependent variable, general supervision and incentives - independent variables

	Unstandardized coefficients		*Standardized coefficients*		
	B	*Standard error*	*Beta*	*t-stat*	*P-value*
Constant	*5.339*	*1.756*		*3.04*	*0.004*
Q309	*0.888*	*1.02*	*0.183*	*0.873*	*0.386*
Q202	*-0.64*	*0.446*	*-0.241*	*-1.436*	*0.157*
Q204	*0.31*	*0.221*	*0.22*	*1.401*	*0.167*
Q205	*0.26*	*0.221*	*0.124*	*1.175*	*0.245*
Typesch	*-2.797*	*0.256*	*-0.815*	*-10.93*	*0.000*
REGRESSION DIAGNOSTICS					
Degrees of freedom	*5*		*R*	*0.832*	
F-stat	*25.22*		*R-square*	*0.692*	
P-value of F-stat	*0.000*		*Adjusted R-square*	*0.665*	

Source; own computation. NOTE: The variables q209, q308, q309 and q311were dropped because of missing correlations.

Table 5.10 below presents the regression results for science as the dependent variable and general supervision as independent variables. Similar to the results in table 5.6, only type of school was found to be a significant determinant.

Table 5.10. Regression: Science - dependent variable, general supervision and incentives - independent variables

	Unstandardized coefficients		*Standardized coefficients*		
	B	*Standard error*	*Beta*	*t-stat*	*P-value*
Constant	*6.896*	*2.123*		*3.249*	*0.002*
Q309	*0.912*	*1.231*	*0.151*	*0.741*	*0.462*
Q202	*-0.616*	*0.539*	*-0.187*	*-1.142*	*0.258*
Q204	*0.463*	*0.268*	*0.265*	*1.731*	*0.089*
Q205	*0.116*	*0.268*	*0.044*	*0.432*	*0.667*
Typesch	*-3.52*	*0.309*	*-0.827*	*-11.38*	*0.000*
REGRESSION DIAGNOSTICS					
Degrees of freedom	*5*		*R*	*0.841*	
F-stat	*27.16*		*R-square*	*0.708*	
P-value of F-stat	*0.000*		*Adjusted R-square*	*0.682*	

Source; own computation. NOTE: The variables q308, q309 and q311were dropped because of missing correlations.

Table 5.11 below presents the regression results for maths as the dependent variable and general supervision as independent variables.

Table 5.11. Regression of general supervision and incentives (Maths score – dependent variable)

	Unstandardized coefficients		*Standardized coefficients*		
	B	*Standard error*	*Beta*	*t-stat*	*P-value*
Constant	*4.446*	*2.079*		*2.138*	*0.037*
Q309	*2.113*	*1.205*	*0.375*	*1.753*	*0.085*
Q202	*-0.938*	*0.528*	*-0.304*	*-1.778*	*0.081*
Q204	*0.597*	*0.262*	*0.365*	*2.276*	*0.027*
Q205	*0.088*	*0.262*	*0.036*	*0.337*	*0.737*
Typesch	*-3.188*	*0.303*	*-0.801*	*-10.52*	*0.000*
REGRESSION DIAGNOSTICS					
Degrees of freedom	*5*		*R*	*0.824*	
F-stat	*23.71*		*R-square*	*0.679*	
P-value of F-stat	*0.000*		*Adjusted R-square*	*0.651*	

Source; own computation. NOTE: The variables q308, q309 and q311were dropped because of missing correlations.

Participating in sports activities were found to positively affect students' BECE maths scores. Also, the type of school was found to be a significant determinant.

Research Question 3: Are there differences in instructional supervision in private and public basic schools?

Table 5.8 illustrates that for all the analyzed instructional variables, there are no significant differences in the mean responses for both private and public schools. At best, there is only a marginal but not significant difference. It is, therefore, concluded that instructional supervision in private and public schools are relatively similar.

Research Question 4: Are there differences in general supervision and incentives in private and public basic schools?

In table 5.8, variables q209 – q309 are the general supervision and incentive variables. The table illustrates that the mean response of private schools for q202 was 1.97 and 2.00 for public schools. This demonstrates a very marginal difference. This is not significant. This implies that there is not a significant difference in the manner in which this general supervision is undertaken. The same results are found for q204, q205, q209 and q309 respectively. Similar to the instructional supervision mean responses, there is no significant difference in general supervision and incentives between private and public schools.

