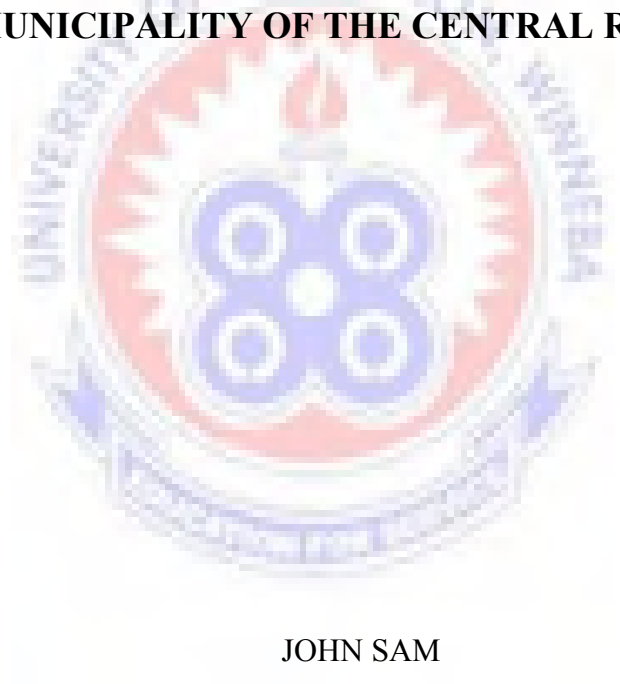
UNIVERSITY OF EDUCATION, WINNEBA

AN ANALYSIS OF THE BASIC EDUCATION CERTIFICATE EXAMINATION RESULTS IN INTEGRATED SCIENCE. A STUDY OF PUBLIC JUNIOR HIGH SCHOOLS IN THE EFFUTU MUNICIPALITY OF THE CENTRAL REGION



JOHN SAM

JUNE, 2012

UNIVERSITY OF EDUCATION, WINNEBA

AN ANALYSIS OF THE BASIC EDUCATION CERTIFICATE EXAMINATION RESULTS IN INTEGRATED SCIENCE. A STUDY OF PUBLIC JUNIOR HIGH SCHOOLS IN THE EFFUTU MUNICIPALITY OF THE CENTRAL REGION

SAM JOHN

B.ED SCIENCE EDUCATION

A DISSERTATION IN THE DEPARTMENT OF SCIENCE EDUCATION, FACULTY OF SCIENCE EDUCATION, SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES, UNIVERSITY OF EDUCATION, WINNEBA, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR AWARD OF THE DEGREE OF MASTER OF EDUCATION DEGREE

JUNE, 2012

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter tells about how this study was conceived. A narration of the Researcher's experiences about a search for analysed results of B.E.C.E. in integrated science has been given. The Researcher noting that apparently no records of systematically analysed B.E.C.E. results existed at the Municipal office was motivated to research how to find previous B.E.C.E. results in Integrated Science in the Municipality, analyse and document them. Further, the Researcher bemoans the death of statistics at the Municipality and thus decided to use the study to comb the Municipality for data on B.E.C.E. results in Integrated Science. These results would be statistically analysed and a hand book produced for performance over a period of five years, from 2006 to 2010.

1.1 Background to the Study

The focus of the study of Science is to understand the natural world. There are generally two main goals of Science education. First, it inculcates scientific literacy and culture for all, so that people can make informed choices in their personal lives and approach challenges in the workplace in a systematic and logical order. Second, it aims to produce competent professionals in the various scientific disciplines who can carry out research

and development at the highest level. For meaningful scientific education, it is important for pupils to be trained in the investigative process of seeking answers to problems. This requires pupils to physically explore and discover knowledge within their environment and in the laboratory to be able to contribute new scientific principles and ideas to the body of knowledge already existing in their culture.

The integrated science syllabus is a conscious effort to raise the level of scientific literacy of all students and equip them with the relevant basic integrated scientific knowledge needed for their own survival and for the development of the country. It is also expected that scientific experiences in Junior High School will cultivate in pupils an interest and love for science that will urge some of them to seek further studies in science as preparation for careers in science.

A search at the Municipality shows that, records of B.E.C.E. results in science can be found only as separate documents that are not compiled in any order. It is, therefore, difficult to get access to a number of results at a time. Those that were found do not give detailed analysis of the results with regard to gender, urban and rural setting, and most of the records were found in little pieces as memoranda and circular issued to various sections of the Ministry of Education. The storage system of most of the documents was not of standard as cabinet and proper storage system was absent. It is likely that most junior high schools after obtaining their results from the Municipal Education Office are unable to make scientific interpretation of scores. This study thus, sought to provide a research document that would enable junior high schools, the Municipal Education Office

in Winneba make informed decisions based on scientifically analysed examination results.

1.2 Problem Statement

Any educational system that advances from year to year makes use of data available to it. For example, when the trend of students' academic performance are properly monitored, education authorities are able to make informed decisions and put in place interventions that will enable changes for improvement of the educational system.

This study has noted that the Municipality has no record of analysed Basic Education Certificate Examination (B.E.C.E.) results. Though there are a number in the raw form in which they were obtained from the external examining body, West African Examinations Council (WAEC), they have not been analysed in any form. The data available on B.E.C.E. results in Integrated Science for a period of five years are not analysed and document that will help educational authorities take informed decisions on issues of concern are not available.

1.3 Purpose of the Study

The purpose of the study is to analyse BECE results in Integrated Science over a period of five years, from 2006 to 2010 within the Effutu Municipality. The results were analysed in relation to variables such as gender, school types, school location and grades.

1.4 The Significance of the Study

The study is expected to produce a composite document of statistical data that will inform education authorities about the trend of performance of students in Integrated Science over a period of five years in the Effutu Municipality. It is hoped that education authorities, the general public in the Effutu Municipality and other stakeholders in education will be informed sufficiently about educational progress of students in Integrated Science. Thus, stakeholders may make decisions that will favour advancement of the learning of Integrated Science at the Basic Education level. Further, it is hoped that the outcomes of this study will inform Government, the Ministry of Education, the Regional and District Directorates of Education as well as all relevant stakeholders about the progress of students in learning science at the junior high school level.

1.5 Objectives of the Study

The objectives of the study are:

1. To search for documents on BECE results in integrated science in the Effutu Municipality

2. To analyze results of BECE in terms of performance along the variables of sex, school types, school locations over a five year period from 2006 to 2010.

3. To produce a statistical document of BECE results in science over a period of five years from 2006 to 2010.

1.6 Research Questions

1. What types of documents exist on BECE results in the Effutu Municipality?
2. How are documents of B.E.C.E. results in Integrated Science packaged at the Municipal Education Office?
3. How have students fared in Integrated Science at the B.E.C.E. in the Effutu Municipality over a five year period?
4. How does performance of females compare with those of males in Integrated Science?
5. How does the performance of students in rural areas compare with those in urban areas in Integrated Science at the B.E.C.E. in the Effutu Municipality.

1.7 Limitation of the Study

A research of such a nature cannot be without problems. The Effutu Municipal Examination Officer and other Officers who will be of help to obtain all document may be absent or having duties elsewhere. It is very unlikely that the schools will have many of their past examination results intact as storage systems are not adequate in most schools. Thus, the study was conducted at the Municipal Education Office where the chances are brighter that good record keeping would be in place.

1.8 Delimitations of the Study.

The boundary of the study is limited to only public schools within the Effutu Municipality due to the fact that Municipal Office only keeps records of public schools. Also the Researcher dealt with Officers whose cooperation would be greatly needed to obtain all documents which may perhaps not be easily traced among a thrash of bundles of paper. This aspect call for tact in order to convince Officers of the Municipality to cooperate with the Researcher.

1.9 Organization of the Study

The entire study is made up of five chapters. As noted, Chapter One dealt with issues concerning what prompted this study and problems that the study sought to offer solutions to.

Chapter Two is on Literature Review. A number of authors who have reported studies on student's performance in various subject areas at different levels have been reviewed. A brief description of the junior high school system in Ghana has been given in order to put the study into context. Further some of the statistical packages for analyzing complex data such as students' academic performance along various variables, such as school types and locations have been reviewed. Various processes of interpreting data have also been reviewed to aid interpretation of this study.

