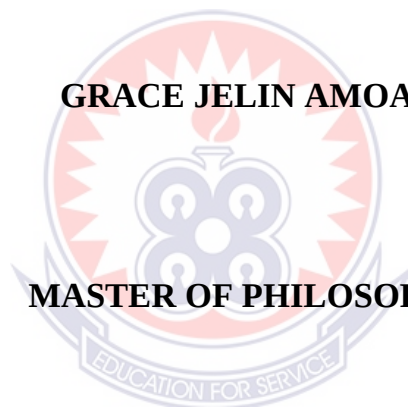


UNIVERSITY OF EDUCATION, WINNEBA

**School infrastructure and learners' learning in selected public basic schools
in the Effutu Municipality**

GRACE JELIN AMOAH

MASTER OF PHILOSOPHY



2024

UNIVERSITY OF EDUCATION, WINNEBA

**SCHOOL INFRASTRUCTURE AND LEARNERS' LEARNING IN
SELECTED PUBLIC BASIC SCHOOLS IN THE EFFUTU MUNICIPALITY**



**GRACE JELIN AMOAH
(8180210025)**

**A thesis in the Department of Educational Administration and
Management, School of Education and Life-Long Learning, submitted to the
School of Graduate Studies, in partial fulfillment
of the requirements for the award of the degree of
Master of Philosophy
(Educational Administration and Management)
in the University of Education, Winneba**

JUNE, 2024

DECLARATION

Student's Declaration

I, Grace Jelin Amoah hereby declare that this research, with the exception of quotations and references contained in published works, which have been duly identified and acknowledged has not been submitted either in part or whole for another degree elsewhere.

Signature:

Date:

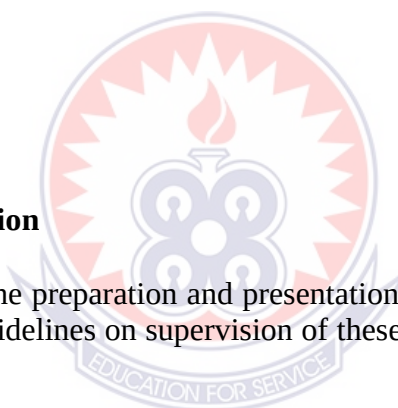
Supervisor's Declaration

I hereby declare that, the preparation and presentation of the thesis was supervised in accordance with the guidelines on supervision of these laid down by the University of Education Winneba.

Name of Supervisor: Prof. Kwame Odei-Tettey

Signature:

Date:



DEDICATION

To my dear husband Mr Christian Collins Brew and my children Nathan Ceece Brew and Alicia Becky Brew.



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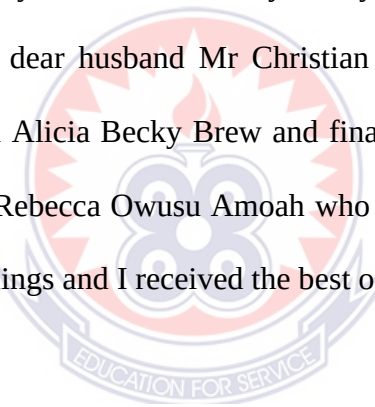


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GLOSSARY

ADP	Accelerated development Programme
BECE	Basic Education Certificate Education
CDD	Centre for Democratic Development
CG	Capitation Grants
DANIDA	Danish International Development Agency
DEOC	District Education Oversight Committee
DFID	Department for International Development
DFID	Department for International Development
ERP	Economic Recovery Programmes
ESP	Education Strategic Plan
EU	European Union
FCUBE	Free Compulsory Universal Basic Education
GER	Gross-Enrolment Ratio
GET Fund	Ghana Education Trust Fund
ICT	Information Communication Technology
MDGs	Millennium Development Goals
NSC	New structure and content of education
PA	Parent Association
SAP	Structural Adjustment Programmes
SIDA	Swedish International Development Agency
SMC	School Management Committee
SPIP	School performance improvement plan
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WB	World Bank
WSDP	Whole School Development Programme

ABSTRACT

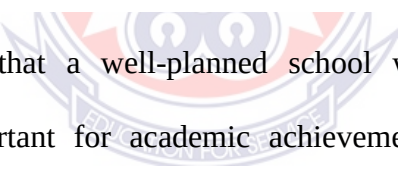
This study sought to assess the extent school infrastructure influence learning of learners in selected basic schools of the Ewutu Effutu municipality. The study was structured basically within the framework of qualitative approach and employed the case study research design. Three instruments namely interview guide, focus group interview schedule and observation check list were used to gather primary information from the Participants. The population of the study included Junior High School Heads, teachers, learners and an officer from the Effutu municipal assembly. The fifteen Participants were selected through non-probability sampling methods (purposive and convenience sampling techniques) for the study. Data was analysed through thematic procedure based on the themes arrived at during the data collection. The major findings include the fact that the state of school infrastructure in some of the public basic schools is nothing to write home about, this implies that the facilities are in deplorable state whiles essential teaching and learning materials are unavailable and inadequate for teachers and learners to learn and practice with. The study revealed that even though learners are motivated to learn in the midst of infrastructure deficit, none the less hope to get access to essential infrastructure to enhance their learning. The authorities in charge of proving the requisite infrastructure to schools for effective teaching and learning do not respond to their needs as expected. The indication is that the funds are not readily available to them to enable the provision of facilities for learning and also certain facilities are unavailable due to the initial design of school construction. As a result schools are permitted to solicit for help from benevolent individuals by the authorities to sponsor school projects and provide essential materials for studying. It was observed that school's infrastructure maintenance was not that good due to lack of internal generated funds, a major factor is the poor functioning of the school management committee. Even though the PA is trying to gather the help they can to help the schools, it is just up to some few devoted members. It is therefore recommended that the District Education Directorate and the District Assembly should provide adequate School infrastructure to enhance effective studies. Government interventions (through Ministry of Education) in basic schools like building facilities, capitation grant, free textbooks and furniture to schools should be properly coordinated and centralized at the District level to reduce the shift time for their delivery to the intended beneficiary basic schools. The building designs for basic schools must be revised to include all the relevant facilities required for effective teaching and learning.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Education is a catalyst to development and a critical area of attention. Apart from the obvious need to generate income, particularly in the era of economic reform and the pressure that national discipline imposes on various sectors of the population, it is an indicator of status, an avenue for advancement and empowerment as well as where and how priorities are indicated for actions (Wedam, Yaw, Quansah & Debrah, 2015). A good Infrastructure facility always supported the educational enterprise. Research had shown that clean and good air quality, good light, a small, comfortable, safe environment, building age and condition, quality of maintenance, temperature, and colour, could affect student health, safety as well as a sense of self and psychological state.



Research has shown that a well-planned school with clean and safe learning environment are important for academic achievement (Cash 1993, Earthman & Lemaster 1996). Physical facilities play a key role in the attainment of the school's intended objectives and overall quality performance. It may be a fact that dilapidated; crowded or uncomfortable school infrastructure leads to low morale among the students, teachers and the parents. This leads to the drop in achievement when school facilities are inadequate. In Africa, the major headache over the years has always been how to provide accessible, equitable and affordable education to all school going children in deference of their location, gender, social and economic status; a problem that has always been attributed to lack of resources and capacity (Wedam, Asante & Debrah, 2014). In the 1980's, Ghana embarked on a public administration reform

aimed at decentralizing and restructuring the system of public and political administration as well as governance and development. This took the form of de-concentration, devolution and delegation of political power. The genesis of these reforms emerged after the Provisional National Defence Council (PNDC) a military government which took office in 1981 released its first major policy strategy known as “PNDC Policy Guidelines” in 1982.

According to Seker (2013) there are many factors such as teacher behaviours, school rules, classroom environment, student’s family, the student himself/herself, teaching process, exams taken and evaluation processes thought to be influential on attitudes towards school (Seker, 2013). Policymakers should be concerned about the relationship between school Infrastructure facilities and student learning and achievement, not only because of health, security, and psychological issues, but also because the failure to create and maintain optimum learning environments can undermine other efforts to reform education (Vendiver, 2011).

There is no denying how significant a school is in shaping up a student’s personality and holistic learning process. Like an experienced teacher and teaching pedagogy play a critical role in shaping students’ academic lives, infrastructure is also vital. It creates a favourable environment for students’ holistic development. It’s a common knowledge that every parent wants to spend money where their kids feel safe and secure while learning and enjoying their student life. They wish to ensure the schools have ample safety standards and facilities to make learning a joy. There are studies suggesting students in schools with poor infrastructure can have lower scores than those with access to better infrastructure facilities. This makes school infrastructure a key element in a child’s academic as well as holistic growth.

Many researchers such as Harner (1974), Earthman (2002), Buckley, Schneider, & Shang (2004), Boese & Shaw (2005), Revathy Kumar & Johnston, Duran-Narucki, Blincoc (2008), explained those good learning environments are important for students' academic achievement (Earthman, 2002). Schools with better building conditions have up to 14 percent lower student suspension rates (Boese & Shaw, 2005). Improving a school's "Overall Compliance Rating" to meet health and safety standards can lead to a 36-point increase in California Academic Performance Index scores (Buckley, Schneider, & Shang, 2004). Substandard physical environments are strongly associated with truancy and other behaviour problems with students (Revathy Kumar & Johnston, 2008). Lower student attendance led to lower scores on standardized tests in English language arts and math (Duran-Narucki, 2008). Students' reading speed, comprehension, and mathematics performance are adversely affected by room temperatures above 74 degrees (Harner, 1974). Student achievement scores tend to decrease as the school building ages to as high as 9 percent, depending on maintenance factors (Blincoc, 2008). Studies indicate that student performance is improved by an even distribution of daylight, an expansive view, and limited glare and thermal heat gain (Boyce, 2004).

Despite the reforms and new policies enacted by past and present governments, disparity in educational quality and access has persisted. A good Infrastructure facility always supported the educational enterprise. Research had shown that clean and good air quality, good light, a small, comfortable, safe environment, building age and condition, quality of maintenance, temperature, and colour, could affect student health, safety as well as a sense of self and psychological state. In response to this gap, and to meet the Millennium Development Goals (MDGs) in education, in 1995 the

Government committed to providing Free Compulsory Universal Basic Education (FCUBE) by 2005.

FCUBE introduced a restructured educational system consisting of 11 years of training, in three segments: two years of kindergarten, six years of primary school (Grades 1 - 6) and three years of junior high school (JHS 1 - 3). The ambitious aims of the new policy were: to eliminate school tuition fees on primary education, thereby increasing enrolments; to initiate a broad school feeding program; and to achieve gender parity by increasing girls' enrolment. But because the Government disbursements are made irregularly, parents are required to pay mandatory supplementary fees, in the form of PTA dues used to pay for school repairs, cultural activities and school sports. Because many low-income families could not afford these fees and were therefore unable to send their children to school, as of 2003, 40 percent of children aged 6 -11 remained out of school (UNICEF, 2007). In 2004, the government produced a white paper on education reform, to correct the shortcomings of the earlier policy.

Educational infrastructure encompasses the physical and digital facilities that support teaching and learning. This includes classrooms, libraries, laboratories, water, sanitation, electricity and waste management logistics, and to "school materials" as, textbooks, desks and chalkboards. The quality of school infrastructure and materials has the potential to affect greatly the quality of education provided to students. Schools lacking enough desks, textbooks, libraries, science labs and audio-visual aids clearly jeopardize students' future success by undermining teacher effectiveness.

1.2 Statement of the problem

Having a better shared understanding of how the design of school infrastructure affects educational outcomes is very useful for those doing education sector work (Barrett, Treves, Shmis & Ambasz, 2019). Education and infrastructure are key explanatory factors underpinning the economic development process. Education helps to increase the stock of human capital and investment in infrastructure expands the stock of public capital. Together, both have the potential to increase productivity and personal income (Fullerton, Jr., et al 2015). Most students go to school to learn but the schools they find themselves in do not have the basic facilities needed to promote the learning of the students. Most often than not, the facilities are seen to be the classrooms they find themselves in and studying, but there are other infrastructure elements like libraries, laboratories and teaching and learning resources that enhance students' attendance and performance in school aside the classrooms. When learners are given the opportunity to choose between schools that are well equipped to less equipped, the preference is always that of a well-furnished school.