CHAPTER SIX

SUMMARY, CONCLUSION, RECOMMENDATION AND POLICY IMPLICATIONS

The purpose of this study is to firstly, examine whether the disparity between students achievement in public and private schools is due to differences in the quality of instructional and general supervision of their head teachers. Secondly, it considers whether the existing incentive systems in public and private basic school influences teachers' performance and the resultant students' test score. This chapter includes a summary of the research, conclusions drawn from the findings. The chapter also concludes recommendation, policy implications and suggestions for further studies.

6.1 Summary

The purpose of this study was to identify whether the Ghana government's effort to provide knowledge, skills and competencies for Ghanaian children through free compulsory basic education to enable them to be productive to themselves and to the society as a whole and reduce poverty is being achieved. Teachers and head teachers play a key role in the provision of quality education in Ghana. This research therefore sort to identify if there is a relationship between head teachers' instructional and general supervision as well as the incentive system on the students tests scores and if there exist any difference between the performance of supervision and the presence of incentives in public and private basic schools.

Chapter one considered the structure of the study. It included a brief background to the problem, the statement of the problems, the research questions and the hypothesis to be tested. Chapter two reviewed related literature on the topic and the theoretical framework of the study.

Chapter three covered the background of educational sector in Ghana. Chapter 4 discussed the methodology to be used in the study and the models considered. Chapter five answered the four research questions which the study sort to find answered to, using the data collected from the survey. The current chapter summaries the findings of the research, draws conclusions and suggests implication for policy makers of education with a recommendation.

6.2 Conclusion

This research was on "Improving the quality of basic education in Ghana: The role of head teacher supervision." To identify the effect of head teacher supervision on students' achievement rates, the researcher sort to find answers to the questions:

1. What is the relationship between head teacher instructional supervision and students' achievement?
2. What is the relationship between teacher general supervision and incentives and students' achievement?
3. Are there differences in the relationship mentioned above (1) in relation to private and public schools?
4. Are there differences in the relationship mentioned above (2) in relation to private and public schools?

The hypothesis on which this research was conducted was that head teacher supervision and incentives have a statistically significant effect on students' achievement and that there is a statistical difference in head teacher supervision and incentive system between public and private basic schools. The thesis presumed that the better performance of private basic schools as compared to their public counterparts was due to a difference in the quality of instructional and general supervision as well as incentives between the two forms of educational institutions.

Consequently, one of its main hypotheses was that there was a significant difference between private and public basic schools with respect to: instructional supervision, general supervision and incentives. This implies that the thesis assumed that there were two sets of independent variables that accounted for the difference in private and public BECE scores.

To find answers to these research questions and to accept or reject the hypothesis therefore, the research used a survey to collect data on which the research was conducted. The study used head teachers as the sample for the data collection. First purposive sampling was used to select head teachers in the Accra Metropolitan area whose schools had a junior high department. Then random sampling was used to select every five head teacher to represent the sample size for the research. The same approach was used to select teachers who taught Science, Mathematics and English subjects from the selected head teachers' sample. Two sets of questionnaire "Teachers questionnaire" and "head teacher questionnaire" were administered personally to teachers and head teachers respectively. The survey collected data on instructional and general supervision and well as incentive systems available in public and private schools. A total of 80 head teacher and 120 teacher questionnaires were distributed to the sample. Out of this 80 head teachers and 96 teacher returned their survey answered. Four research questions were examined from which the four hypothesis were tested.

To identify the relationship between head teacher supervision and incentive systems on students test scores the searcher used two main different regression models. Each model sort to identify the relationship between head teacher supervision and incentives (independent variables) and students Math, Science and English test scores (dependent variables) for this research. The regression model for instructional supervision was used for each of the three different BECE

courses afore-mentioned. A similar model was run for general supervision and incentives. Again to identify the significant difference of head teacher supervision and incentives between public and private basic schools, a dummy variable was included to represent public and private basic schools. The findings showed that only a few variables from head teacher instructional supervision had a positive effect on students' BECE (English, maths and science) results, namely: type of school, head teachers discussing their comments and observations with teachers after observing them teach. While school type had a significant effect on English, maths and science respectively, some of the instructional and general supervision variables had no effect on student performance. The head teachers making unannounced visits to class for example had a negative effect on the students' results.

However it is important to note that the adjusted R^2 illustrates that instructional supervision accounts for only 64%, 67% and 66% variation in the English, Science and Math variables respectively indicating other factors may be accountable for the disparity in academic performance between public and private basic schools.