In chapter Three, the methodology of the study has been described. The design of the study is in two phases. The second phase involves interviews of Education officers and development of a statistical hand book of results for B.E.C.E. in Integrated Science for a period of five years in the Effutu Municipality.

Chapter Four deals with presentation and analysis of data. In this chapter the descriptive statistics and visual representation in the form of graphs have been used to represent data of the study.

The final chapter, which is Chapter Five, deals with the discussion, summary and recommendations based on the findings of the study in relation to the literature that was reviewed.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The purpose of this chapter is to review the literature on subject areas relevant to the research topic and questions of the study. The review is directed towards identifying important themes, concepts, and variables leading to the development of a theoretical framework and the hypotheses used in the study.

The available literature connected to the topic has been therefore reviewed from both international and local backgrounds to permit an adequate review of the topic and to place it within the Ghanaian context. The chapter gives a brief background to the junior secondary school educational system and the statistical packages for analyzing complex data have been reviewed along the various indicators; academic performance, types of schools and their locations will be covered under the literature review.

2.1 Record Keeping and Continuous Assessment

Records are the documented information generated, collected or received in the initiation, conduct or completion of an activity and that comprises sufficient content, context and structure to provide proof or evidence of the activity. Specifically, Hrach (2006) defined school record as a unified, comprehensive collection of documentation concerning all services provided to a student which may include intake information, evaluation(s), assessment(s), release of information forms, individual learning plan, all written notes regarding the student, all collateral information regarding the student. Chifwepa (2001)

observed that a record is a documented proof of transaction and that information is what a record contains, stores and transmits.

Hence, records do not only enable school administrators to have a clear picture of what is available and what is required, they also provide justification for certain needs and seem to extend the memory by which persons and/or organizations can pass on their culture and achievement to the future generation. In fact, the content and quality of School Record can serve as a direct reflection of the amount of work that has been expended on the school enterprise. Also, records help school administrators and parents to keep a concise and accurate timeline of events in the life of the pupils. Individuals may think they will be able to recollect past events, but it is easier to use a written record. Considering the need for accumulation of data and the period of time over which records have to be kept, large files containing large quantities of data and information relating to an organization's employees, accounts, achievement records, inventory, health records, etc., tend to accumulate over the years such that it often becomes difficult and time consuming to look for a specific item of information in the files.

The most common and modern arrangement that emerges in record keeping in recent times is computerization. This has made information and its management easy and efficient in terms of generation, organization, storage, utilization, retrieval and even destruction (when necessary). Although as good as this approach appears to be, the limiting problems of cost and erratic power supplies appear to delimit the ability of the educational sector (particularly in developing countries) to make effective use of this

approach.

2.2 Overview of Academic Examination Results

According to Instructional Assessment Resources (IAR, 2007), to obtain the skills of constructing an exam, it is necessary to understand how to interpret and use student examination scores. All bodies that are either directly or indirectly involved in examinations issues of students, therefore, have to show sufficient comprehension of how examination scores reaching them may be analyzed and used. It is clear that an evaluation of Examination results give an indication of how well the learning objectives of the curriculum have been met. This will happen only if the raw scores that arrive are adequately analyzed to reflect critical variables in the education process. The examination results may be used to improve future examinations or teaching (IAR, 2007).

While some countries have well-documented processes of reporting examination results, it appears this is lacking in Ghana. For example, in the United States of America, the family Educational Rights and Privacy Act protects the privacy of students' educational records in all states of the Federation (IAR, 2007). Thus only the students or the parents as the case may be are entitled to directly request and receive students' examination results. However, when the results are properly re-packaged in general form like percentage of students obtaining some marks or grades, the results are be reported generally. In this case one may include in the general results analysis one's own overall impression about the entire examination.

2.3 Documentation and Record keeping on students BECE results

The final examinations that is the BECE are the only consistent, national assessment of a student's performance. Hence Ghana Education Service track their results to aid decision making. Since BECE results are not properly kept in the form that could be accessed, it becomes difficult for the Effutu Municipality to make meaningful analysis. For instance, due to the poor record keeping on BECE results, analysis on gender, public or private schools is not readily available.

Adebowale and Alao (2008) analyzed record-related problems in the BECE programmes. First, the nine-year BECE programme, the first six years of the nine years at a primary school, and the Junior Secondary School are expected to complete the remaining three years (Oduolowu, 2007). The BECE results come in two modes as statements of results and students' certificate. Statement of result contains all students' results on one sheet but certificate contains individual result.

In the case of science teaching and learning, the goal is to raise the level of scientific literacy of all students and equip them with the relevant basic integrated scientific knowledge needed for their own survival and for the development of the country. It is also expected that scientific experiences in school will cultivate in pupils an interest and love for science that will urge some of them to seek further studies in science as preparation for careers in science. Some of the positive attitudes and values pupils are expected to develop include the spirit of curiosity, creativity and critical thinking; skills, habits of mind and attitudes necessary for scientific inquiry; the spirit of curiosity for

investigating and understanding their environment; communicate scientific ideas effectively; use scientific concepts for explaining their own lives and the world around them. For successful study of Science at the basic school level, the curriculum requires that pupils should have good observational skills, mathematical skills and communication skills, according to Curriculum Research Development Division. (CRDD, 2007).

2.4 Purpose of Examination

An essential part of the machinery of education is examination. It has become fashionable to disapprove of examination as a means of stimulating effort in pupils to regard their influence on school work as unnecessarily vicious, and to suppose that their only legitimate function is the selection and classification of pupils after they have passed through same part of the educational machine. This fashion is unfortunate. Examination fulfils a double function; they are a mobilizing force in education, and they also provide a means of testing its results. The stimulating and mobilizing power of examination affect teachers, schools textbooks and administration, but it is exerted through the medium of the individual pupil. The success of examination depends on four factors: a suitable reward for success (a certificate); a limited time to complete work (preparation period); conduct procedures (fairness and honestly); and, difficulty level (not too easy and not too difficult) (Taale, 1999).

In this regard, there is the need to analyse results and keep records of it so that trend of performance can be compared. This will enable teachers to improve on the preparation and administration of examination questions.

2.5 Teacher Reward

School officials could use standardized tests to help decide whether to discipline or fire teachers. In resent times the issue of school accountability is taking new dimensions as the community is demanding accountability of teachers for the wards in state schools. In USA, the State of Wisconsin is preparing an agenda of passing a bill that could make school officials use results of students from standardized tests to decide on whether to discipline or dismiss teachers (Stein, 2011). This decision can only be feasible if test scores are properly analysed and documented from year to year. A teacher cannot be graded upon one test score conducted on his /her pupils. Though similar decisions have not have been taken by Ghanaian school authorities, it is necessary to have good records of students' performance to enable teachers assess their own performance in relation to that of their students. This study therefore, has analysed and compiled the results of the BECE results over a period of five years for the benefit of stakeholders in guest for performance of students in the Municipality.

2.6 Overview of Ghana's Educational System

The structure of basic education inherited from the missionaries and the British colonial administration is comprised of six years of primary school and four years of middle school. The official age at which pupils begin schooling is six. Until the introduction of educational reforms in 1987, the 10 years of elementary schooling constituted the first circle of education. All students completing the tenth grade wrote the Middle School Leaving Certificate Examination conducted by the West African Examination Council

(WAEC). Established by a 1951 Ordinance, the Examination Council conducts all public examinations for the former British West African countries and Liberia.

The reforms of 1987 reduced the first circle of education to nine years, with the seventh through ninth grades designated as Junior Secondary School (JSS). Successful candidates are admitted to a four-year Senior Secondary School (SSS) system. The rational for reform was originally stated in the Dzobo Committee Report of the mid-1970s, which called for a new type of education that was consistent with national development. Similar to the observations of the Phelps-Stokes Report of 1923, the Dzobo Committee argued for the introduction of more vocational, science, and agricultural courses at the JSS level. Thus, while a general education was provided during the first six years of primary education, it was argued that students attending the JSS should be given the chance to test a variety of practical courses. Those who showed propensity for practical education were to be encouraged to enter vocational and technical institutions, while the others continued with the curriculum associated with the traditional secondary school system. The four-year SSS curriculum is tested in the standardized Senior Secondary School Examination, also conducted by the WAEC. Successful candidates are considered for admission to tertiary institutions for further education in specialized fields.