Sullivan, Perry and McConney (2014) presented the findings that regardless of where the building is situated, most students believe that schooling is worthwhile, and report positive relationships with their teachers. Deficit in infrastructure seems to affect the motivation of children of school going age to attend school for collative teaching and learning to take place. Perceptions of classroom disciplinary climate vary more across school communities, however, with students reporting less positive disciplinary climate in rural communities than in very large cities. Principals' perceptions of teacher and student behaviour related to school climate varied; with urban schools having much more positive results than schools in towns and rural communities.

Many studies have been done on primary and secondary education. For example, a study by Siringi (2009) assessed the basic standards of health and inspection; Stephen et al (2008) assessed development of new programs and expanded intake in school. Mokaya (2013) on the other hand assessed the effects of participation in competitive sports on academic performance on secondary schools students in Nairobi Province. Performance in public secondary schools depends on a lot of factors that occur in collaboration, Mokaya, (2013) included the planning of school infrastructure as classrooms, libraries, sanitation facilities and fields. In Ghana, less study has focused on school infrastructure most especially in the Central region of Ghana on learners learning. This poses a knowledge gap which this study will seek to fill. The study seeks to examine the impact these fundamental school infrastructure has on learners learning in selected public basic schools taking Effutu municipality as an area of case study.

1.3 Purpose of the study

The purpose of this study was to establish how school infrastructure determines learners' learning in selected basic schools in the Effutu Municipality of the central Region of Ghana.

1.4 Research objectives

1. To find out the state of school infrastructure in selected public basic schools in the Effutu Municipality.
2. To investigate how available school infrastructure affect learners' learning in selected public basic schools in the Effutu Municipality.
3. To find out how educational authorities contribute to the state of school infrastructure in the selected public basic schools in the Effutu Municipality.

4. To find out how well-maintained school infrastructure can enhance learners' learning in selected public basic schools in the Effutu Municipality.

1.5 Research questions

The following research questions are formulated to guide the study:

1. What is the state of School infrastructure in selected public basic schools in the Effutu Municipality?
2. How does the available school infrastructure affect learners' learning in selected public basic schools in the Effutu Municipality?
3. In what ways do educational authorities contribute to the state of School infrastructure in the selected public basic schools in the Effutu Municipality?
4. How can a well-maintained school infrastructure enhance learners' learning in the selected public basic schools in the Effutu Municipality?

1.6 Significance of the study

This study could be useful to the Ministry of Education and Ministry of Finance in formulation policies and strategies to boost development of infrastructure in the schools to increase students' access to education and disbursement of infrastructure funds to public schools in Ghana most especially the people of Effutu Municipality. The findings of this study may provide useful information for head teachers and Board of Governors (BOG) and Parents and Teachers Association (PTA) as stakeholders to know the infrastructures which affect student learning in school. The findings of this study will form a basis for further researchers who might be interested in advancing this study on the other regions of the country.

1.7 Limitation of the study

This study targeted current students and teachers in the public basic school in Effutu Municipality in the Central Region of Ghana, therefore the accuracy of the data depended on the willingness of the Participant who gave accurate information during the field work. The other limitation was that the study relied on the teachers and students' perception on the existing state on the infrastructure in their school which is a qualitative aspect and varies from one person to the others. There are possibilities the researcher only probed to the extent that the Participants allowed.

1.8 Organization of the study

This thesis is organised into five chapters. Chapter One introduces the international and national contexts of school infrastructures as well as background information on the study site. It outlines the objectives of this thesis and describes the research questions. Chapter Two examined and reviewed relevant literature in the subject matter and basic definition of the concepts of School infrastructures effects, causes and management practices. It also examined factors constrain as well as those that promote. The data collection methods and analyses are covered in the Chapter Three. The chapter also carry the profile of the Effutu district. Chapter Four contains the analysis and discussions, deductions and inferences from the data collected, while the Chapter Five covers the summary of major findings, conclusion and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter discusses the theoretical framework of the study on school infrastructure and learners' learning. The discussions are based on the four concepts beneath which are derived from the research questions of the study. They are:

- a. State of School infrastructure in public basic schools
- b. Available school infrastructure and learners' learning
- c. Educational authorities and the state of school infrastructure
- d. Enhancing learners learning through a well-maintained school infrastructure

This study employed Classical Liberty Theory. The classical liberty theory was put forward by Rousseau between 1712 and 1778 as cited by (Mokaya, 2013). The classical liberty theory is based upon principle that society should be based upon equality and opportunity as such state interventions must be made to enhance equal opportunities.

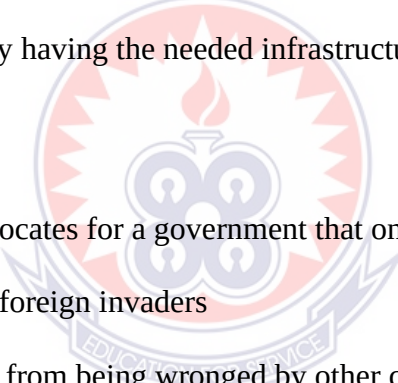
All liberals insist that from a moral point of view individuals are equal. Every human being should be treated with equal respect. In liberal societies this requirement serves as a basic and minimum standard of equality and in liberal moral philosophy as a basis of moral justification (Azam, 2016). The education institution should treat people equally by providing the needed facilities and people should take advantage of educational opportunities and perform better in their examinations (Orodho, 2004). There is, therefore, a need to ensure students from all parts of the country get the needed physical infrastructure to guarantee equal opportunities to education access which will later improve their living standards.

2.1 Theoretical framework

The classical liberty theory was used in the study and was put forward by Rousseau between 1712 and 1778. The classical liberty theory states that each person is born with a great amount of capacity. Thus educational system should be designed so as to remove barriers of any nature (institutional or infrastructural) in a person's life (Orodho, 2004). The classical liberal theory also states that social mobility will be promoted by providing equal opportunity to education access.

According to Rousseau, (the theory proponent), personality qualities should not jeopardize social equity so long as society rewards people according to their status. It follows those social institutions such as educational institutions attempting to create an enabling environment by having the needed infrastructural facilities needed to excel in academics.

Classical liberalism advocates for a government that only

- 
- a) Protects against foreign invaders
 - b) Protects citizens from being wronged by other citizens and
 - c) Provides public institutions/works that the private sector cannot profitably provide.

For the security and wellbeing of citizens or students in a school environment to be catered for, government must provide adequate protection for their citizens external aggressors using different methods that best suit their environment in order to achieve the set target of liberties being prevailed. Building of fence, school gate and other security facilities serves as a defense against invaders. Classical liberalism developed over the course of the 18th and 19th century in the United States and Britain, drawing upon enlightenment sources from the 1700s and 1800s. It was an intellectual response

to the industrial revolution and problem associated with urbanization. Among individual liberties, classical liberalism put particular emphasis on asset rights.

Some ideas of Charles Darwin (1809-1882) found their place in social science in general and political science in particular. They are “survival of the fittest”, every individual (as well as other animals) has his own ability and he should be allowed to develop that for his own survival. Nothing should be imposed on him. Liberty states that each one has great capacity thus educational institutions should remove barriers to infrastructure provision. Each student or pupil have the freedom to decide who they are going to be, where to study or school. Hence there is a need to ensure students from all part of the country get the needed physical infrastructure to guarantee equal opportunities to school from diverse geographical areas.

The society or school will be a better place to be if people or students welfare are catered for. If others enjoy better facilities than others that inequality threatens the liberty or right of other students to access equally good and needed infrastructure to promote learning. When facilities are obsolete, and neither replaced or repaired to prevent further deterioration will render students handicapped of that facility. Through education, students from lower class strata can come up and attain a high social position in a society. It assists in improving the incomes of people hence widening up social mobility. Schools must be attractive enough to compel learners to come to school and complete to achieve their goals for better future.

Quality infrastructure increases accessibility to schools allowing the population or students to reap the extensive benefits that come as a result of increase in enrollments. With the liberty given to students to feel comfortable and safe in their school environment are more likely to attend school regularly. Good school infrastructure can

motivate students and give them increased confidence, security leading to regular attendance. Absence from school could lead to academic gaps in education. Teachers and staff as well become more productive with the available good infrastructure.

Existence of recreational facilities of which many public basic schools take for granted provide students with physical activities that help reduce stress, improve social skills and strengthen their emotional wellbeing. Since education has become accessible, ensuring that schools become attractive and resourced enough for all children is very crucial so that there wouldn't be high rate of drop out which may reduce their prospects of secondary education putting their employability and independence at stake. Parents should not compromise on the quality of education of their wards for anything since schools with the needed infrastructure for learning create an atmosphere for success. School should be a second home where students are enticed to come, nurtured and trained to become proficient in the society and country at large. Classical liberalism was based on a theory of nature that saw humans as egoistic and motivated by self-interest. Classical liberals argue that society is best constituted when it allows individuals to freely pursue their self-interest.

Herbert Spencer (1820-1903) was a well-known figure of nineteenth century. His *The Man Versus the State* was published in 1884 where he argued that state intervention should be kept at minimum level. Concluding that every individual possess certain amount of natural ability and reason and should be given maximum liberty to develop it. The education institution should treat people equally by providing the needed facilities and people should take advantage of education opportunities and perform better in their studies (Orodho, 2004). There is therefore need to ensure students from

all part of the country get the needed physical infrastructure to guarantee equal opportunities to education access which will later improve their living standards.

2.2 Empirical studies on school infrastructure

Numerous studies have investigated the link between school infrastructure and academic outcomes, both globally and locally. For instance, Ntahomvukiye et al (2024) conducted a study to investigate the effect of school facilities on learners' academic performance in science subjects in secondary schools in Rutsiro district, Rwanda. The following objectives guided the study: The study aimed to investigate the impact of physical facilities and physical instructional materials on students' academic performance in science subjects in Rutsiro district secondary schools. Furthermore, it aimed to investigate the influence of electronic instructional materials on the academic performance of science students in Rutsiro district secondary schools. The study found a significant correlation between the availability of school facilities and academic performance. There were positive and significant correlations between academic performance and school facilities in Rutsiro District, Rwanda. Specifically, physical facilities motivate learners and enhance their performance. It was observed that students taught in classrooms equipped with school facilities outperformed those without access. Consequently, the study recommends that science teachers utilize available school facilities for instruction and adapt when materials are unavailable.

Michael (2019) conducted a study to determine the impact of school facilities on the academic performance on secondary school students in Kaduna state, Nigeria. The study found out that the inadequate or poor school facilities affect the academic performance of secondary school students and teachers negatively. It was further revealed that maintenance culture of available facilities was a major problem.

Otchere (2019) conducted a study to examine the relationship between school facilities and the learning environment in Oda Senior High School in the Brim Central Municipality in the Central Region of Ghana. The intent of the research was to determine how school facilities affect the students' learning environment and academic performance. The data collected used questionnaires for the students and teachers as well as interview guides for teachers and head teachers and finally observational guide was used by the researcher. The result of the data analysis findings indicated that quality and educational adequacy of educational facilities were significantly associated with student learning environment and academic performance. It was concluded that there is crises in school buildings, but a well-designed and well-maintained facility can and do make a difference in students' lives and in teachers' motivation and moral. All studies indicated that improved infrastructure facilitates better teaching practices, thereby enhancing students' academic results, but no studies has been done using a case study design to assess the extent school infrastructure influence learning of learners in selected basic schools especially in the Ewutu Effutu municipality of Winneba. This is the gap that this study seeks to fill.

2.3 State of school infrastructure in public basic schools

The discussion under this theme pertains to research question one which seeks to find out the state of School infrastructure in selected public schools in the Effutu Municipality. Education is a universal investment in human beings and a value resource for economic benefit of the country. The discussion focuses on what school facilities is about and characteristics of School infrastructure.