On the other hand, general supervision and incentives regression result showed that only participating in sports activities and school type positively affect students' BECE maths scores while the other variable had no effect on English and Science.

6.3 Policy implications

a. From the above findings it is clear that the physical presence of the head teacher in the classroom while the teacher is teaching and discussing observations with the teacher has a significant effect on students' performance. Other systems designed to monitor and evaluate teachers like vetting teacher's lesson plan were not significant. Head teachers

vetting of teachers lesson plan may be a tool for obtaining what teachers. Also making unannounced visits to class was found to have adverse effects. It is not an effective monitoring mechanism. Head teachers should therefore be encouraged to focus on sitting in class and providing constructive feedback. These have been found to increase students' maths and science test scores significantly.

b. Again, from tables 5.6 and 5.7 discussing with teachers after head teachers classroom visits increases students' science test scores by 3.45 points and their Math test scores by 3.523 points respectively looking at the absolute values. These are the beta coefficients for q312 for maths and science respectively. It increases their English test scores by a magnitude of 2.723 in table 5.5. It is therefore important that head teacher make time to discuss with teachers observations made to enable the teachers to improve their performance in the classroom.

c. According to the findings, general supervision and incentives did not have a significant effect on students' English and science results. Sports activities positively affected student's maths scores. Such activities improve mental abilities. Therefore, head teachers should help students participate in sporting activities. On the other hand, it is important that the number of general supervisory activities be reduced so as to increase the time allotted to instructional activities, which have greater influence on students' academic performance.

d. Though the findings from this research shows that instructional supervision has a significant effects on students Math, English and Science BECE results, Calculating the mean responses of instructional and general supervision and incentives variables from public and private schools illustrates that there were no difference (q102 for both public

and private were 4.75 and in table 5.8) whiles others has minimal differences (q105 had a mean of 3.88 and 3.90 for private and public respectively, table 5.8). This indicates that that the manner in which this form of instructional supervision was performed in both types of schools is similar. Thus, it is surmised that the difference in BECE scores between the two types of basic schools must be due some other factors not covered in this thesis.

e. To reduce the students test scores gap between public and private schools a number of steps can be taken. As per the findings of this research, there is a significant relationship between head teachers instructional supervision and students test scores. It is therefore imperative that policy makers emphasis on the quality of head teacher supervision in public schools to decrease the gap between the public and private schools. Again head teachers should be encouraged to provide a more constructive feedback after classroom supervision to help teachers improve on the teaching practices. Also capacity building for head teachers should on understanding that the mean purpose of instructional supervision is to help teachers improve the teaching practices and not a means of victimization or an avenue for finding faults.

6.4 Suggestions for further studies

1. Throughout this research it has been observed that the adjusted R^2 for instructional supervision accounts for only 64%, 67% and 66% variation in the English, Science and Math variables respectively. This demonstrates that other factors may be accountable for the disparity in academic performance between public and private basic schools. Further research will be needed

to identify other determinants of the disparate students' academic performance in public and private basic schools.

2. Secondly, this thesis examines the afore-mentioned variables separately. Further research will be needed to measure any interaction effects. Such variables may interact and impact students' achievement rate. These activities and variables do not exist in isolation.

APPENDICES

SURVEY INSTRUMENT

HEAD TEACHERS SUPERVISORY PRACTICES QUESTIONNAIRE

Head teachers

This questionnaire is designed to collect information on the supervisory practices and incentive systems of head teachers in basic schools in the Greater Accra Region, Ghana. Your responses will be treated with utmost confidentiality. Neither your identity nor your schools identity will be revealed. Please feel free to present your personal opinion as every opinion is important to this survey. Thank you for your time.