While some have praised the government's courage to implement reform policies, the new system has also been criticized. The main problem was that the national government called on local governments to provide for the workshop and labs anticipated for the JSS system. Critics feared the increased financial burden on the communities, and it was

argued that children in well-to-do communities would fare better than those in the least endowed areas. The reality of the past 10 years, however, has been that many well-to-do parents have sent their wards to the private JSS institutions that opened in the wealthy communities. The rational was that the better endowed private schools would better prepare children to gain admission to the prestigious secondary schools now designated as part of the new SSS system. On the one hand, it has been observed that the increased establishment of the private JSS was consistent with the privatization of the national economy that characterized the 1980s. On the other hand, critics see the trend in education as favouring the wealthy and widening the gap between haves and the have-nots, since in the end, better preparatory secondary education makes it easier to gain admission into the nation's universities. Ironically, it has also been argued in some quarters that those with influence have coveted the few government scholarships that are to go only to the very bright students.

2.7 fCUBE Programme

The fCUBE launched in October 1996 is being implemented for a ten year period (1996-2005) in fulfillment of the Fourth Republican Constitutions mandate which states in Chapter 6/Section 38 Sub-section 2: “The Government shall within two years after Parliament first meets after the coming into force of this Constitution draw up the programme for implementation within the following ten years for the provision of Free Compulsory Universal Basic Education). It was designed to address some of the shortcomings of the educational reforms. The main objectives were to expand access to good quality basic education, promote efficient teaching and learning. Improve teacher

moral and motivation through incentive programmes, ensure adequate and timely supply of teaching and learning to schools and improve teacher community relations.

The several reforms in educational system has become necessary as a result of comparative performance of students from year to year. Therefore there is the need to analyse results of students and kept properly as a document for reference. This will enable educational authorities to effectively implement educational policies.

2.8 Some Implications of the Reforms on Resources

The need for new understandings amongst teachers is particularly crucial in the case of current reform efforts in basic education because many of the ideas central to these efforts are foreign to Ghanaian teachers. Having grown up in a very traditional educational system teachers are now being asked to change, and as a result to teach, in ways that are unfamiliar to them and in ways that they did not experience as students. Furthermore, the reforms themselves are not based on a prescriptive approach of the kind that Ghanaian teachers have always experienced. Rather, in the reforms teachers are being encouraged to build on pupils' ideas and knowledge to help them develop conceptual understanding and relevant skills. While reformers seek more demanding and engaging teaching and learning, most instruction in Ghana is 'chalk and talk' as it has been for generations. Thus the kind of teaching and learning envisioned in these reforms is not something that most teachers in Ghana understand.

The very people who must work on these reforms have little firsthand knowledge or experience with this kind of education. Moreover, many see these reforms as visions created by others (such as policy makers), not programmes for practice (by teachers). The Ministry of Education (MOE), for its part, has also launched efforts to set goals and standards of various kinds, to create school reform networks, to decentralize governance and management, and to restructure schools. But efforts to promote teacher education and professional development that will lead to improved practice on a wide scale have yet to emerge. This is because teacher preparation for the reforms took the form of short in-service training courses for teachers aimed at enabling them to use the new syllabuses effectively and to sensitize them to the objectives of the reforms.

The Ministry of Education demanded that teaching should focus on pupil understanding and not on memorizing facts. It also wanted new forms of assessments to be introduced which asked students to perform complex tasks rather than to reproduce what they have been told. Evidence from the Education Review Committee of 1995 (MOE, 1995) and the expressed concern of the Vice Chancellor of the University of Education, Anamuah-Mensah (2003), who was also chairman of the Education Review Committee of 2002, had shown that there was still content overload in the curriculum, and only a minority of schools felt able to pursue the reform policy requirements.

Recent assertions by the Centre for Research into Improving the Quality of Primary Education in Ghana (CRIQPEG Report, 1995), at the University of Cape Coast, which suggested that programme admission standards into teacher training colleges were being

raised, that the academic quality of students was improving, and that research was influencing teaching practices for the better, are yet to be verified. The quality, effectiveness and attitudes of the teaching force rest heavily on two factors: the type of person recruited to the service and the quality of the pre-service and in-service training they receive. Embedded in the policies and practices of these current innovations is the belief that pupils' outcomes are positively affected when traditional notions of teaching and learning are reconceptualized (Pryor & Stuart, 1997). Research suggests that educational practices resulting from such reconceptualizations obligate schools to re-tool and re-train their educators (Antwi, 1991b; Fullan, 1991b; Peterson, et al., 1996).

The policy review document of the 1997 Education Review Committee following the fCUBE reform, and the government's initiatives following on from it, seem to be based on two principal, but interlinked, assumptions. First, that the basic education system had failed to provide an acceptable level of educational improvement for pupils in schools and, second, that teachers, especially teachers in basic education schools, were not helping in the government's effort to improving pupils' performance in line with the objectives spelt out in the reform agenda (MOE, 1997).

Overall, the reform policy arising from fCUBE demanded many changes: in standards, curriculum, assessment, and instruction. But underlying these were changes more fundamental still lying in three areas: different ways of knowledge, different ideas about the 14 Policy initiatives for change and innovation in basic education programmes in

Ghana nature, purpose, and scope of school subjects and the ways in which the needs of a diverse student population might be met.

It is thus apparent that there are a number of challenges facing the education system in Ghana. First, that there is a chronic lack of resources; the Government has been unable to ensure the supply of basic education materials (chalk, exercise books and textbooks) for many schools despite available donor funds (MOE, 1995). In addition, teaching and learning materials such as textbooks, teachers' guides and syllabuses are inadequate to meet the needs of teachers and pupils alike (Karikari-Ababio, 2003). Secondly, there is a lack of staff of the right caliber and in sufficient quantities (Bame, 1991).

Thirdly, the system of teacher training is under criticism for admitting students with poor senior secondary school leaving results. These trainees arguably also lack the motivation, commitment and aptitude for teaching. The training system itself is seen as deficient in its lack of focus on methods of teaching, and criticized for over-emphasizing the academic knowledge of trainees. Further, pedagogical issues, such as the quality and nature of instructional delivery by most basic schoolteachers is viewed as non-interactive, encouraging pupils to learn by rote alone (Gyasi, 2003).

Thus, even in 2003, it may be considered that primary education in Ghana is in the midst of a drastic decline in standards, in terms of quantity and quality (USAID/MOE, 1996). The pedagogical changes facing teachers, particularly those in rural areas, are complicated by difficulties relating to the medium of instruction to be used for minority

language groups, shortage of appropriate learning materials and lack of professional training among teachers.

In spite of the fact that Ghana's education system has come far, the increasing challenges of the twenty-first century demand that it be re-engineered if it is to provide quality professional support programmes to teachers at the basic education level. This would make them more responsive to national goals and aspirations as well as global demands. In this paper I have attempted to provide a historical and policy context for further research in this area and to highlight some of the issues faced by primary teachers in Ghana today.

2.9 The Junior Secondary School System

With the assistance of several development partners (World Bank, Department for International Development (ODA) and international grants) the education system of Ghana was reviewed and proposals were implemented in 1987. A brief summary of the objectives of the implemented actions: Increase access to basic education shortening the pre-university education structure from 17 years to 12 years, make education cost-effective and improve quality of education by making it more effective to socio-economic conditions. The Junior Secondary School structure was put in place on a nationwide basis.

The reforms saw further changes from hours spent at school to educational resources such as infrastructure of class blocks and libraries, school supplies and technical skills equipment. Although the reforms helped to solve some of the problems, the results achieved by students at the primary school level were low. The government then embarked on the BESIP/FCUBE (Basic Education Sector Improvement, or more popular- the Free Compulsory, Universal, Basic Education Program) program, which was aimed at providing every child of school-going age with good basic education.

Some of the objectives of the FCUBE program were: improving the quality of learning and teaching, and improving access to basic education facilities. The present structure of education, which starts at the age of 6 years, is a 6-3-3-4 structure representing, 6 years of primary education, 3 years of Junior Secondary School, 3 years of Senior Secondary School and 4 years University course. Naturally students who successfully pass the West African Senior Secondary School Examination can also follow courses at a Polytechnic, Teachers Training College or other tertiary institutions. The first 9 years from the basic education and is free and compulsory. The basic education is designed to expose children to a wide variety of ideas and skills and install attitudes that will help them cope creatively with their environment and stimulate them to be an asset to their country.