2.3.1 School infrastructure

It has been comprehensively understood that the infrastructure development in schools is regarded to be having a considerable influence in enabling them to achieve the desired educational objectives (Kapur, 2019). When the development of infrastructure will take place in schools, then the members would also be able to carry out their job duties in an efficient manner. Furthermore, it would lead to an increase in the enrolment of students as well. The availability of infrastructural facilities has a considerable impact upon the school environmental conditions. These facilities are also regarded as one of the important indicators of ensuring a conducive and favourable learning environment for the students. During the past two decades, major emphasis has been paid upon programs and schemes, such as, Operation Blackboard, Sarva Shiksha Abhiyan, District Primary Education Program and so forth. These programs and schemes have the major objective of enabling the students to recognize the significance of education and encouraging their participation (Govinda & Bandyopadhyay, 2008).

Education infrastructure includes, suitable spaces to learn. This is one of the most basic elements necessary to ensure access to education. School classrooms are the most common place in which structured learning takes place with groups of children. While learning also takes place in a variety of different types of spaces tents, temporary shelters, plastic sheeting, shade of trees, places of worship, people's homes, and so on families and communities expect formal education to take place in classrooms that have been designed for safety and comfort.

Sanoff (2001) in his research on school building assessment methods, he says that school buildings had an impact on the mental development of a student, he explains that schools that are properly built and attractive to look at motivated the children to

stay in school and learn as well. A study by Chiriswa (2002) showed that schools that rarely perform well in national examinations cause their students to be de-motivated to work hard hence lose hope in pursuing higher education. Students from schools that perform well in national examinations have their students motivated to work hard and often focus their energies towards attaining good grade in school. Okoye and Uche (2004) stated that education is an equalizer where those who do well in schools are economically rewarded regardless of their economic background while those who do not do well are not rewarded. Kibui (2001) commented that education throughout the world has for many centuries emphasized a selective function regardless of available infrastructure in schools. A number of studies have shown that many school "systems, particularly those in urban and high-poverty areas, are plagued by poor planned infrastructures, decaying buildings that threaten the health, safety, and learning opportunities of students. Good facilities appear to be an important precondition for student learning, provided that other conditions are present that support a strong academic program in the school. "Learning environment" is a term used liberally in educational discourse because of the emerging use of information technologies for educational purposes on the one hand, and the constructivist concept of knowledge and learning on the other (Mononen-Aaltonen, 2008). The concept of the physical learning environment with respect to physical structures relates to spaces, equipment and tools in the school.

According to Govinda & Bandyopadhyay, (2008), some of the attributes of adequate infrastructure are:

- a) Sufficient space per child, usually guided by standards set by a country's Ministry of Education
- b) Sufficient space for 30-40 children per classroom, to permit efficient use of teachers
- c) Construction methods that ensure the safety of children in school, suited to natural hazards of the region
- d) Adequate separate sanitary facilities for boys and girls and for staff
- e) Increasingly, electricity and Internet connectivity

2.3.2 Characteristics of infrastructure

When acquiring an understanding of characteristics of infrastructure, emphasis is put upon the factors regarding how the infrastructural facilities prove to be advantageous in facilitating the achievement of educational goals. Furthermore, it needs to be identified how the members of the schools are able to make effective use of them in carrying out their job duties in an appropriate manner. The characteristics of infrastructure have been stated as follows:

a. Indispensable

The infrastructural facilities within schools are indispensable. Without the provision of adequate infrastructure, the members, who are employed in schools or the students will not feel pleasurable and contented in the implementation of their job duties. These facilities are essential, but they are not necessarily productive. These facilities are required to get engaged in any kinds of productive activities. It is essential for the schools to adequately plan their financial resources to make improvements in

infrastructure. In urban communities, there are number of schools, which are well-developed and possess adequate infrastructural facilities. These schools possess financial resources, so they can bring about improvements in existing infrastructure, as well as bring in new infrastructure. On the other hand, in rural communities, schools are still deficient regarding infrastructural facilities. As a consequence, there has been a decline in the rate of enrolment of students and individuals also do not develop an interest in finding employment opportunities in schools, particularly, where there is lack of infrastructural facilities. Therefore, it is essential to formulate programmes and schemes to promote improvements in existing infrastructural facilities and bring about new infrastructure in schools in urban as well as in rural communities. Hence, it is regarded as indispensable in the achievement of academic goals.

b. Pre-requisites of development

Overhead facilities are normally created ahead of demand. Because of the widespread requirement of infrastructural facilities, they are considered as necessary pre-requisites of development. The expansion of productive activities is unlikely to take place, beyond a level, without these services. Therefore, it is vital to expand these facilities, irrespective of the pattern of demand and present extend. Once the infrastructural facilities have been created, the members of the schools need to ensure that they make operative use of them. When schools are spending financial resources and make use of skills and abilities to promote developments in infrastructure, it is vital for them to ensure that they make use of them, for promoting well-being and goodwill of the students and other members. Moreover, infrastructure services by their nature have a long gestation period. In some cases, it may take longer period of time, especially when construction takes place, of school buildings, libraries, computer centres and so forth. Whereas, in some cases, it may take a shorter period of time, such as, in case of bringing

about technologies, materials and equipment. Once completed, the services of the infrastructural facilities are utilized for long period of time, provided, they should be maintained well.

c. Development of skills and abilities

In order to make provision of adequate infrastructural facilities in schools, it is necessary for the individuals to develop the essential skills and abilities. The development of skills and abilities are primarily essential in the case of usage of technologies, equipment, materials and tools. Within schools, there are organization of training and development programs, workshops, and seminars, which are attended by all the members of the schools, teachers, staff members, and students. Within these programs, usually, professionals and experts are invited from outside as well to give speeches and presentations. With the acquisition of knowledge, individuals are able to obtain satisfactory information regarding the development of skills and abilities, especially in terms of infrastructural facilities. Research has indicated that schools are regarded as second homes. The individuals begin their learning by getting enrolled in schools. Hence, within schools, when there are availability of proper infrastructural facilities, then individuals develop motivation towards the implementation of tasks and activities. It is vital for the teachers to develop adequate skills and abilities particularly, regarding technologies, materials, equipment and curriculum and instructional methods. Through the development of these skills, they are able to satisfactorily promote student learning. When teachers acquire adequate knowledge regarding reading materials and books, they are able to effectually promote student learning.

d. Education and personality development

The primary objectives of schools are promoting effective growth and development of the students and enriching their personality. The students get enrolled in educational institutions to learn, so they are able to not only sustain their living conditions well, but also render an effectual contribution in promoting well-being of the community and nation. Personality development is regarded as an important factor within the lives of every individual. Through the acquisition of education, one is able to bring about improvements in the personality traits. Whereas, one can acquire good-quality education, when there are provision of adequate infrastructural facilities. Therefore, it can be stated that there is a strong interrelation between development of infrastructural facilities, education and personality development. The progression of human beings is regarded as an essential aspect for the development of any community or nation. To promote the development of human beings, it is essential for the individuals to put emphasis upon social infrastructure. Social infrastructure is the infrastructure, which inculcates the knowledge and information among individuals to bring about improvements in their communication skills. It is of utmost significance for all the members of the schools to put emphasis upon bringing about improvements in communication skills. To carry out one's job duties in a well-organized manner, it is vital to establish appropriate communication skills.

e. Sustenance of better livelihoods

The development of infrastructure renders a significant contribution in enabling the individuals to sustain better livelihoods opportunities. When a person is educated, then he is able to generate awareness in terms of various aspects, and carry out various tasks and activities within as well as outside the home in an appropriate manner. There are number of factors, which cause barriers within the course of the acquisition of

education. These include financial problems, transportation problems, learning disabilities, lack of infrastructural facilities in schools, lack of extra-curricular and creative activities, inadequate teaching-learning methods, insufficient teaching-learning materials, strict attitude of the teachers, lack of interest in studies and discouraging attitude on the part of the parents. But it is essential for the individuals to possess the basic literacy skills of reading, writing and numeracy. With the possession of these skills, they are able to meet livelihoods opportunities in a satisfactory manner. In some schools, usually after school hours, there are organization of classes for children, belonging to poverty stricken, deprived and economically weaker sections of the society. Therefore, with the provision of adequate infrastructural facilities, individuals are able to implement social work activities. Hence, members of the schools need to pay attention towards making provision of adequate infrastructural facilities

2.4 Available school infrastructure and learners' learning

The discussion under this theme pertains to research question two which seeks to investigate how available school infrastructure affect learners' learning in selected basic schools. School buildings have control on the mental development of a student, schools that are well built and attractive to look at motivated the children to stay in school and learn as well. The issue of concern is how these infrastructures control learners learning.

2.4.1 Significance of infrastructure

According to Kapur (2015), the concept of infrastructure has been used on a comprehensive scale, not only in terms of educational institutions, but regarding organizations, public places, communities and country as a whole. The individuals are paying adequate attention towards the development of infrastructure. Through the

adequate development of infrastructure, the members of the schools are able to benefit in numerous ways. These are, they are able to perform their job duties in a well-organized manner, become motivated towards learning and implementation of job duties, the environmental conditions within the offices, classrooms and other areas within the school become comfortable for the implementation of tasks and functions, the individuals feel pleasurable and contented within the school environment and they are able to work effectively towards the achievement of personal and professional objectives. Therefore, taking these aspects into consideration, it is vital for the individuals to adequately plan financial resources to bring about the existence of certain school facilities.

With the availability of proper infrastructural facilities in schools, the members will be able to carry out their job duties in a well-organized manner. The staff members usually make use of computers, technology, and need proper furniture, equipment and materials in their offices to implement their job duties effectually. Whereas, when there are proper infrastructural facilities within the classrooms, then the teachers too are able to carry out their job duties effectually. They would be able to render an indispensable contribution in the impartment of academic concepts to the students and promote their growth and development. Furthermore, there will be an increase in the enrolment of students in schools. The students would be able to concentrate efficiently upon learning and take pleasure in attending schools. With the provision of basketball courts, tennis courts, swimming pool, playgrounds and other sports facilities, the students will be able to achieve their academic goals and objectives.

The Sarva Shiksha Abhiyan (SSA) was launched by the Government of India. It is primarily meant for promoting increase in the infrastructural facilities up to the elementary education for development and causing an increase in the literacy rate. The availability of infrastructural facilities within schools is of major significance. When the schools will make provision of adequate infrastructural facilities, then developments would take place in the overall learning environmental conditions. Good infrastructure is truly regarded as the base for good-quality education. The members of the schools need to ensure that they make appropriate decisions with regards to promotion of infrastructural facilities. The major decisions need to be taken regarding the use of financial resources. The availability of financial resources are regarded as the major factors in the promotion of infrastructural facilities (Kapur, 2019).

With the introduction of powerful and high-speed computers and proficient techniques for the management and development of infrastructure have advanced with the use of geo-informatics technology. The geo-informatics technology is of great significance. It is regarded to render a significant contribution in the development of school infrastructure. In schools, an attempt has been made for broad-mapping and analysis of the existing infrastructures (Kapur, 2019). When the analysis was conducted, then areas were taken into account in which improvements were required. For instance, research has indicated that in some schools, the teaching-learning methods are not put into practice in an appropriate manner. Due to this, the students are experiencing problems in efficiently understanding the academic concepts. Hence, it is vital to bring about improvements in teaching-learning methods and instructional strategies.

2.4.2 Impact of adequacy of classrooms on teaching and learning delivery

The number and size of classroom available has a bearing on the efficiency of teaching and learning. All things being equal, spacious classrooms give learners the opportunity to be comfortable, smart and promotes conducive learning (Ferguson, 1991). School with small classroom turn to be congested. Quiet apart from that, inadequate number of classrooms may have implied higher-class size, a situation Wenglinsky, (1997) and Wenglinsky, (2002), noted affects test scores of students. When class size is large, teachers are not able to give enough exercises, may not be able to control the class and below average learners may also suffer in the teaching and learning process.

2.4.3 Impact of infrastructure on teaching and learning in Ghana

Research has highlighted that, there is a relationship between learning outcomes and availability of educational facilities. Therefore, the quality of learning facilities available within an educational institution has positive relationship with the quality of teaching and learning activities (Olutola, 1989; Durosaro, 1998). The availability of the school buildings and furniture will determine how decongested a classroom situation may be and how well teachers may be able to deliver instructional task (Aveni & Adelabu, 2012).