Part 1: SUPERVISION OF INSTRUCTIONAL ACTIVITIES

How often (per term) do you perform these instructional supervisory activities in your school? Please tick √ one choice in each row.	Never	1-3 times	4-6 times	7-9 times	10 or more
1. Monitors to ensure that instructional time starts and ends at the time stipulated by the Ghana Education Service.					
2. Vetting teachers' lesson plans					
3. Monitoring to ensure teachers follow their lesson plans					
4. Monitors to follow students' progress of work.					
5. Ensuring that teachers have adequate teaching and learning materials					
6. Monitoring to ensure teachers use available teaching and learning materials for teaching					
7. Ensuring that teachers' classroom activities are in line with your school's educational goals					
8. Demonstrate teaching techniques in the classroom.					
9. Making unannounced visits to classrooms					

10. Formally sitting in class to observe the teachers teaching and learning activities.					
11. Taking over lessons from teachers who are unexpectedly absent.					
12. Providing feedback after classroom observation					
13. Providing opportunity for teachers to discuss teacher's classroom-related problems with you.					
14. Paying attention to disruptive behavior in classrooms					
15. Monitoring to check the punctuality of teachers.					
16. Providing teachers with articles on research findings about their area of instruction.					
17. Suggesting to the appropriate authorities in charge of training to provide in-service training to upgrade teacher's teaching skills					
18. Monitoring to ensure that skills learnt during in-service training is being used.					
19. Providing opportunities for teachers to meet and share ideas between themselves about how to improve classroom instruction					

Part 2: GENERAL SUPERVISORY ACTIVITIES

How often (per term) do you perform these general supervisory activities in your school? Please tick √ one choice in each row.	Never	1-3 times	4-6 times	7-9 times	10 or more times
1. Monitoring students' field trips.					
2. Monitoring students' debates.					
3. Monitoring students garden activities.					
4. Taking part in sports activities.					
5. Holding staff meetings.					
6. Preparing scheme of work					
7. Checks attendance of teachers.					
8. Ensure adequate supply of stationary and other school supplies.					
9. Ensures an adequate supply and maintenance of staff and school furniture.					
10. Checking conditions and tidiness of school environment(school block, urinals, sports fields and general soundings)					
11. Encourages parents to visit school.					
12. Reminds parents about their responsibilities in their children's' education					
13. Maintain strong relationship with parents and members of community.					
14. Organizes school to have a community clean-up exercise.					

PART 3: PROVISION OF INCENTIVES TO TEACHERS

Please tick whichever represents the situation in your school		Please respond to the options on both sides of the statement	*Please tick whichever represents the situation in your school*	
Are these incentives and Disincentives systems available in your school?			These incentives and disincentives help teachers change their conduct and teaching behavior for the better both in and out of the classroom?	
YES	NO	1. Taking part in the decision making process in your school	**YES**	**NO**
		2. School regulations are followed strictly.		
		3. Teachers are praised for exceptional performance.		
		4. Teachers who excel in their performance are given instructional leadership positions in their field of specialization (Math, English Science Etc.)		
		5. Provision of technical leadership by the head teacher for teachers.		
		6. There is a friendly atmosphere in your school.		
		7. There is a clear channel of communication between the head teacher and teachers.		
		8. Pictures of teachers with outstanding performance are posted on the school notice board.		
		9. There is a cordial relationship between I and the teachers		
		10. Teachers are dealt with tactically.		

		11. Best performing teacher receive cash award.		
		12. Discussion with teachers after classroom observation is focused on teacher's problem areas.		
		13. Teachers are given query for non performance		
		14. The head teacher corrects the teacher in front of the student.		
		15. Teachers feel intimidated by the head teacher presence during class room supervision?		

Part 4: SCHOOL BACKGROUND INFORMATION

Is your school a public or private school? Please mark one choice.
[ ] - A public school (Is a school managed directly or indirectly by the Ghana Education Service)
[ ] - A private school (Is a school managed directly or indirectly by a non-government organization; e.g. a church, trade union, business or other private institution.)
[ ] – How many teachers do you have in your school?
[ ] – How many students do you have in your school?
[ ] – On the average how many students do you have in a class?

Part 5: Background

1. Gender: Sex: Male [ ]. Female [ ]
2. Age: 25-29 [ ]. 30-34 [ ]. 35-39 [ ]. 40 – 44 [ ] 45- 49 [ ] 50- 54 [ ] 55 - 60 [ ]
3. Rank. Sup II **[ ]** Sup I **[ ]** Principal Sup **[ ]** Assistant Director II [**]** Assistant Director I [**]** Deputy Director [**]** Director **[ ]**

4. **Years of experience as a head teacher.**

1 – 4years [ ]
5 - 9 years [ ]
10 years and above [ ]

5. Educational status

Certificate [ ]
Diploma [ ]
First Degree [ ]
Masters [ ]

6. Professional Qualification

Certificate 'A' [ ]
Diploma [ ]
First Degree [ ]
Masters [ ]

Thank you for completing this survey. Your participation is very much appreciated

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