The curriculum used in schools is work-oriented. The Primary School level curriculum consists of English, Ghanaian language and Culture, Mathematics, Environmental studies, Integrated Science, Religious and Moral Education and physical activities such as Music, Dance and Physical Education. The Junior Secondary School level makes a

distinction between Agricultural and General science and incorporates subjects such as Pre- vocational Skills and Pre-technical skills. MOE (1995), Anamuah–Mensah (2003).

2.10 Science Pupils in Ghana

The poor academic performance of science pupils in Ghana has been a concern over the past few years. The schools have shown poor performances in all public examinations and as one director puts it, 'their BECE results have been appalling'. The schools in the junior high schools are performing poorly in the science subjects. The situation as described above is a great problem since the Ghana Government has initiated programmes such as the Free Compulsory Universal Basic Education (FCUBE) with the view to improving the quality of the educational system. Through the FCUBE program the Ghana Government seeks to ensure that all citizens are equipped with the fundamental knowledge and skills that will enable them to be full stakeholders in and beneficiaries of development.

Several factors have generally been identified as causes of poor academic performance. Agyemang (1993) reported that a teacher who does not have both the academic and the professional teacher qualification would undoubtedly have a negative influence on the teaching and learning of his/her subject. However, he further stated that a teacher who is academically and professionally qualified, but works under unfavourable conditions of service would be less dedicated to his work and thus be less productive than a teacher who is unqualified but works under favorable conditions of service. Neagley and Evans (1970) were of the view that effective supervision of instruction can improve the quality

of teaching and learning in the classroom. Etsey, Amedahe and Edjah (2004) in a study of 60 schools from peri-urban (29 schools) and rural (31 schools) areas in Ghana found that academic performance was better in private schools than public schools because of more effective supervision of work.

Another factor is motivation. A highly motivated person puts in the maximum effort his or her job. Several factors produce motivation and job satisfaction. Young (1988) examined the job satisfaction of Californian public school teachers in the USA and found that one of the overall job predictors was the salary one earned from it. Studies by Lockheed et al. (1991) indicated that lack of motivation and professional commitment produce poor attendance and unprofessional attitudes towards students which in turn affect the performance of students academically.

The availability and use of teaching and learning materials affect the effectiveness of a teacher's lessons. According to Broom (1973), the creative use of a variety of media increases the probability that the student would learn more, retain better what they learn and improve their performance on the skills that they are expected to develop. Ausubel (1973) also stated that young children are capable of understanding abstract ideas if they are provided with sufficient materials and concrete experiences with the phenomenon that they are to understand. Class sizes have also been identified as determinants of academic performance.

Studies have indicated that schools with smaller class sizes perform better academically than schools with larger class sizes. Kraft (1994) in his study of the ideal class size and its effects on effective teaching and learning in Ghana concluded that class sizes above 40 have negative effects on students' achievement. Asiedu-Akrofi (1978) indicated that since children have differences in motivation, interests and abilities and that they also differ in health, personal and social adjustment and creativity generally good teaching is best done in classes with smaller numbers that allow for individual attention. Butler (1987) has also found homework to be a correlate of academic performance.

He stated that homework bore a positive relationship with learning outcomes when it is relevant to learning objectives, assigned regularly in reasonable amounts, well explained, motivational and collected and reviewed during class time and used as an occasion for feedback to students. Churchill (1965) found a positive relationship between the location of a school and the student and teacher performance. The presence of all or some of the factors identified above may have resulted in the poor academic performance of pupils in Ghana. However, evidence of the availability of these factors as well as other factors need to be obtained.

One would have thought that the vast inputs sunk into the sector would yield commensurate results, but this has not been the case. Over the past few years, however, standards of academic performance of pupils at the basic level of Ghana's education have lowered, particularly in the rural areas. This has been of much concern, not only to parents, but also to the Ministry of Education (MOE), the Ghana Education Service

(GES) and in fact, all stakeholders in education. This situation is even more alarming, given the fact that the success of our socio-economic and technological development, lies in providing quality education for the "bottom-heavy" section of the country's population. Governments, since the Education Act (87) of 1961, have shared the same opinion.

In the year 2001, for example, a number of public Junior Secondary Schools in the Upper West, Volta and Central Regions were reported by the media to have performed poorly. In the Kadjebi District of the Volta Region, for example, out of a total of 758 candidates presented by 30 schools for the Basic Education Certificate Examination (BECE), only 318 passed, 400 failed while 4 schools had zero percent in the examination (Ghanadistricts.com).

Again, findings revealed by research teams in the Center for Improving Quality of Education in Ghana (CRIQPEG) based at the University of Cape Coast, observed below average performance of pupils in the Primary School in simple English Language (speaking, reading and writing), basic mathematical skills and science. This situation was found to be far worse in schools in the rural settings than in the urban areas. For example, Konadu (1998) had found rural and urban differences in performance. He pointed out that the rural/urban percentage of pupils attaining Satisfactory Performance Standard (SPS) by subject and class, showed very significant disparities in learning achievements. In the English test, for example, 16.55% of P2 pupils in the rural schools attained SPS as opposed to 35.92% attained by their counterparts in the urban areas. In P6, the test results

in English show that 15.76% of pupils attained SPS in the rural schools as compared with the 45.47% of their counterparts in the urban schools. The Mathematics results revealed the same trend.

This gloomy picture painted from the foregoing performance of pupils in basic schools in recent times, has been attributed to lack of text books, inadequate usage and in some cases non-usage of available learning materials, very low teacher-student actual contact hours, due to chronic absenteeism on the part of either the teacher or student or both. Other problems include inadequate in-service teacher training to orientate teachers to the new curriculum, management problems at school, circuit and district levels and over-ambitious curricula, which have resulted in limited time for extensive coverage. Besides these, the decentralization of school management and cost sharing measures so far introduced into the reforms, have imposed an additional financial burden on parents.

Even though the education reform has clocked a couple of successes such as improvements in the supply of logistics, organization of in-service training programs for teachers, implementation of the Equity Improvement Program to remove disparities etc. in the educational system and many others, the reform had suffered a number of setbacks. These problems plaguing the quality of basic education especially in rural schools have resulted in the poor performance of the pupils.

This has necessitated the introduction of a number of interventions by both government and the Ghana Education Service, to address the situation. On the part of government, for

example, it received a grant of $35 million from USAID over a five-year period. The program was designed to strengthen the policy and institutional framework required to improve the quality, accessibility, equity, and financial sustainability of the primary education system in Ghana by the 2005. On the part of the Ghana Education Service, some of the interventions were Criterion Reference Testing – (CRT), (1992) and Participatory Performance Monitoring – PPM, (1998) both introduced to address the weaknesses in pupils 'performances.

In 1987, Ghana's Ministry of Education introduced a restructured educational system that gradually replaced the British-based O-level and A-level system. The transition was completed in June, 1996, when the last class took A-level exams. The last O-level exams were administered in June 1994, although remedial exams were offered through 1999. Educational reforms affect all Ghanaian schools, public and private, except for three non-Ghanaian schools that offer the American high school, London O/A level and the IGCSE/IB curricula. The Senior Secondary School curriculum, including syllabi, schedules, exams, marking systems, and to some extent textbooks, is determined by the Ministry of Education and is identical in all 500 Ghanaian secondary schools.

As Ghana's educational reforms are implemented, review and curriculum adjustment are frequent. The list of required subjects, the grading system, and some subject syllabi may be different for each successive class. Admission officials are encouraged to contact the USIS Educational Advising Center in Accra for clarification and evaluation of

applicants' transcripts and to confirm all secondary school examination results from the West African Examinations Council, WAEC.

2.11 Effective Supervision and Motivation of Teachers

Several factors have generally been identified as causes of poor academic performance. Agyemang (1993) reported that a teacher who does not have both the academic and the professional teacher qualification would undoubtedly have a negative influence on the teaching and learning of his/her subject. However, he further stated that a teacher who is academically and professionally qualified, but works under unfavorable conditions of service would be less dedicated to his work and thus be less productive than a teacher who is unqualified but works under favourable conditions of service. Neagley and Evans (1970) were of the view that effective supervision of instruction can improve the quality of teaching and learning in the classroom. Etsey, Amedahe and Edjah (2004) in a study of 60 schools from peri-urban (29 schools) and rural (31 schools) areas in Ghana found that academic performance was better in private schools than public schools because of more effective supervision of work.