2.4.4 Educational infrastructural location and teaching and learning delivery

The development of learners is best achieved if factors that may distract them are eliminated. Educational researchers posit that, the entire development of the learners in the mental, emotional and psychomotor domains of learning are best achieved in an environment that is conducive to teaching and learning. Leiringer & Cardellino (2011) noted that the degree to which a school is designed should be based on the support it offers the school's approach to teaching and learning. These conducive environments

that are pre-requisites include for example, the provision of adequate and appropriate school physical facilities. Among the physical facilities is the location of the school. Even though, it is advocated that, the school should be geographically accessible, it should be devoid of noise such as markets sites, highways views, lorry parks, industries, refuse site and other known pollutants (Ogundare, 1999).

Corroborating the above suggestion, Earthman & Lemasters (1998) reported that, learners' academic achievement is associated with levels of noise as outside noise results in increased distracts of attention. On the other hand, it has been highlighted that, aside learners being affected by noise, teachers are also hugely affected. Studies by Lackney, (1999) reported that, noise in the classroom impairs academic performance as it causes discomfort and reduces the teaching delivery. The atmosphere of the school should inspire, arouse and strengthen learners' attendance in school. The comfortability of the classrooms, temperature and nonexistence of noise may have positive influence on teachers' effectiveness and learners' academic performance.

2.4.5 Infrastructural availability and teachers output

Every act of learning stimulates response. Whether or not the person can respond to the expected outcome of what is taught may partly depend on the level of infrastructure available. All things being equal, it is expected that, a good environment fortifies the efforts of instructors through the provision of good incentive for active teaching and learning to take place. Therefore, good school surroundings promote effective teaching and learning. For instance, enough space available in classroom setting makes it possible for teachers to go round or through the classroom to ensure that students are engrossed in teaching and learning (Hussaain, Iqbal & Akhtar, 2010).

In support of the assertion by Hussaain, Iqbal and Akhtar, (2010), Okebukola, (2002) had also identified lack of sufficient infrastructure and large classes as part of the major challenges to effective teaching and learning. Ipaye (2002), deepened the story as the researcher identified some of the causes as poor condition in the rural areas and lack of sufficient infrastructure causing teachers' apathy. Aveni & Akinola, (2008) documented that, most schools lack well equipped staffrooms and more conducive classrooms to achieve educational quality assurance. Supporting the above, Fafuwa (2010) noted that, a big gap in quality, resulting from large number of students in crowded classrooms, using insufficient and obsolete equipment and with disheartened teachers results in poor teaching and learning delivery. Moreover, Aveni and Adelabu (2012), noted that, deficiencies in learning infrastructure and environment constituted obstructions to effective classroom management, curriculum delivery and the full realisation of educational objectives in Nigeria.

2.4.6 School location and students' academic performance

According to Mbipom (2010), schools are either situated in one geographical location or the other. These geographical locations are either termed rural (remote) where modern facilities such as leisure, easy transportation, cultural heterogeneity, and multicultural population are lacking or urban (city) where there are adequate facilities such as leisure, cinema, easy transportation, cultural heterogeneity, and cosmopolitan population. Unlike the rural schools where the population is relatively small and the students know one another by name, interactions are personal. Urban dwellers live individualistic life and only relate with people they feel like relating with, without any form of permanency.

Ogili (2009) posited that the per capital income among rural people are low and there is general poverty. About 70% of the rural populations are engaged in farming at subsistence level while the urban populations are mostly civil servants, traders and artisans. The effect of nature has compelled man to either settle or dwell in an urban or rural area. This educationally implies that in the rural settlement or location there is poor accessibility to the modern educational facilities and this serves as a hindrance to the motivation of a rural child to learning.

Each environment plays a part in shaping the development of the child academically and otherwise. Accordingly, a child gets from his environment all he needed to enable him develop best. Students of urban surrounding have more opportunities to radios, educative film shows, electricity, televisions, well equipped laboratories and libraries etc that help or contribute in moulding their approaches when compared to rural location students regarding academic achievement. Effiong (2011) on his part opined that any two individuals with approximately equal intelligence but living in two separate and distinct environments may end up attaining unequal intellectual heights.

2.4.7 Schools equipment/instructional materials and students academic performance

On the issue of instructional materials, Mbipom (2010) described instructional materials as that which the teacher uses to achieve his set objectives. She further observed that lack of educational resources in our schools has been a major problem in the instructional process. She further concluded that ideally, no effective education can take place without equipment, facilities, materials etc. In her observation, a school environment that is handicapped by the non-availability of these teaching and learning facilities may strongly affect the level of students' academic performance. This implies

that learning equipment and materials have their own effects on the academic performance of the students. Instructional materials are channels through which stimuli are presented to the learner (Bassey, 2008).

Inyang-Abia (2012) identified the following categories of instructional materials, visual, prints, graphics, electronic, projectors and audio visuals, instructional materials. According to him when these materials are adequately made available for studies they will facilitate the teaching learning process, thereby increasing performance for both the students and teachers.

Egbona (2012) in his research to find out to what extent instructional materials are made available for the teaching-learning process, in Ugep educational zonal district discovered that, the most common instructional materials made available for teaching is chalkboard, cardboard, and life specimen even though his findings shows that availability of instructional materials has no significant relationship with academic performance of students, he concluded that they should be made available as they facilitate the teaching thus learning process.

In other words, Akpabio (2012) carry out a research on the topic availability and utilization of instructional and student academic performance in social studies. He formulated three hypotheses and tested them at 0.05, alpha level of significance. One of the hypotheses was tested on how availability of instructional materials relates with academic performance of students in social studies. He found out that all the three hypotheses formulated were all significant. He concluded that instructional materials should always be made available during lessons as the presence of these materials stimulates the interest of students and equally facilitates the teaching – learning process.

Etim (2011) carried out a research on the availability of instructional materials and academic performance of students in economics. He used Calabar municipality as his study area, and adopted stratified and simple random sampling for the selection of his sample. 200 students were used for the study. He discovered that most of the schools he visited did not have any instructional materials for teaching economics. The few schools that have instructional materials available perform better in the achievement test that was given. He therefore conclude that instructional materials should be made available for teaching economics as their availability will trigger the interest of both the teacher and the students.

Acha (2009) carried out a research on the availability of instructional materials and concluded that the availability of instructional materials could influence and improve students' academic performance if only the instructional materials are constantly made available in the classroom, but that if not constantly made available, may therefore have no influence on the academic performance of students. Sailors and Samat, (2014) carried out a research on the important of teaching social studies with instructional materials. He discovered the availability of instructional materials does not have any significant relationship with students' academic performance in social studies. He justified his findings by saying that instructional materials will depend on how they are used to impact knowledge on students. Laboratory has been conceptualized as a room or a building specially built for teaching by demonstration of theoretical phenomenon into practical terms.

Farombi (2008) argued the saying that seeing is believing as the effect of using laboratories in teaching and learning of science and other science related disciplines as students tend to understand and recall what they see than what they hear or were told.

Laboratory is essential to the teaching of sciences and the success of any science course is much dependent on the laboratory provision made for it.

2.4.8 Educational planning

Education is regarded as the decisive determinant leading to economic and social expansion. Research has indicated that investments made in elementary education causes an increase in productivity of all the sectors of the economy. This is carried out to a much greater extent as compared to other levels of education. The development of education depends to a large extent upon number of factors. These primarily include, the availability of infrastructural facilities in schools. School infrastructure is referred to the school buildings, playgrounds, civic amenities, libraries, laboratories, facilities and so forth. The infrastructural facilities contribute to the learning environment. Throughout the country, in most schools, the classrooms experience deficiency in terms of ventilation, heating and cooling equipment in accordance to the weather conditions, and furniture. The students were supposed to sit on the floor and as a consequence, were unable to concentrate on their studies (Kapur, 2019). Some years back, we could record schools under trees, schools with no chairs and tables in some part of the countries in Ghana.

Infrastructural provision demands huge cost. To produce good schools with good academic performance, substantial financial resource allocation from the national budget are spent. Researchers have found strong correlation between school inputs and learners' outcomes. For instance, Greewald, Hedges, & Laine, (1996) noted that, increases in spending on infrastructure are associated with effective teaching and learning as well as improved academic performance. Again, strong political commitment of government to ensure equity and universal access to education is also a

pre-requisite. School infrastructure include not only the existence of the building, but also the content or facilities in the building. These facilities are the elements of infrastructure. The elements of School infrastructure may include availability of space, ventilation, places of convenience, playing grounds, sick bays, classroom requirements such as tables and chairs, black or white boards, adequate day light), among others (Cohen & Bhatt, 2012; Aveni & Adelabu, 2012).

Governments in developing countries have noted that education provides many benefits, and so they have steadily increased their funding of education. For instance, in Latin America, public spending on education as a percent of GDP has been increased from 3.9 percent in 1995 to 4.4 percent in 2010 (World Bank, 2012). Owing to this, primary school completion rates are close to 100 percent for almost all countries in Latin America and the Caribbean, although a few countries like Nicaragua (80 percent) had slightly lower rates. This higher spending on education has been accompanied by, and almost certainly has contributed to, higher school enrolment rates. The increase in enrolment over the past two decades, particularly at the secondary level, have been quite dramatic. Other countries such as Costa Rica, Cuba, and Jamaica are spending more than 6 percent of their GDP on education. International development partners have therefore advocated for the need for greater resources to be devoted to education (OECD, 2013).

2.4.9 Types of school infrastructure

There are basic school infrastructures that schools are to have. Akash (2018) provides a check list for school infrastructures. These include:

1. Spacious and well- ventilated classrooms
2. Libraries

3. Playgrounds
4. Well-equipped labs
5. Facilities study tables, chairs, furniture and basic utilities such as water, electricity etc.
6. Study halls
7. Games equipment
8. Assembly area
9. Well-maintained sanitation facilities

The various types of infrastructural facilities in schools have been stated as follows:

a. School Buildings: School buildings should be in proper conditions. It is vital to ensure that they are not damaged. As school buildings are regarded to be of utmost significance in attracting the visitors and other individuals. When the parents make visits to schools for the admission of their children, they observe school buildings. To maintain the school buildings, it is vital for the individuals to ensure they are well-repaired and painted. When construction of school buildings takes place, it is vital to take into consideration that they are able to bear the occurrence of earthquakes. Furthermore, they should have well-constructed boundary walls. It has been researched upon that, normally individuals open nursery schools within their own homes. Hence, when establishment of schools takes place, it is vital to ensure that school buildings are constructed in an efficacious manner. Certain aspects that need to be taken into account, when constructing school buildings are, wall and roof cladding fixings to secondary and primary structure, glazing and fixings of glazing and windows, fixing of ceilings and services to structural supports and restraint of parapet walls (School Infrastructure, 2017).

b. Provision of Clean Drinking Water: Water is regarded as an essential requirement of the individuals. Normally, it has been researched upon that teachers, staff members as well as students carry their own drinking water from home. But, it is indispensable to make provision of clean drinking water within schools. The individuals normally spend about six to seven hours within schools. Apart from classroom lectures, they even get engaged in extra-curricular and creative activities. Therefore, when they have access to clean drinking water, they feel comfortable. It is also regarded as an essential requirement, particularly during the summer seasons. Summer seasons are hot and individuals prefer drinking large amounts of water. It has been observed that due to lack of clean drinking water, the individuals, not only in schools, but in other regions as well, experience unfavourable effects.

c. Provision of Restrooms: Within schools, it is essential to establish separate restrooms for boys and girls. The construction of restrooms have been given significance in not only schools in urban communities, but also rural communities. It has been observed that more than 90 percent government and private unaided schools at the primary, upper primary, secondary and higher secondary levels are providing restrooms for girls. However, the provision of restrooms are better in private unaided schools, as compared to the government schools. On the other hand, the provision of restroom facilities for the boys is much better as compared to the girls. When the construction of restrooms takes place, it is vital to ensure that there are proper amenities available, such as, clean water, paper towels, soaps etc. It has been found that there has been a decline in the enrolment of students in schools, where there is not proper provision of restroom facilities.

d. Conditions of Classrooms: The conditions of the classroom is vital to impart teaching and in facilitating the achievement of academic outcomes. Within the classrooms, it is vital to ensure that teaching-learning materials are displayed. The main objective of displaying of teaching-learning materials is to make the classrooms attractive. These are primarily related to the lesson plans and the academic concepts taught to the students. The other important aspects within the classrooms are, making provision of adequate furniture, heating and cooling equipment in accordance to the weather conditions, teaching-learning materials and technology. It has been observed that in some schools, students sit on the floor. Hence, it is vital to provide proper chairs and desks for the students. When there will be provision of cooling and heating equipment, then students will be able to concentrate well on their learning and teachers would also be able to carry out their job duties in a well-organized manner. The use of satisfactory teaching-learning materials and technologies would facilitate the achievement of academic goals.

e. Playground Facilities: In schools, the availability of playground facilities are considered important. These facilities normally vary in size. In pre-schools, mostly playground facilities are small, whereas, in formal schools, they are large. Within the playgrounds, the students get engaged in number of activities, which stimulates their mind-sets and motivate them towards learning. Sports and physical activities are vital. The training of the students regarding these activities normally takes place in playgrounds. Apart from acquiring training regarding sports and physical activities, playground facilities are meant for leisure and recreational activities as well. Furthermore, in schools, when there are organization of competitions, events, sports day or celebration of festivals, then playground facilities are regarded to be of utmost significance. It is the responsibility of the members of the schools to ensure that they

are clean and well-maintained. According to Aksah (2018), school without having a scope to play and develop sporting skills can make or mar a school's reputation in modern times. For, every child today views some or the other sports personality as his/her ideal. Be it martial arts, swimming, cricket or skating, students wish to learn something at school itself to be better than their friends in the neighbourhood. Thus, availability of sports facilities, basketball courts, tennis courts, cricket pitch, skating rink, volleyball courts and an indoor gym are currently considered to be essential parts of any modern-day School's infrastructure. This is base on the society the school find itself. In Ghana, not all the sports facilities are found in there.

Certainly it's an established fact that a school with good infrastructure goes a long way in improving the interest of both students and teachers alike in learning. It plays a role in improving the attendance of students too. For this same reason, it can be said that investments in school infrastructure play an enabling role in solving many access-related problems of students to the school system, thereby giving boost to their academic performance too.

f. Technology: The use of technology is regarded to be of utmost significance in acquiring an efficient understanding of academic concepts and achieving educational outcomes. In pre-schools as well as formal schools, major emphasis is put upon usage of technology. When the teachers as well as students make use of technology in implementation of tasks and activities, they are able to enhance their learning as well as prepare their assignments and projects in a well-organized manner. Within schools, it is essential to establish a computer centre, with the recruitment of qualified and skilled professionals. The teachers and students need to acquire efficient training regarding usage of technology. Furthermore, making provision of technology within classrooms

is also regarded to be indispensable in bringing about advancements in the teaching-learning methods. When individuals are making use of computers, laptops, projectors, tablets or mobile technologies, they need to ensure that they implement the traits of morality and ethics.

g. Library Facilities: The libraries are referred to the places, where there are availability of various materials, which are meant to acquire information and enhance the understanding of academic concepts among students. Not only the students, but teachers also make use of library facilities, when they are to prepare lesson plans, conduct research or acquire understanding of concepts. Within the libraries, the various learning materials include, books, articles, reports, projects, newspapers, and magazines and technologies. There is availability of computers and internet. The individuals make use of them to accomplish their tasks and activities. The members of the schools need to make effective decisions regarding the availability of library facilities. They need to ensure that within the libraries, apart from the availability of reading materials and technologies, there should be proper sitting arrangement, furniture, heating or cooling equipment and so forth. In other words, the environmental conditions within the libraries should be well-organized. According to Akash (2018), a well-equipped library housing a wealth of useful books or informative and interesting video facilities, coupled with a motivating or mood-lifting ambiance not only attracts students but also develops a liking to study. It encourages exploring interesting things among students, especially in their formative years when the curiosity to know is intense among curious minds of children. Such places also serve as holding interactive sessions and exchanging knowledge among students, thereby enhancing students' writing and reading skills

h. Laboratory Facilities: Within schools, there should be establishment of physics, chemistry and biology laboratories. The laboratories are primarily referred to as places, where experiments are conducted. Various equipment, tools, machines, and apparatuses are available in laboratories, related to science subjects. When the students and teachers are working in the laboratories, they need to be well-aware of various procedures and methods that are required to conduct experiments. Research has indicated that when individuals do not possess adequate knowledge and information and get engaged in conducting experiments, then they may even get prone to accidents. In laboratories, the individuals are required to make use of acids as well. Hence, it is essential for the individuals to prepare themselves well, before getting engaged in any forms of tasks and experiments within the laboratories. When the construction of laboratories takes place, it is vital for the individuals to make sure that there are provision of adequate materials, tools and equipment. Aksah (2018) is of the view that, these are the times of innovations which call for scientific temperament to be nurtured among students in their formative years. Thus, fully equipped and suitably-designed laboratories for various subjects be it physics, chemistry, biology or home science are very much the need of the hour. For is reason, this component has also gained prominence as a key component in any modern age school infrastructure's checklist. This shows that basic schools are to have mini laboratory for the practical aspect of their studies.

i.. Teaching-Learning Materials: In schools, the provision of teaching-learning materials is vital to impart information to the students regarding academic concepts. It is essential for the members, especially teachers and principals to possess adequate knowledge and information in terms of teaching-learning materials. The various forms of teaching-learning materials that are used within the classroom instruction are, books, articles, reports, projects, documents, hand-outs, computers, blackboards, models,

charts and so forth. It is vital for the teachers to make use of teaching-learning materials in accordance to the grade levels of students, learning abilities and subjects. When they are made use of, then it is vital to ensure that they prove to be beneficial to the students to a major extent. It is essential to conduct research on a regular basis in terms of modern and innovative teaching-learning materials. To enrich the system of education and to enable the achievement of academic goals, it is essential to bring about improvements in the teaching-learning materials.

j. Electricity Facility: Electricity facility is one of the important infrastructural facilities not only in schools, but in all organizations and workplaces. Through the availability of electricity facility, the individuals feel comfortable within the environmental conditions and carry out their tasks and activities in a manageable manner. Electricity facility makes provision of lighting, one is able to operate technology, make use of heating and cooling equipment, and so forth. Research has indicated that in schools and classrooms, due to lack of electricity, one is not able to concentrate on their studies and feel despondent. In the present existence, there have been formulations of measures to ensure that there is provision of electricity throughout the working day. This is facilitated by having generators and inverters. The school authorities need to pay adequate attention towards making provision of electricity in classrooms as well as offices. The reason being, technology is made use of to a major extent to carry out various tasks.

2.4.10 The impact of infrastructure on educational quality

A review of the most recent literature indicates that investments to improve school infrastructure has effects on the educational quality at least in the following three dimensions:

1. **Attendance and completion of academic cycles.** According to UNESCO, the school drop-out rate in Latin America is 17 percent, and greater in rural areas. Several studies have found that the physical conditions of school buildings positively affects school completion and cycle completion rates, and increases registration. For example, in Peru the World Bank found that investments in school facilities had a very significant positive effect on students' attendance rates.
2. **Teacher motivation.** Evidence in Bangladesh, Ecuador, India, Indonesia, Peru, and Uganda indicates that teachers in schools with good infrastructure have, on average, 10 percent less absenteeism than teachers in schools with deficient infrastructure. In fact, the study found that infrastructure had a greater effect reducing absenteeism than teacher salaries or the effect of the administrative tolerance for absences.
3. **Learning results.** Studies carried out in the United States, such as the one conducted by 21st Century School Fund in 2010, found positive results which are statistically significant between school infrastructure and standardized tests to measure learning processes in many parts of the country. With lower student socio-economic levels, the results were higher.

Hanushek (1995) found that the results of 34 studies with production functions in developing countries that analysed the relationship between school facilities and learning mostly found a positive effect. Vélez, Schiefelbein, and Valenzuela (1993) also indicate positive results between infrastructure quality and learning, based on a review of close to 70 models of functions of production carried out during 20 years in Latin America. Empiric evidence indicates that there is a direct relationship between school infrastructure and educational performance, and that investments in School infrastructure contribute to improve the quality of education and the economic performance of countries.

Rivera explains to optimize investments in education it is essential for authorities to observe the significant role of infrastructure interacting with other essential educational inputs to be able to undertake comprehensive proposals that together, improve the quality of education, thus promoting greater equality of opportunities and contribute to reduce inequalities and advance toward a real productive transformation in the region.

2.4.11 Effects of physical layout of learning infrastructure on students'

performance

Students performance can be correlated to teachers' input but school infrastructures play a major role. When the physical layout of a school is not certain, performance of students is likely to be low even though some students are exceptional. A study by Chiriswa (2002) showed that schools that rarely perform well in national examinations cause their students to be de-motivated to work hard hence lose hope in pursuing higher education. Students from schools that perform well in national examinations have their students motivated to work hard and often focus their energies towards attaining good grade in school.

Kibui (2001) commented that education throughout the world has for many centuries emphasized a selective function regardless of available infrastructure in schools. A number of studies have shown that many school "systems, particularly those in urban and high-poverty areas, are plagued by poor planned infrastructures, decaying buildings that threaten the health, safety, and learning opportunities of students. Good facilities appear to be an important precondition for student learning, provided that other conditions are present that support a strong academic program in the school. "Learning environment" is a term used liberally in educational discourse because of the emerging use of information technologies for educational purposes on the one hand, and the

constructivist concept of knowledge and learning on the other (Mononen-Aaltonen, 2008).

In a school environment, learning infrastructure includes; classrooms, laboratories and libraries. Fisher (2006) conducted research on the impact of school infrastructures on student outcomes and behaviour in Georgia and established that academic achievement improves with improved building conditions, lighting levels air quality and temperatures. He further established a correlation between school class size and student achievements. Having large classes can affect students' achievements. Mark (2002) in a study of factors affecting learners' performance in schools in Canada: maintained that one cannot expect high level of students' academic performance where school buildings are poorly located and substandard. He emphasized this well planned structures, clean, quiet, safe, comfortable and healthy environment are important components of successful teaching and learning

2.4.12 How does inadequate infrastructure act as a barrier to enrolment and participation?

Facilities may be inadequate in many ways, including being over-crowded or dangerous, lacking in adequate sanitary facilities and lacking water for hygiene. The health implications of inadequate toilets and sanitation are very serious. Girls in particular are pushed out of school if facilities are inadequate. Older primary-age girls will miss significant amounts of school or are unlikely to continue at school after they begin menstruation if sanitary facilities are poor or non-existent. Additionally, children may be turned away from school when its official enrolment capacity is reached. In some aspect of Ghana, school children have to walk miles on foot to different town to school as a result of lack of infrastructures putting the health of the school children at

risk. Most student in the farming area after this, will walk back and proceed to the farm. It makes it very difficult for them to attend to their assignments and other school activities.

Teachers who do not have apartment to stay in end up travelling from one town to the other to teach. On the other hand, their lives are at risk, they end getting to school late affecting the teaching style and lesson plan of the day which end up affecting the performance of the school children. It is vital for authorities to adequately plan financial resources to bring about improvements in the school infrastructure.

2.5 Educational authorities and the state of school infrastructure

One of the aims of the Government goal is to ensure that all the citizens acquire quality education .The specification for the establishment and requirement of physical and material resources in public schools are stipulated in the laws and policies that govern a country's education system. The discussion under this theme pertains to research question three which seeks to find out how educational authorities contribute to the state of school infrastructure in the selected public basic schools in the Effutu Municipality.

2.5.1 Financial Resources & free basic education

Major decisions need to be taken regarding the use of financial resources. The availability of financial resources are regarded as the major factors in the promotion of infrastructural facilities (Kapur, 2019). Financial resource is one of the main resources needed to run every organisation. It is the money available to a business for spending in the form of cash, liquid securities and credit lines. No educational system can survive and function without adequate funding. The use of Capitation Grants (CG) in sub-

Saharan Africa has been effective in increasing enrolments, but often this has not translated into high attendance and completion of schooling (Akyeampong, 2009).