Another factor is motivation. A highly motivated person puts in the maximum effort in his or her job. Several factors produce motivation and job satisfaction. Young (1988) examined the job satisfaction of Californian public school teachers in the USA and found that one of the overall job predictors was the salary one earned from it. Studies by

Lock heed, M. et al. (1991) indicated that lack of motivation and professional commitment produce poor attendance and unprofessional attitudes towards students which in turn affect the performance of students academically.

The availability and use of teaching and learning materials affect the effectiveness of a teacher's lessons. According to Broom (1973), the creative use of a variety of media increases the probability that the student would learn more, retain better what they learn and improve their performance on the skills that they are expected to develop. Ausubel (1973) also stated that young children are capable of understanding abstract ideas if they are provided with sufficient materials and concrete experiences with the phenomenon that they are to understand. Class sizes have also been identified as determinants of academic performance.

Studies have indicated that schools with smaller class sizes perform better academically than schools with larger class sizes. Kraft (1994) in his study of the ideal class size and its effects on effective teaching and learning in Ghana concluded that class sizes above 40 have negative effects on students' achievement. Asiedu-Akrofi (1978) indicated that since children have differences in motivation, interests and abilities and that they also differ in health, personal and social adjustment and creativity generally good teaching is best done in classes with smaller numbers that allow for individual attention.

Butler (1987) has also found homework to be a correlate of academic performance. He stated that homework bore a positive relationship with learning outcomes when it is

relevant to learning objectives, assigned regularly in reasonable amounts, well explained, motivational and collected and reviewed during class time and used as an occasion for feedback to students. Churchill (1965) found a positive relationship between the location of a school and the student and teacher performance.

In order to ensure that all factors mentioned really improve performance in school, there is the need to examine the pupils. The result has to be analysed and documented. This will help to compare from year to year whether those factors is having impact on the performance.

2.12 The Usage of SPSS Version 12 to Analyze Student BECE Results in Integrated Science in the Effutu Municipality.

SPSS has a reasonably strong on ANOVA-related procedures. Looking to the future, it is fair to say that it will be the weakest of the three packages in the scope of statistical procedures it offers. SPSS places constraints on internal file structure, data types, data processing and matching files, which together considerably simplify programming. SPSS datasets have a 2-dimensional table structure where the rows typically represent cases (such as individuals or households) and the columns represent measurements (such as age, sex or household income). Only 2 data types are defined: numeric and text . All data processing occurs sequentially case-by-case through the file. Files can be matched one-to-one and one-to-many, but not many-to-many.

2.13 Data Type

Is a classification identifying one of various types of data, such as floating-point, or that determines the possible values for that type; the operations that can be done on values of that type; the meaning of the data; and the way values of that type can be stored. Data types are used within type systems, which offer various ways of defining, implementing and using them. All these varying features of SPSS will facilitate the analysis of students BECE results by any form of classification to get the intended results.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter describes the procedures that were followed in investigating the problem of the study. The chapter begins with the research design, population of the study, sample size, data collection techniques, and data collection instruments and data analysis to meet the objectives of the study.

3.1 Research Design

The design of a research according to Gay (1996) indicates the basic structure of a study, the nature of the hypothesis and the variables involve in the study. The design is basically the structure of the study.

The design appropriate for this study is the ex-post facto design, using survey method to collect data on the BECE results in the Effutu Municipality. Then results were analyzed to determine the trend of performance of pupils at the B.E.C.E. over a five year period. The ex-post facto design is basically about how to perform impact analysis on existing data. The basic characteristics of this design are the uncontrolled (decentralized) manner of assigning cases to treatment.

3.2 Population

Webster (1985) is of the view that, population in research, denotes a group of individual persons, objects or items from which samples are taken for measurement. For example, a

population of professors, schools or students. A population is composed of a number of individuals which are connected to the rest of the population. An individual belongs to a population to the degree of interaction of that individual with other members of the population or degree of membership of those individuals to which it is connected.

Many different definitions of populations and their subdivisions have been described, notable apomictic genetic population (Wright 1931). The natural and local population of the study was made up of all JHS in the Effutu Municipality.

3.3 Sample Size

According to Webster (1985), a sample is a finite part of a statistical population whose properties are studied to gain information about the whole. He adds that, when dealing with people, it can be defined as a set of respondents (people) selected from a larger population for the purpose of a survey. A major sedation of any research is the sample size that will be representative of the population. However, the population for the study will be the sample size. This is due to the fact that, the number of JHS in the Effutu Municipal is small. The sample included all JHS in the Effutu Municipal which took part in BECE within the period of 2005 to 2010.

3.4 Data Collection Techniques

According to Summerhill and Taylor (1992), data collection technique include screening records and reports, direct observation of behaviour, face-to-face interviews, telephone interviews, and mail questionnaires. Firstly, the Researcher employed a semi-structured

interview guide to enable him solicit information from the Examination Officer, Statistical Officer, the Assistant Director for Supervision and the District Director of Education . The responses were recorded using voice recorder. The recorded interview was replayed to sort out the answers that were the same into groups. The answers were then interpreted into meaningful statements. Secondly, focus group discussion was organized to enable the Researcher to interact with the Examination Officer and Statistical Officer to find out their views about the types of records on B.E.C.E. results that are available. Finally, the Researcher relied greatly on secondary data (BECE results analyses found in the Effutu Municipality).

3.5 Data Collection Instruments

In this study, an interview was used as a data collection instrument. An interview is a self-report method. It occurs when a participant is asked questions that have been designed to elicit particular types of information. The questions may be structured, semi-structured or unstructured. It is virtually impossible to determine whether or not the respondent is giving serious attention to the questions in the self-completion questionnaire, or regarding the exercise as a tedious chore, and might therefore be completed in a cursory manner. An interview may permit the assessment of this type of factor, and give the possibility of differentiating respondents on this basis (Robson, 2002). In this case, the interview is used to guarantee the quality of data.

Also interview can produce in-depth data that is not possible with a questionnaire. It is most appropriate for asking questions which cannot effectively be structured into a

multiple choice format (Gay, 1996). Furthermore, where a quantitative study has been carried out, qualitative data are required to validate particular measures or to clarify and illustrate the meaning of the findings, and to see whether the dents' experiences agree with the ratings on the measure (King, 1994). This formed the prime focus of the interview.

A semi-structured interview approach was used. This was because semi-structured interview approach is one of the most widely used and effective methods of data collection in qualitative research (Kvale, 1996). Also, a semi-structured guide provides a clear set of instructions for interviews and can provide reliable, comparable qualitative data. It also allows the interviewees the freedom to express their views in their own terms (Cohen & Crabtree, 2006). The approach involved asking structured questions followed by clarifying unstructured or open-ended questions. The follow-up questions facilitated the understanding and explanation of the responses of the interviewees. Thus, a combination of objectivity and depth can be obtained and the results can be tabulated as well as explained (Gay, 1996). There will also be inspection of BECE results analyses documents.

3.6 Data Analysis

According to Ader (2008), analysis of data is a process of inspecting, cleaning, transforming, and modeling data with the goal of highlighting useful intonation, suggesting conclusions, and supporting decision making.

Data analysis has multiple facets and approaches, encompassing diverse techniques under a variety of names, in different business, science, and social science domains.

In this study, the documents on BECE result analyses retrieved from Effutu Municipal Education Office were analyzed according to trends of performance with regards to gender from year to year in integrated science within the period of 2005 to 2010.The general trend of performance within the same period was also considered. These trends were then transformed into graphs for easy interpretation and comprehension.

With the semi structured interview, the answers were put into themes or categories for onward transformation into graphs.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.0 Overview

Performance and the way analytical results of pupils in Integrated Science in the Winneba Municipality are kept formed the basis for conducting this study. This Chapter focused on the analysed data and the interpretation of such data in relation to the research questions. The findings indicated that BECE results were kept in only hard copies without the Municipal Education Office making use of current electronic means of keeping records. It was also found that the safe-keeping of records were compromised as the Municipal Education Office lacked storage systems. Finally the results revealed a declining pass rate in Integrated Science in the Basic Education Certificate Examinations.