Ghana has fallen below its own expectations in enabling free quality education for all. In response to this gap, and to meet the Millennium Development Goals (MDGs) in education, in 1995 the Government committed to providing Free Compulsory Universal Basic Education (FCUBE) by 2005. FCUBE introduced a restructured educational system consisting of 11 years of training, in three segments: two years of kindergarten, six years of primary school (Grades 1 - 6) and three years of junior high school (JHS 1 - 3). The ambitious aims of the new policy were: to eliminate school tuition fees on primary education, thereby increasing enrolments; to initiate a broad school feeding program; and to achieve gender parity by increasing girls' enrolment. But because the Government disbursements are made irregularly, parents are required to pay mandatory supplementary fees, in the form of PTA dues used to pay for school repairs, cultural activities and school sports. Because many low-income families could not afford these fees and were therefore unable to send their children to school, as of 2003, 40 percent of children aged 6 -11 remained out of school (UNICEF, 2007).

2.5.2 Existing policies on infrastructure provision in Ghana

It is believed that a country's progress towards economic advancement which leads to well-being of its citizens depends largely on the level of education of its workforce. Citizens' capacity to participate in national development efforts is an outcome of the quality of education rendered. School infrastructure plays a critical role in the provision and maintenance of quality education. Research findings on School infrastructure in key research areas provide divergent insights and perspectives to the contribution of infrastructure provision to educational outcomes. In his view, Branham (2004) asserts

that the condition of school infrastructure has crucial consequences for school performance particularly in school attendance and drop-out rates. He argues that the best teachers, the best administrators and the best principals have absolutely no value in improving education if learners do not come to school.

Historically, the need for infrastructural development came into force during the Accelerated development Programme (ADP) for education, launched in 1951. The ADP gained legal backing through the 1961 Education Act, (Act 87) which provided Free, Universal and Compulsory Basic Education (fCUBE). Basic Education enrolments increased astronomically, rising from 1,081 in 1951 to 3,372 in 1952. As such, there was the need to increase infrastructure provision to correspond with the increased enrolments in basic education (Foster, 1965; Scadding, 1989). Based on the increased enrolment coupled with a corresponding increase in trained teachers, Ghana was adjudged the country with most developed educational system in the sub-region (Ghana Human Development Report, 1998).

Expansions in educational infrastructural provision declined when the recommendations of the Dzobo Committee were effected in 1974. This was due to the impending reform in the educational sector. The reform was generally known as The New Structure and Content of Education (NSCE). Under the reform, pre-university education was reduced from 17 years to 13 years. Policy makers noted that, with the reduction in number of school completion years, the existing infrastructural facilities could be able to sustain the enrolments and that led to decline in infrastructural provision (Dzobo, The Report of the Education Review Committee-The New Structure and Content of Education for Ghana., 1974). Economic down turns which ran from the 1974 through to the 1980' and 1990's Economic Recovery Programmes (ERP) and the

Structural Adjustment Programmes (SAP) further dwindled the rate of infrastructural development especially in the education sector. School buildings, furniture and equipment were dilapidated and basic materials like textbooks and stationary were lacking (Akyeampong, 2004).

The Free Compulsory Universal Basic Educational reform in 1996 brightened the dimmed light to infrastructural provision. A number of donor agencies contributed substantial funds to educational development, especially, primary education projects in the country. Among the agencies were, the United Nations Children's Fund (UNICEF), the Department for International Development (DFID), the World Bank (WB), the European Union (EU), the Swedish International Development Agency (SIDA). Others were the United States Agency for International Development (USAID) and the Danish International Development Agency (DANIDA). The participation of these agencies in education development triggered a range of interventional strategies (USAID & GHANA, 1995).

Another policy initiative that increased attention on education infrastructural base was the Whole School Development Programme (WSDP) in 1999. The Whole School Development programme was an ongoing process to provide support to teaching staff in basic schools. The WSDP provided a means for districts and schools to develop their schools for effective teaching and learning by focusing on literacy, numeracy and problem-solving skills. This WSDP was initiated by government with funding from The United Kingdom Department for International Development (DFID). The policy and strategy pathway were to place the District plans at the centre of change. The core focus of WSDP was to achieve quality teaching provided by competent teachers for efficient teacher delivery and learning outcomes. It was therefore imperative that,

competent teacher capacity were built and resources made available to deliver quality education as envisioned by the current Education Act 2008, Act 778.

The Education Act 2008, Act 778, provides legislative policy framework for developing educational systems across all levels of education including basic education. At the core of this policy framework is the need to develop balanced individuals equipped with requisite knowledge, skills, values and attitudes that would make them contribute meaningfully to socio-economic development of Ghana. To better achieve this goal, Act 778, 2008 directs the decentralization of executive responsibility to the district assemblies for the provision and management of necessary infrastructural needs and other facilities for basic education. The Ministry of Education commissioned an Education Strategic Plan (ESP) 2010-2020, preceded by four ESPs, which outline the policy areas, policy objectives, targets and strategies that would help develop and sustain provision of education in Ghana for the period 2010-2020. The ESP is built on core areas of access and quality with strategies geared towards achieving measurable outcomes in accelerating literacy and competency for economic growth and in reducing poverty among citizens. To this end, the ESP thus sees basic education as the start point of its objectives.

Prior to the passage of Education Act 778 in 2008, GETFund was established in 2000 through GET Fund Act, 2000 (Act 581) to provide supplementary funding for financing education across all levels of education in the country. Various programmes have been rolled out since its formation to reduce deficit in school level infrastructure and also provide teaching and learning materials for schools. One of such programmes is the construction of classroom blocks at basic school level to eliminate schools held under makeshift structures termed 'schools under tree' This programme ,which started in

2009, intended to create equal opportunities for all learners to have equitable access to basic education. In addition to the classrooms, programmes to provide free computers for ICT learning, textbooks, furniture and training of ICT teachers were rolled out between years 2012-2016 (GETFund Distribution Formula 2012-2016).

2.5.3 Financing mechanism

The 2004 reforms introduced an innovative financing mechanism known as the “capitation grant” that would a) ensure the abolition of all types of school fees; b) expand existing Early Childhood Education services; c) improve gender parity; and d) introduce government-sponsored nutrition and school feeding programs. As a result, general enrolment levels have shown improvement; challenges to education in poor communities persisted, however, due to corruption, poor record-keeping and the misappropriation of resources (World Bank 2009; Centre for Democratic Development (CDD 2008/2009). Today, schools in impoverished urban communities in Ghana face challenges despite the implementation of the capitation grant. These schools are characterized by stark structural decay, overcrowding, the dearth of school materials and insufficient water supply and sanitation facilities. Such a situation has prevailed in some schools in the Effutu Municipality.

Two major reforms in 1987 and 1995 (Free Compulsory Universal Basic Education FCUBE), redefined basic education as comprising primary and junior secondary, and as tuition free, compulsory and universal for all school-age children. FCUBE also emphasised the importance of improving quality to improve demand, and although both FCUBE and the 1987 education reforms improved participation in education, improving quality remained harder to achieve (World Bank, 2004).

The notion of free education generated public debate as to what this meant. Some interpreted that to mean that all costs associated with basic education would be free. However, the GES explained that the government would provide free tuition, textbooks, teaching and learning materials, and subsidise the cost of exercise books, and the Basic Education Certificate Education (BECE) fees for both public and private candidates (Ministry of Education/GES, 2001). Parents, however, were expected to pay other fees. The GES allowed PTA's to levy parents for school development activities, on condition that schools sought clearance from either the SMC's, District Education Oversight Committee (DEOC) or District Assemblies to avoid excessive charges being imposed. But this effectively opened the backdoor for schools to introduce ancillary fees. In some districts, head teachers came under intense pressure to collect levies with the consequence that children were sent home when their parents failed to pay imposed levies, as this particular case illustrates:

By allowing schools to levy parents for items such as registration fees, uniforms, textbooks etc., FCUBE had effectively made basic education not entirely free from the point of view of many parents. In truth, the levies were a way of schools making up for the reduction in public funding of education (World Bank, 2010). Although both reforms reversed the deterioration of the education system and increased enrolment rate by over 10% in fifteen years, quality deteriorated and some level of fees persisted and altogether weakened demand from the poorest households (World Bank, 2004).

As a further step to improve demand the government introduced Capitation Grants (CG) to relieve parents of the burden of paying fees charged by schools. CG was piloted in 40 deprived districts in 2004 and scaled-up nationwide in 2005. Currently, each school receives on average \$6 per enrolled child. Capitation was to give schools the necessary

funds to improve teaching and learning, give support to needy students, and introduce school-based in-service training (GES, 2005). To access the funds, schools are required to provide enrolment figures and a school performance improvement plan (SPIP) with details of how the funds would be used to achieve stated goals. The SPIP is prepared by the school head and staff and is expected to be approved by the SMC to cover the whole academic year but broken down as termly plans. To access the funds, schools have to submit their SPIPs to the district education office for approval before it is released into the school's bank account. Schools without bank accounts are expected to pick up their funds directly from the district office. At the end of each term, they are expected to submit a report of expenditure returns which accounts for the use of the grant.

On the Ministry of Education side, it makes projected estimate of enrolments in each school at the beginning of the academic year based on the district GER. This estimate is used to transfer 50% of capitation funds via the districts to the school at the beginning of the first term. Later transfers for the first term are dependent on the submission of returns on the actual enrolment for the school in the course of the term. For the second and third terms, funds are expected to be transferred based on the enrolment levels established in the first term. This implies that if a dropout enrolls in the 2nd or 3rd term, the school does not receive capitation for that child until the following year. These steps may be intended to ensure accountability, but may cause delays in timely release of capitation funds, if schools do not provide credible plans on time, or need to resubmit them to address queries from the district. If the full CG amount is not received or the amount received is less than what has been budgeted for, this will undoubtedly set limits on what schools can achieve with respect to their SPIPs. According to guidelines for administering the grant, schools can use their grants for the following:

1. Provision of Teaching and Learning Materials
2. School Management (*including T&T and stationery*)
3. Community and School Relationship
4. Support to Needy Learners
5. School and Cluster based In-Service Training
6. Minor Repairs
7. Payment of Sports and Culture Levies (*to be approved nationally*)

One-sided use of CGs - CGs is mainly expended on sports/cultural activities, hygiene/sanitation facilities, furniture, infrastructural works, and teaching and learning materials – the list of items that capitation is spent on suggests that schools lack the basic infrastructure that would make them places for effective schooling. Although, what schools spend most of the capitation on is in effect to improve the quality of provision, it also means that, not much is left to spend directly on demand-driven initiatives that will improve and sustain access. (CDD 2010)

2.6 Enhancing learners' learning through a well-maintained school infrastructure

The discussion under this theme pertains to research question four which seeks to find out how well-maintained school infrastructure enhances learners' learning in selected public basic schools. Given the need for improvements in infrastructure and learning outcomes and the limited resources available, governments and development partners bear a responsibility to work together to develop approaches that will contribute to significant, measurable and sustainable progress toward achieving Ghana's national education goals across the study area.

2.6.1 Strategies for Managing Educational Infrastructure

According to (Hinnum, 1999) the major problems presents in school can be categorized into three. These are:

- a. An inability to present sufficiently convincing justification for (increasing) funds.
- b. A marked deterioration in the condition of facilities and in the morale of facility-users.
- c. The use of existing facilities to provide adequate, up-to-date educational and social services

When all these are well managed, it will help improve the education system of school children. Authorities must decide whether to integrate requirements within an existing system or to invest in a new system. The “Asset Management Plans” of the Department for Education and Employment in London are an excellent example of the allocation and management of resources. The table below outlines the stages and processes in developing an asset management plan.

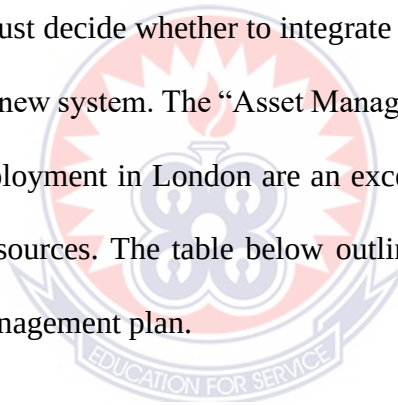


Table 2.1: Processes, key element and responsibilities

Stages	Responsibility of school	Responsibility of authority
Policy statement, Identify roles, responsibility and scope	Identify school/educational programme, plans, objectives	Develop policies, objectives, priorities and action plans.
Assessing Existing Premises/Facilities compile basic data on each school -- set up the database (bottom-up, computerised systems to support the development, monitoring of capital, maintenance and running programs.	Compile information on location, ownership, size, capacity, type of building/school, learners, running costs, asset value and performance indicators (e.g. area per pupil, use of space, teaching area as percentage of gross area, energy consumption/cost per m ² , maintenance cost/m ² , other premises related costs/m ² , learners (existing/forecast)	Compile “core” data base (collect and analyse key elements); carry out comparisons and benchmarking (performance indicators)
Identifying Needs consider condition: consider needs relating to sufficiency and suitability; identify areas of concern; consider development plans	Conduct condition surveys about the quality of learning and living in regard to internal and external areas, existing physical and environmental conditions, costs of repairs, priorities according building type, etc. Assess the suitability of the number, size, shape and location of spaces, environmental conditions, furniture, technology, health, safety, security, economic use of the premises.	Evaluating the condition surveys and identify needs not being met on the school level (also using performance indicators as a basis). Provide guidance on aspects of conditions, sufficiency and stability.
Determining Priorities develop overview (categories) of priority Funding and Procurement Arrangements finalise funding (budgeting)	Accord funding (and responsibility). Prioritise needs to be developed on the school level. List projects and costs that address prioritised needs. Look at the best way of funding, if necessary in co-operation with the authority.	Develop views, standards and guidelines on priorities. Conduct feasibility studies considering costs and benefits of alternative solutions. Provide guidance and make decisions on funding routes: block/lump fund allocation, capital grant, credit approvals, capital receipts, revenue budgets, private investment, based on contract with agency or authority
Implementation, Review and Evaluation.	Implement according to the responsibility structure. Review and evaluate the system from the bottom up and performance indicators	Implement if the school is not responsible. Provide guidance; evaluate and control.

Source: (Hinnum, 1999)

2.6.2 Maintenance

According to (Hinum, 1999) a number of factors contribute to the “maintenance gap”. They include insufficient funds, poor management of funds, and estate management and provision that do not match educational needs. Poor maintenance increases running costs, such as for energy and cleaning. Energy expenditure, for example, can amount to more than one third of premises–related expenditure; reducing energy consumption can help not only to save money but also to reduce carbon dioxide emissions and other forms of pollution. Other consequences of poor maintenance are:

1. deterioration of parts of the building
2. an unsafe and unhealthy environment
3. a lower quality of teaching and learning
4. a lower quality of living
5. vandalism.

There are educational, social and environmental advantages of good maintenance:

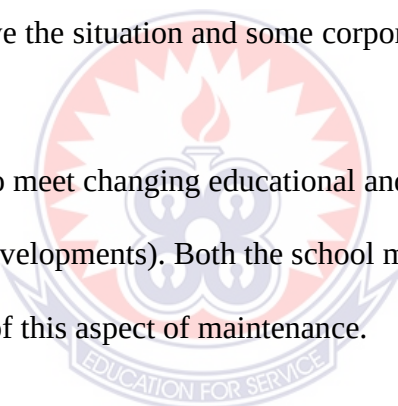
- educationally – the condition of the environment indicates society’s support for education;
- socially – it sets an example to learners, that the environment in which we live should be cared for
- environmentally – good maintenance promotes the aims of education.

Aspect of maintenance

Hinum categorised maintenance into the following:

- a. Day to day maintenance. This must be observed by the school. This include inspecting the facility and putting things into shape to help the student enjoy the facility that will result in a positive outcome on their performance.

- b. programmed maintenance of elements according to their different servicing and life cycles and environmental standards. The responsibility falls on the authority and the school.
- c. periodic improvements to the building fabric to meet new health and safety requirements, improve energy efficiency, reduce fire risks, develop the environmental quality, etc. this is the responsibility of authority and it falls within the range of 3-5 years investment programme.
- d. emergency and unforeseen actions to repair damage (storm, flood, theft, arson, outside vandalism, etc). Is the responsibility of the authority to take charge of search maintenance. In the case of some situation in Ghana, we have NADMO coming in to save the situation and some corporate bodies donating to affected schools.
- e. improvements to meet changing educational and social needs (e.g. in regard to technological developments). Both the school management and authority are to be in charge of this aspect of maintenance.



A strong focus must be on good governance, capacity-building, developing management systems and ensuring school and community participation (through school management committees and parent-teacher associations) in the process.

2.7 Summary of Literature Review

From the discussion above, theme one discussed the concept of state of School infrastructure in basic schools. Theme two discussed linkages between School infrastructure and learners learning. The third theme on educational authorities and the state of School infrastructure and theme four on enhancing learners learning through a

well-maintained school infrastructure which was linked to the situation of some selected basic schools in the Effutu municipality.

Education at all levels takes place in a structure equipped with requisite facilities provided by the government, the community or benevolent organisations. This structure is the infrastructural provision. Teachers and learners, who are the primary beneficiaries of the infrastructure, use these facilities in their daily teaching and learning activities. As such, provision of school adequate infrastructure is likely to influence teaching and learning directly. Similarly, provision of school facilities feeds into creating a learning environment necessary for effective teaching and learning. As such, creating an affable learning environment would influence teaching delivery and learning outcomes.

Communities, non-governmental and parent-teacher organizations, the private sector and religious associations can make valuable contributions, nonetheless government's responsibility to furnish appropriately equipped facilities for all school-aged children within its jurisdiction cannot be substituted. A case study on School infrastructure and learners learning in selected basic schools in the Effutu Municipality.

The theory underpinning these themes ensures that students are given equal access and provided the needed facilities to enhance performance.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter deals with the methodology adopted in carrying out the study. It covers the justification of the research design, study area, population, sampling procedures and methods of data collection. It also discusses the procedures and methods of data analysis.

3.1 Philosophical underpinning of the study

Philosophical underpinnings are general philosophical orientations about the world and the nature of research that a researcher brings to a study (Creswell, 2014). This study was underpinned by the philosophy of interpretivism as it allowed significant theoretical constructs to be combined to enrich my understanding of the role school infrastructure plays towards learning.

Interpretative theory seeks to understand how people make sense of the “events and behaviours that are taking place and how their understanding influences their behaviour” (Maxwell, 2005). This focus on meaning-making was central to my research approach as I sought to explore how school infrastructure influence learning by a variety of factors such as access to proper sanitation, toilets, clean running water and other physical infrastructure. Further, through an Interpretivist lens I was also aware that my exploration and analysis was a particular interpretation of their perceived realities, as opposed to “objectivist” knowledge (Jiménez-Domínguez, 2009). I intended that my interpretation of school infrastructure meaning-making would be useful in understanding the richness and “complexity inherent to the learning conditions of the learners.

Interpretive theory is encompassed within the constructionism epistemology (Crotty, 1998), in its pursuit of understanding the meaning-making within the interactions between people. A fundamental assumption of social constructionism is that the varied meaning-making among people is the “reality constructed inter-subjectively” within a social context (Guba & Lincoln, 1994, as cited in Denzin & Lincoln, 2011). Such a theory resonates strongly with my belief that teachers, students and families co-construct diverse meanings about caring and being cared for via their experiences of caring and being cared for. Crotty (1998) argues that, “what constructionism claims is that meanings are constructed by human beings as they engage with the world they are interpreting” Furthermore, he argues that “the 'social' in social-constructionism is about the mode of meaning generation (socially constructed) and not about the kind of object that has meaning”.

Interpretivist informs methodological decisions in an attempt to gather valid data to make valid interpretation for the creation of valid knowledge (Sikes, 2004). Interpretive paradigm recognizes such standpoint with regard to social constructionism informing qualitative research, Munné (2013) argues that social constructionist researchers would search for the meanings given to a phenomenon and for the context that gives them specificity. In this research, the phenomenon is care and reconciliation; the context are schools and the surrounding social, political and cultural contexts.

3.2 Research design

A qualitative case study research design (Merriam, 1988) because such a design allows in-depth investigation of everyday school life from a holistic perspective. Stake (2010) argues that understanding the case requires three key components:

- (1) extensive examination of how things get done;

- (2) detailed account of ordinary activities; and
- (3) scrutinising the context to gain an understanding of the issues of interest to the researcher.

This aligns with Merriam's (1988) contention that case study focuses on "many, if not all, the variables present in a single unit" presenting findings in a rich description that uses words and pictures rather than numbers. This idea is complemented by Yin (2009) who suggested that case study "allows investigators to retain the holistic and meaningful characteristics of real-life events". The design for the present research aimed to take advantage of the qualitative case study to understand "how all the parts work together to form a whole" (Merriam, 1988) in the schools in this study. Case study was selected as the most appropriate design as it enabled me to focus on "discovery, insight and understanding" (Merriam, 1988) about School infrastructure and student learning. Yin (2009) declares that case study arises out of the desire to understand complex social phenomena. This view is expanded by Stake (2010), who contends that the case study design concentrates in understanding the complexities of the case, searching for patterns, coherence and sequence.

Nevertheless, the case study design is probably the most appropriate strategy to uncover the impact of School infrastructure on pupil's learning in Winneba. Its ability to study social reality in its natural context implies that the case study approach allows little manipulation of participants thereby ensuring that data and research findings are more authentic and reliable.

There is a careful examination of schools because each school is unique, and complicated in its nature. In this regard, the case study strategy is the preferred design to study infrastructure in selected schools in Winneba in its totality and how it relates

to the performance of schools in terms of availability of teaching and learning materials, maintenance of infrastructure, resources, motivation etc by looking at the issue in its natural setting. Perhaps its central virtue and one of the major reasons for opting for this strategy is that a relatively small number of carefully selected Participants can provide relatively accurate and representative information about a very large population.

As a design to social science research, an exploratory case-oriented design works well when the number of cases is relatively small. Two schools, Anglican basic school and Unipra south basic school, both in Winneba West District of the central Region have been selected for this study. The aim is to study a small number of cases with the intention of exploring in detail what pertains in each individual case so as to explain the impact of infrastructure and learners learning of the two schools.

The availability of multiple sources of information in case study method is another important strength, which the other methods lack. According to Yin (2003), “the case study’s unique strength is its ability to deal with a full variety of evidence, documents, artefacts, interviews, and observations”. The use of the multiple sources of evidence helps in dealing with the problems of validity and reliability of data as data is triangulated. In addition to the field data, therefore, the researcher made use of reports, schools records, documents from the district Education office, works by other researchers, the internet etc.

3.3 Site and sample characteristics

Based on the researcher’s interest and what the research aims to achieve in the end, the selection of site for the study is crucial (Glesne & Peshkin, 1992). Winneba has more than 10 public basic schools; but for the purpose of this research, the University practice

south AB JHS and St. John's Devine Anglican school were chosen. This is because it happens to be among the major government basic. Anglican is located on the road to advance park at the southern part of Winneba behind the University of Education, south campus whiles Unipra south as popularly called is about 100 metres from south campus entrance. Anglican has normal school buildings comprising of 6 classroom blocks with an office for the head teacher. There are two streams that is A and B primary with their corresponding A and B Junior high school streams, comprising of 8 teachers and a head each for primary and 14 teachers for JHS with population of about 300 learners. Essential facilities Anglican school lacked were potable water and toilet. Even though the toilet structure was seen, it had not been commissioned for use due to the absence of water facility, learners and teachers sometimes leave school to their houses to attend nature's call. Learners tend to eat on school veranda due to the unavailability of a proper eatery place. Most parents of the learners are below average income earners and most are fisher folks since fishing is the dominant economic activity in the community.