4.1 Category Distribution of Respondents

In addition to the secondary data that was relied on for the data analysis, the Researcher interacted with a number of key informants with the aid of a semi-structured interview guide. In all, four key informants namely, the District Director of Education, Assistant Director of Supervision, Statistical Officer and the Examinations Officer responded to the semi-structured interview. Their views have been discussed under the corresponding research questions.

Age Distribution of Respondents

Out of the four people who benefitted from the semi-structured interview guide, 2 (50%) were between the ages of 41-50 years, 1(25%) was between the ages of 31-40 years while the remaining respondent who represented 25% was between the ages of 20-30 years.

Educational Level of Respondents

Two respondents, representing 50% were holders of bachelors degree, the remaining two respondents, who also represent 50% of the sampled respondents, were holders of masters degrees. From the Researcher's point of view, this is a good basis for quality education supervision in the Municipality.

Years of Working Experience

All respondents have worked for more than ten years with the Ministry of Education. Three of the respondents, representing 75% have been working with the Ministry for between 10-20 years while the remaining respondent indicated that he has been working with the Ministry for between 21-30 years. This is a good indication, implying that respondents had experience with the examination system at the Basic Education level.

4.2 Research Question One: What types of documents exist on B.E.C.E. results in the Effutu Municipality?

A focus group discussion with the Examination Officer and Statistical Officer at the Municipal Education Office aided in getting answers to this research question, which sought to find out the types of documents that exist on B.E.C.E. results in the Effutu Municipality.

Interaction with the Researcher revealed that there only exist printed copies of B.E.C.E. results in the Effutu Municipality. The Researcher probed further to find out whether these printed copies were generated from the office or from another source. The officers informed the Researcher that most of the documents were generated from business offices outside the office owing to the frequent break down of the office machines.

4.3 Research Question Two: How are documents of B.E.C.E. results in Integrated Science packaged at the Municipal Education Office?

The interview revealed that documents are filed with inscriptions on them denoting the content of the files. The absence of safety cabinets exposes these vital documents to theft. This, therefore, makes the documents unsafe and exposed to creatures like cockroaches and weevils. This, therefore, makes it very difficult to trace B.E.C.E. results. The practice therefore is that the officers in charge have to carry such documents with them to their various homes and back to the office. This according to them greatly hampers their work.

Through observation by the Researcher, it came to light that B.E.C.E. results were poorly kept at the Municipality. This prompted the need to find out about how Integrated Science Results were kept at the Municipality. It was revealed, that most of the results were unreadable owing to the places that they were retrieved from. Even though quite a number of BECE results had been filed, they were deplorable looking, owing to the places at which they were kept (in boxes rather than in cabinets).

4.4 Research Question 3: How have students fared in Integrated Science at the B.E.C.E. in the Effutu Municipality over a five year period?

The BECE results were obtained from the years 2006 to 2010. The results were analysed in order to determine the performance trend for the candidates in Integrated Science. In order to determine the performance trend of candidates in Integrated Science from 2006 to 2010 in Effutu Municipality, a trend analysis was carried out. The number of students passing refers to the number of students obtaining grades 1-8. The number of students failing refers to the number of students obtaining grade 9. The results are presented in Table 1 in terms of numbers and percentages. Numbers in brackets are in percentage.

Table 1: Performance of Candidates in Integrated Science from 2006 – 2010 in Effutu Municipality

Year	Number of Schools	Number of Students Registered	Number of Students Passing	Number of Students Failing
2010	23	1,012	453 (44.8)	559 (55.2)
2009	19	1,203	511 (42.5)	692 (57.5)
2008	133	5,351	2,878 (59.8)	2,473 (40.2)
2007	119	4,520	2,502 (55.4)	2,018 (44.6)
2006	109	4,523	2,922 (64.6)	1,601 (35.4)

In Table 5 the figures indicate a dwindling trend in the academic performance of candidates in Integrated Science at the B.E.C.E. in the Municipality from 2006 to 2010.

In 2006, out of total number of 4,523 candidates registered for examination in Integrated Science, only 2,922 (64.6%) passed; in 2007, out of total number of 4,520 candidates registered for examination in Integrated Science, only 2,502 (55.4%) passed while the remaining 44.6% failed; in 2008, out of total number of 5,351 candidates registered for examination in Integrated Science, only 2,878 (59.8%) passed; in 2009, out of total number of 1,203 candidates registered for examination in Integrated Science, only 511 (42.5%) passed; and finally, in 2010, out of total number of 1,012 candidates registered for examination in Integrated Science, only 453 (44.8%) passed while the remaining 55.2% failed in Integrated Science.

A better picture of the trend of academic performance of students in Integrated Science from 2006 to 2010 is presented in Figure 1.

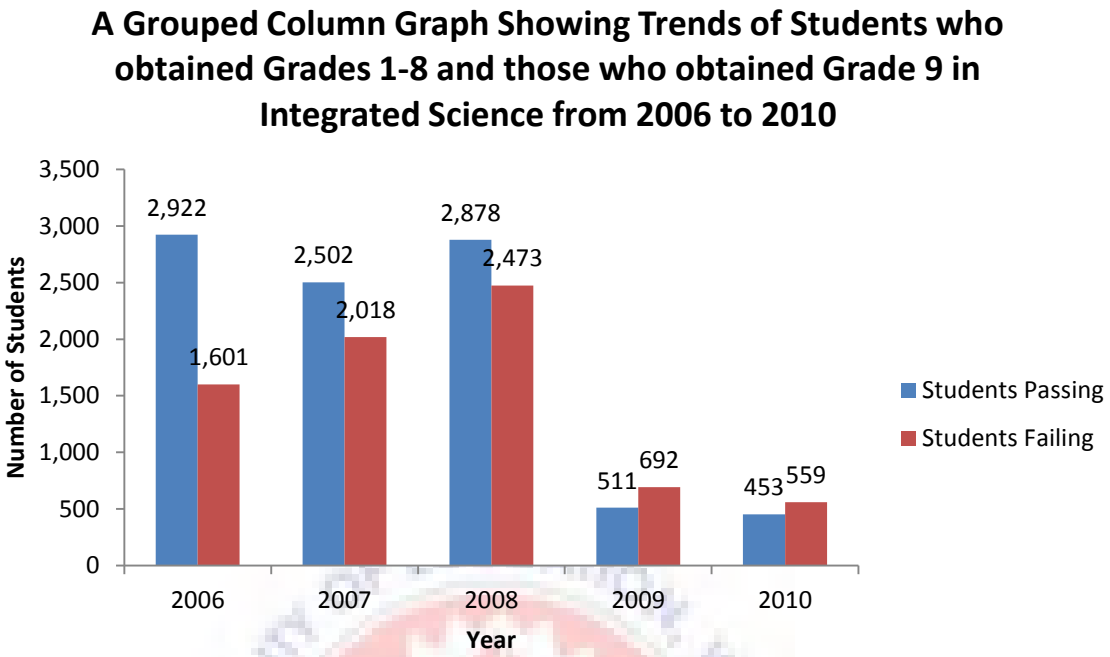


Figure 1: Grouped Column Graph showing trend of students who obtained grades 1-8 and those who obtained grade 9 in Integrated Science from 2006 to 2010

Note: Number of students passing refers to the number of students obtaining Grades 1-8

Number of students failing refers to the number of students obtaining Grade 9

From Figure 1, it is seen that the performance of candidates in Integrated Science keeps falling with every year. This should be an issue of concern to educationists, teachers, parents and the students, remedies need to be found to ameliorate this deteriorating performance of students in Integrated Science in the Municipality.

For those who obtained grade 9 in Integrated Science, this is a failure grade.

Research Question 4: How does performance of females compared with those of males in Integrated Science?

In order to determine the performance of males as compared to females in Integrated Science, an analysis of the data was done separately for each of the sexes. The results are presented in Table 2 in terms of numbers and percentages for the two sexes.

Table 2: Percentage Comparism of performance of Males and Females obtaining Grades 1-5 in Integrated Science from 2006 – 2010

2006		2007		2008		2009		2010	
males	**females**	**males**	**females**	**males**	**females**	**males**	**females**	**Males**	**females**
1691 (57.9)	1231 (42.1)	1376 (55.0)	1126 (45.0)	1577 (54.8)	1301 (45.2)	320 (53.2)	281 (46.8)	268 (59.2)	185 (40.8)

Note: Numbers in brackets are in percentage

Number of performance of boys is always higher than girls throughout the five year period. There is higher performance of males each year as compared with the females.

A visual presentation on the performance of males as compared to their female counterparts in Integrated Science from 2006 2010 is presented in figure 2 on the next page.

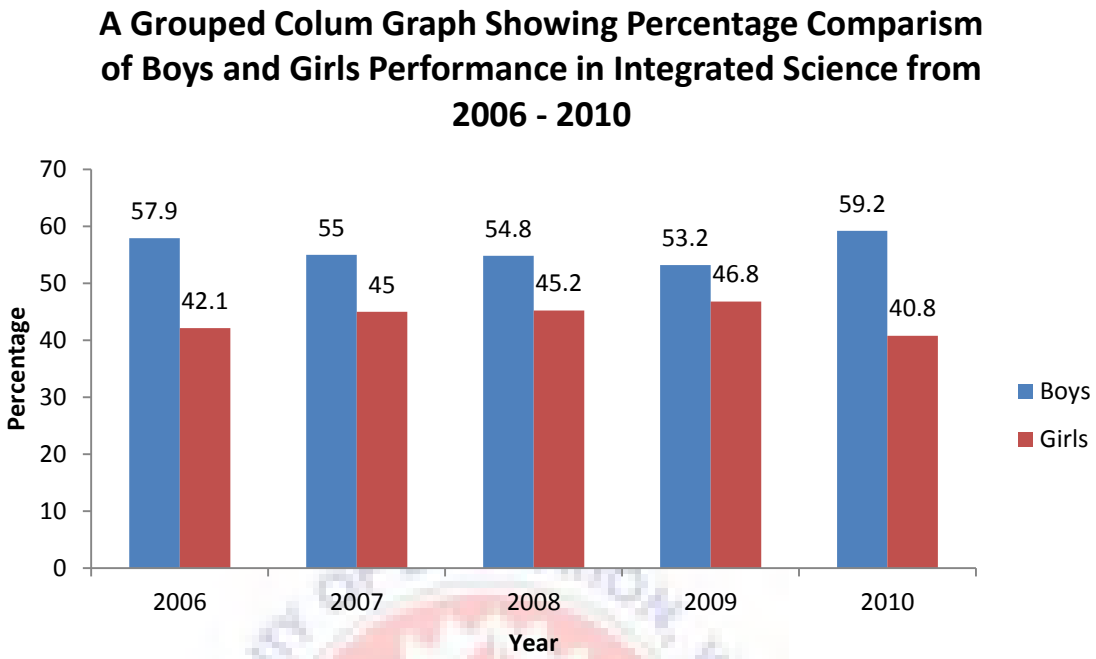


Figure 2: Percentage Comparism of Boys and Girls Performance in Integrated Science from 2006-2010

It is clear from Table 2 and its corresponding graph that boys performed relatively better than girls in integrated science from 2006 – 2010. A number of reasons were given by some key informants. Dominant among the reasons advanced for the poor performance of the girls were; they are slow learners and find most of the concepts in integrated science to be abstract and hence difficult to comprehend.

It is also observed that percentage performance of boys decreased from 2006 to 2009 and in 2010 it increased, whiles that of the girls' increased from 2006 to 2009 and decreased in 2010.

Research Question 5: How do the performance of students in rural areas compare with those in urban areas in Integrated Science at the B.E.C.E. in the Effutu Municipality?

This research question sought to compare performance of students from rural areas with those in urban areas regarding their performance in Integrated Science at the B.E.C.E. in the Effutu Municipality from 2006 – 2010. In Table 3 the results summarized in terms of numbers of candidates in each setting and their performance for each year.

Table 3: Comparism of performance between rural and urban schools in Integrated Science at the B.E.C.E in the Effutu Municipality

Year	Rural Schools		Urban Schools	
	Number of Candidates	Number of students Passing	Number of Candidates	Number of students Passing
2010	60	6 (10)	992	566 (57)
2009	92	13 (14.1)	1,116	721 (64)
2008	107	22 (20.5)	965	678 (70)
2007	70	15 (21.4)	876	712 (81)
2006	98	37 (45.46)	985	762 (75.57)

Note: Numbers in brackets are percentage

From Table 3, it is seen that schools located in the urban areas perform better than those in the rural areas. A number of factors are possibly responsible for the variance in their performance. This finding is in agreement with the findings of Etsey, Amedahe and Edjah (2004) who studied 60 schools from peri-urban (29 schools) and rural (31 schools) areas in Ghana and found out that academic performance was better in peri-urban schools than rural schools.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this Chapter, the findings of the study have been summarized and recommendations made for improvement in the performance of students in Integrated Science. It has been noted that there are problems with storage of results of B.E.C.E. coming into the Municipality. Also, officers in charge of examinations have indicated that they are overburdened with regular transportation of files containing results in and out of their houses. Analysis of results has indicated a downward trend of passes over the five years covered in this research.

5.2 Summary of Major Findings

The major findings of the study are summarized as follows:

- there exist only hard copies of B.E.C.E. results in the Effutu Municipality, most of the documents were generated from business offices outside the office owing to the frequent break down of office machines.
- The absence of security cabinets in the Municipal office exposes these vital documents (BECE results) to theft. The practice therefore is that, the officers in charge have to virtually carry such documents with them to their various homes and back to the office.

- For the past five consecutive years, there has been decreasing of trend of performance of students in Integrated Science, a major issue of concern since Integrated Science is a major requirement for further studies to Senior High School and the University.

5.3 Conclusion

The most dominating conclusion that can be drawn from the study is that the performance of candidates in Integrated Science keeps falling with every year. This has been and continues to be a major issue of concern to educationists, teachers, parents and the students, remedies need to be found to ameliorate this deteriorating performance of students in Integrated Science in the Municipality.

5.4 Implications of the Findings for Teaching and Learning

The implications of the research findings for teaching and learning are as follows:

Firstly, examination results should be made readily available and known to the teachers who handle the various subjects. This would enable them use such results to address future weaknesses in teaching and learning.

Secondly, it could be that the students find it difficult responding to examination questions in Integrated Science at the B.E.C.E. level. Pupils could be finding it difficult

understanding what is taught in integrated science at the basic level, therefore finding it difficult to respond appropriately to such examination questions.

Thirdly, there is the need to make available to current students, the performance of students in Integrated Science at the B.E.C.E. level. This would inform them about the need to give special attention to this subject area so that they would not fail in Integrated Science when they take the examination.

Fourthly, an in-depth analysis of results by experts and the dissemination of such results to inform policy is one sure way of addressing this problem.

5.5 Recommendations

Based on the findings of the research, the following recommendations are being proffered:

- The Ghana Education Service should provide all Municipal Education Offices with cabinets fitted with locks to safeguard important documents like BECE results from theft

- It is also recommended that Municipal Education Offices are furnished with modern computers with its corresponding accessories by the Ghana Education Service or any philanthropic body to enable the office have access to not only hard copy but also soft copies of importance official documents like BECE results rather than resorting to commercial business centers.

- Special awards in the form of scholarships to senior high school should be instituted in the Municipality for candidates who are able to pass all subjects including integrated science. This kind of award would be a good booster for candidates to strive hard to perform better in integrated science.

- The Ghana Education Service should provide enough teaching and learning materials for Integrated Science to enhance students understanding of Integrated Science concept. There should be regular in-service training for science teachers to refresh and upgrade their knowledge for effective teaching of science.

REFERENCES

Adebowale, O.F. & Alao, K.A. (2008). Continuous assessment policy implementation in selected local government areas of Ondo state (Nigeria): Implications for a successful implementation of the UBE program. *KEDI Journal of Educational Policy, 5* (1), pp. 3-18. Retrieved August 5, 2008 from: http://eng.kedi.re.kr/07_journal/arc_main.php

Ader, J. (2008). Advising on Research Methods. Netherland: Centraal Boekhuis

Agyemang, D. K. (1993). Sociology of education for African students. Accra: Black Mask Ltd.

Anamuah-Mensah, J. (2003) Winneba University Boss Laments Fallen Education Standards, Ghana News Agency, 18 December 2003, Takoradi.

Antwi, M. K. (1991b) Teacher Education and Training in a Comparative Setting. Journal of the Institute of Education, University of Cape Coast, 2, 1, 9-14.

Asiedu-Akrofi, K. (1978). School organisation in modern Africa. Tema : Ghana Publishing Corporation.

Ausubel, D. P. (1973). The psychology of meaningful verbal learning. New York, NY: Harvard University Press.

Bame, K. N. (1991) Teacher Motivation and Retention in Ghana. Accra: Ghana Universities Press.

Butler, J. A. (1987) *Homework*, accessed at http://www.nwrel.org/scpd/sirs/1/cu1.html

Broom, L. (1973). Sociology: A text with adopted reading (4th ed.). New York: Harper and Row.

Chifwepa,V. (2001). *Managing records at school level*. Retrieved December 5, 2008 from: http://www.adeanet.org/adeaPortal/adea/downloadcenter/NESIS/E-records-021065.pdf

Cohen, D & Crabtree, B. (2006). *Qualitative research guidelines project.* http://www.quarlres.org/HomeSemi-3629.html.

CRIQPEG (1995) Centre for Research into Improving the Quality of Primary Education in Ghana. Phase 2 Report. Ghana: UCC/ILP.

Churchill, G. A. Jr. (1965). A structural equation investigation of the pay satisfaction-valence relationship among salespeople. *Journal of marketing research*, *46*, 114– 24.

Etsey, Y. K. A., Amedahe, F. K. & Edjah, K (2004). Do private primary schools perform better than public schools in Ghana? Unpublished paper. Department of Educational Foundations, University of Cape Coast, Cape Coast

Fullan, M. G. (1991) Productive Educational Change. East Sussex: Falmer Press.

Gay, L. R. (1996). Educational research: Competencies for analysis and application. Upper Saddle River, NJ: Prentice Hall, Inc

Gyasi, E. (2003) Professor expresses concern about standard of English. Accra, Ghana News Agency, 6 July 2003.

Hrach, D. (2006.) *Record keeping and confidentiality for ABLE administrators.* Retrieved on July 10, 2008 from: http://www.pde.state.pa.us/able/lib/able/fieldnotes06/fn06records.pdf

Instructional Assessment Resources,(IAR) (2007). Reporting exam results. Retrieved November 04,2011 from http://www.utexas.edu/academic/ctl/assessment/iar/students/reports/exams.php

Karikari-Ababio, M. (2003) GES Records Significant Improvement. Accra, Ghana News Agency, 23 December 2003.

King, N. (1994). The qualitative research interview. In C. Cassell & G. Symon (Eds.), Qualitative methods in organisational research: A practical guide. London: Sage.

Konadu, D. A. (1998) Improving the Deployment of Teachers: The Ghanaian Experience. Paris: UNESCO, International Institute for Educational Planning.

Kraft, R. J. (1994). Teaching and learning in Ghana. Boulder, CO: Mitchell Group.

Kvale, S. (1996). Interviews: An introduction to qualitative research interviewing. Thousand Oaks, CA: Sage.

Lockheed, M. et. al. (1991). Improving education. Education Review, 16 (3), 303-311.

MOE (1995) Basic Education Sector Assessment School Review: Curriculum Instruction and Teacher Training Colleges. Accra, Ghana: Ministry of Education.

MOE (1997) The Policy Review Document of the 1997 Education Review Committee. Accra, Ghana: Ministry of Education.

Neagley, R. l., & Evans, N. D. (1970). Handbook for effective supervision of instruction. Englewood Cliffs, NY: Prentice-Hall Inc.

Oduolowu, E. A. (2007). A comparison of the Universal Basic Education (UBE) Programme in Nigeriaand the Grundskola of Sweden. *Essays in Education, 20.*

Pryor, J. & Stuart, J. (1997) Development and underdevelopment in teacher education – African perspectives, in A. Hudson and D. Lambert (eds) Exploring Futures in Initial Teacher Education. Bedford Papers. London: Institute of Education, University of London.

Robson, C. (2002). *Real world research: A resource for social scientists and practitioner researchers* (2nd ed.) Malden, MA: Blackwell Publishers.

Summerhill, W.R. & Taylor, C.L. (1992) Writing questions for mail questionnaires. Gainesville, FL: University of Florida, Florida Cooperative Extension Service. Retrieved 8 April, 2012 from http://edis.ifas.ufl.edu/pdffiles

USAID/MOE (1996) Consultancy to USAID in Support of The Ghana MOE Sector Improvement Programme: Primary Textbook Development in Ghana. Accra, Ghana.

Young, B. I. (1988). Teacher job satisfaction: A study of the overall job satisfaction and work facet of K – 8 teachers. Dissertation Abstracts International (DAI) 49 (7)

Webster, M. (1985). Webster`s nith new collegiate dictionary. Meriam - Webster Inc.

Wright, S., 1951 The genetical structure of populations. Annals of Eugenics **15:** 323-354

APPENDIX A

UNIVERSITY OF EDUCATION, WINNEBA
DEPARTMENT OF SCIENCE EDUCATION, S/CAMPUS
P. O. BOX 25, WINNEBA - TEL. NO. 03323 - 20108

Our Ref. No. SD/M.ED/Vol.1/87
Your Ref. No. September 3, 2011

The Municipal Director
Effutu Municipal Education Office
Winneba – Central Region

Dear Sir,

INTRODUCTORY LETTER

The bearer of this note Mr. John Sam is a Master of Science Education student in the Department of Science Education, University of Education, Winneba. He is undertaking a research on the topic **"Analysis of the Basic Education Certificate Examination results in Integrated Science."**

I will appreciate it if you would kindly assist him with this investigation which forms part of his fulfilment of academic work.

I count on your co-operation for a successful thesis write-up.

Thank you.

Yours faithfully,

Angela D. Nyarko-Tetteh(Mrs.)
For: Ag. Head of Department

APPENDIX B

UNIVERSITY OF EDUCATION, WINNEBA
DEPARTMENT OF SCIENCE EDUCATION
INTERVIEW GUIDE FOR DISTRICT DIRECTOR OF EDUCATION & ASSISTANT DIRECTOR OF SUPERVISION

Research Interview Guide on Analysis of Basic Education Certificate Examinations Results in Integrated Science of Public Junior High Schools in the Effutu Municipality . I would appreciate if you could respond to the under listed questions. Thank you.

1. What has been the performance of pupils in Integrated Science in BECE over the past years?

2. Can you readily furnish me with BECE results in Integrated Science from 2006 – 2010?

3. Do you think that pupils from rural settings are likely to perform better than their counterparts from the urban settings in Integrated Science? Yes [ ] No [ ]

   If yes, please give reasons?

   If no, please give reasons?

4. What reasons can be advanced for this performance trend of pupils of Junior High Schools in Integrated Science in the Municipality? ……
   ……
   ……
   ……

5. Do you have any suggestions aimed at improving the performance of pupils of Junior High Schools in Integrated Science at the BECE level in the Municipality?.....
   ……
   ……
   ……
   ……

APPENDIX C

UNIVERSITY OF EDUCATION, WINNEBA
DEPARTMENT OF SCIENCE EDUCATION
FOCUS GROUP DISCUSSION GUIDE FOR EXAMINATION OFFICER AND STATISTICAL OFFICER

Focus Group Discussion Guide on Analysis of Basic Education Certificate Examinations Results in Integrated Science of Public Junior High Schools in the Effutu Municipality . I would appreciate if you could respond to the under listed questions. Thank you.

1. Can you readily furnish me with Integrated Science Results of Public Junior High School pupils in the Municipality from 2006 to 2010?

2. In what form are these results kept?

3. Are these results readily available to the respective teachers of the various subjects at the Junior High School level?

4. What reasons can you put forward as being responsible for the trend of performance of pupils in Integrated Science in BECE from 2006 to 2010?

6. Do you think that pupils from rural settings are likely to perform better than their counterparts from the urban settings in Integrated Science? Yes [ ] No [ ]

   If yes, please give reasons?

   If no, please give reasons?

7. Do you have any suggestions aimed at improving the performance of pupils of Junior High Schools in Integrated Science at the BECE level in the Municipality?