None the less in Unipra south has three streams thus A, B and C primary and JHS with 'C' being inclusive. There is high teacher per student ratio, with 65-75 learners in a class, as a result the need for more classrooms to reduce the number of learners to make the class conducive for learning. Availability of few structures compel a lot of parents to bring their wards hence increasing their numbers. Sufficient desk for both learners and teachers is of great concern as well as a requirement for spacious staff common room for teachers to prevent them from sitting under trees because the current staff room can't accommodate the number of staff, not to talk of marking exercise books. There is ICT lab and a library situated on the school premises unfortunately the learners may not get access to it due to the fact that the neighbouring community schools also access the facility. It happens that during the period for library or ICT, learners will

have to wait for the present group there to vacate the premises to enable them use the facility. The school requires their personal ICT lab and library to enable effective teaching and learning. Learners are averagely good regarding academic performance. The focus on the selected school was as a result of time limit which could not permit the researcher to take other institutions into consideration under this study.

3.4 Study population

The population of a survey is defined by Battaglia et al. (2008) as the entire set of units for which the survey data are to be used to make inferences. The population for the study was thus the parents, students, teachers, heads of the two public basic schools and District Assembly Officer in the Ewutu Effutu Municipality: Anglican Basic School and University Practice Basic School. At the time the study was conducted, Form Three (3) students had written the BECE. Hence due to the covid 19 pandemic and the protocols put in place, the accessible population consisted of only Form Two (2) students from the two basic schools which was a total of 130 students, the staff and the District Assembly Officer.

3.5 Sample and sampling procedure

Sampling refers to the selection of a subset of persons or things from a larger population. Non-probability sampling methods (purposive and convenience sampling techniques) were used to select the schools and the teachers. In all the study was conducted in two schools in the Effutu Municipality: Anglican Basic School and University Practice Basic School. Nonprobability sampling focuses on sampling techniques where the units that are investigated are based on the judgement of the researcher when it comes to selecting the units (e.g., people, cases/organisations, events, pieces of data) that are to be studied. According to Kumeckpor (2002) and

Kwabia (2006) the worth of any educational research findings depends on the extent to which the sample reflects or represents the target population. Sampling is the procedure used by a researcher to gather people, places or things to study. It is a process of selecting a number of individuals or objects from a population such that the selected group contains elements representative of the characteristics found in the entire group (Orodho & Kombo, 2002)..

3.5.1 Sample Size

The total number of participants in the interview schedule was nine. Participants included one officer from the Municipal Assembly, the heads of both schools were selected for the study, six teachers from both schools and six students comprising of three from each school as indicated in Table 3.1.

The sample size is the number of observation used for calculating the approximation of a given population. The sample size is an important feature of any empirical study in which the goal is to make inferences about a population from a sample.

Table 3.1: Sample Size Determination

Participants	Number of Participants
District Assembly Officer	1
Head of Anglican Basic School	1
Head of University Practice Basic School	1
Teachers	6
Learners	6
Total	15

Source: Fieldwork data (2020)

3.5.2 Sampling procedure

First of all, purposive sampling that is the maximum variation sampling technique was used to sample the schools used in the study. Purposive sampling is a form of non-probability sampling in which decisions concerning the individuals to be included in the sample are taken by the researcher, based upon a variety of criteria which may include specialist knowledge of the research issue, or capacity and willingness to participate in the research (Oliver & Oesterreich 2013).

Participants were selected through purposive and convenient sampling techniques. Purposive sampling technique was used to select the District Assembly officer. Purposive sampling technique was also used to sample the head teachers. The teachers representing each of the two schools were also selected through purposive sampling. With regards to the students, convenient sampling was used with the assistance of the teachers. Sample units are chosen ‘purposively’ for the ability to obtain detailed understanding from the right group of people.

3.6 Data collection techniques

Three instruments were used to gather data for the study. These were interview guide, focus group interview schedule and observation checklist. The interview guides were designed to stimulate discussions with the participants who were interviewed.

3.6.1 Interview guide

An interview is typically a face-to-face conversation between a researcher and a participant involving a transfer of information to the interviewer (Cresswell, 2012). It provides useful information when participants cannot be directly observed. For deeper understanding of the underlying issue; school infrastructure and learners’ learning, a semi structured interview was conducted individually among the participants in their

schools and the interviews lasted for about 30 minutes. Semi-structured format involve prepared questions that allow the interviewee to choose from existing responses and also to express their opinions resulting in a set of responses that are detailed and easy to analyse. Semi- structured interview was adopted because by their nature, interviewees are allowed to develop their ideas and speak more widely on the issues raised by the interviewer. It is also useful for uncovering the story behind the participants' experiences and could help in pursuing in-depth information on the topic.

The interview questions comprised twenty open-ended questions (see appendix B). The interviews were face- to-face thus involving meetings between the researcher and the Participants. Face-to-face interviews were administered to participants because of their small number. Interviews were held before focus group and observations and by permission the responses were audio recorded. Interviews allowing Participants to express own opinions relative to the manner in which School infrastructure influences learners learning. The researcher adopted this instrument because in qualitative research specifically, interviews are used to pursue the meanings of significant themes in the world of their subjects.

3.6.2 Focus group interview schedule

The focus group method is a technique of group interview that generates data through the opinions expressed by participants individually and collectively (Kitzinger 1995). Potential participants were selected on the basis of their ability to provide insight into and information about the research topic (Krueger & Casey 2000) as cited in Rabiee, (2004). Greater insight into School infrastructure and learners learning can be gained by triangulating these different perspectives of individual groups rather than using a single participant section to gain information. It is important that the size of each group

is sufficiently large to create discussion but not so large to prohibit some members from being able to share their insight within the available time (Krueger & Casey 2000). The group size was six participants per the two groups created. The venue of the focus group was both neutral and socially acceptable to participants. The setting the researcher chose was private, comfortable and non-threatening to participants (Winslow et al. 2002).

3.6.3 Observation checklist

To explore on School infrastructure and learners learning, structured lesson observations were conducted in the selected schools sampled for the study. As an advantage, observation provides an opportunity to record information as it occurs in a setting, to study actual behaviour, and to study individuals who have difficulty verbalizing their ideas. The purpose of the observation list was to provide a brief account of the context of the source of the data, in order to facilitate an understanding of the setting in which the Participants work and to provide information about the climate in which the interview took place (Connelly & Peltzer, 2016). Observations however, have the disadvantage of “Hawthorne effect” which means that the observed is conscious of the observer’s presence and performs better than how they would in an unobserved situation, also there is the potential of observation bias where the observer only observes activities of interest and lastly, it only allows the observer to observe a certain event or behaviour without understanding the reasons behind those behaviour or event (Connelly & Peltzer, 2016). To reduce the effects of these disadvantages an observation guide was designed by the researcher to guide the observation process.

Lessons were observed from the introduction to conclusion stage which lasted for about 70 minutes in the schools. The observation was aimed with the view of identifying the state of School infrastructure of the school, the link between infrastructure and learners learning as well as how enhanced pupil's learning was through a well-maintained school infrastructure. The third concept could not be observed since it was about the contribution of educational authorities to the state of school infrastructure, it was just evident on sight what has been provided but seeing the process itself was not possible. An observation guide made up of ten (see appendix C) structured classroom setting checklist was designed by researcher to guide the data collection. Specifically, lesson observation was direct and overt in natures.

3.7 Data Collection Procedure

An introductory letter was collected from the Department of Educational Administration and Management of the University of Education, Winneba to enable the researcher visit the schools. With the permission of the head teachers, the researcher interacted with the teachers and learners. I interviewed the District Assembly Officer, head teachers, teachers and learners individually using an interview guide (see Appendix B) in all schools. The Participants were informed about the study details and given assurance about ethical principles such as anonymity and confidentiality. To make them feel at ease, it was conducted in their home environment of which they were familiar with. Remarks were further probed and clarifications was sought for clearer remarks.

Before the interview, the moderator ensured that participants chosen could offer diverse perspective of the issue. They understood the purpose and procedure of the interview. The location was suitable and comfortable for in depth interview. It started with an

introduction of who the moderator was in order to create a relaxed and welcoming atmosphere for easy open communication. Questions to establish some rapport was used, participants spoke freely and provided detailed information. Probing techniques was used to delve deeper into what they knew by asking open ended, neutral, sensitive and understandable questions. After a consent was given to be recorded, the mobile phone was used and later transcribed after the interview for better analysis. The interview was immediately followed by the focus group discussion, a conducive site was chosen to enable a better examination of beliefs, attitudes, values, perspective, knowledge and ideas by involving three teachers and three learners in a group each. In all there were two groups for the discussion for more clarity. . The moderator facilitated group discussions by guiding rather than join in with it. Discussions being dominated by one member was prevented, ensuring that all participants had ample of opportunities to offer a range of views fairly. The nature of the group allowed diverse opinion, hence it lasted for 2 hours per each group. There was recording of diverse opinion of participants, note taking and verbatim transcription to prevent any bias of what was and was not said. The observation guide was used to study the various responses given by Participants during the interview session. It took an hour to observe for two days to get the data collection complete.

3.8 Data processing and analysis

Data was analysed by thematic procedure based on the themes arrived at during the data collection. The themes were related to the research questions and interpreted on the number of issues raised by Participants. The researcher opted to use thematic analysis because it is suitable for analysing experiences, perceptions and understandings and also a cost-effective means of conducting exploratory research (Braun & Clarke, 2013). Interview data was transcribed verbatim after each interview. Interview transcripts and

field notes from observation and data analysis were compiled. Data processing and analysis were done in according with Braun and Clarke (2006) guidelines.

The researcher carefully read the compiled data, searching for patterns of meaning or ideas in the data that will help outline the analysis, before any analysis took place. Codes were developed to represent the identified themes and applied to the raw data and by which individual codes were collated. From the collated data, provisional themes and sub-themes were constructed through interpreting and reporting facts, ideas and the meaning drawn from data. The provisional themes were reviewed into final themes. The researcher then defined and named the themes according to their relevance to the research questions and the research problem. Data analysis and discussion of findings have been thoroughly presented in chapter four.

3.9 Trustworthiness

Quality control procedures were considered important for the study. The trustworthiness of the findings was ensured through the quality control procedures of dependability, transferability, confirmability and credibility as advocated by Schwandt (2007). These quality control measures were applied to ensure credibility hence, validation of the study as highlighted below:

a. Dependability

Dependability involves participants' evaluation of the findings, interpretation and recommendations of the study such that all are supported by the data as received from participants of the study. In order to address the dependability issues in the study, the processes within the study were reported in detail, thereby enabling a future researcher to repeat the work.

b. Transferability

Transferability refers to the extent to which the findings can be transferred to other settings or groups (Polit & Beck, 2012). It is the degree to which the results of qualitative research can be transferred to other contexts or settings with other Participants. In this study the researcher ensured transferability through thick description. Thus the researchers provided a rich account of descriptive data, such as the context in which the research was carried out, its setting, sample, sample size, sample strategy, and excerpts from the interview guide. To ensure transferability, the researcher also used verbatim transcripts of data. However, the applicability of findings of the study would be appropriate within the Ewutu Effutu Municipality because the sample size and sampling method made it difficult to generalize the results to the whole population of teachers and schools in Ghana.

c. Credibility

Credibility deals with the focus of the research and refers to the confidence in how well the data address the intended focus (Polit & Beck, 2012). As a measure to ensure trustworthiness of the research findings, the researcher collected the most suitable data for study. Data collected was rigorously systematically analysed. Credibility checks ensured that all relevant data was included and irrelevant data was excluded.

Triangulation allows the researchers to have a credibility groundwork for the findings and the contribution of knowledge. The purpose of triangulating is to provide a confluence of evidence that breeds credibility (Bowen, 2009). Skate (1995) describes four strategies to triangulate different sources or methods for data collection. Among the four strategies described, I adopted the data source triangulation which involves the

use of different types of data sources, thus interview guide, focus group discussion and observation protocol were used.

d. Confirmability

Confirmability is the degree to which the findings of the research study could be confirmed by other researchers. Confirmability is concerned with establishing that data and interpretations of the findings are not figments of the inquirer's imagination, but clearly derived from the data. For this reason, quotations from transcribed text were presented (Graneheim & Lundman, 2004) to show a connection between the data and results. Concepts were linked to the data by a quotation in order to confirm the connection between the results and data as well as the richness of data. Again, interview recordings were play back interview to each interviewee and the transcripts were read out in the presence of each interviewee.

3.10 Ethical Consideration

Creswell (2009) opines that ethical practices in research involves much more than merely following a set of static guidelines, such as those provided by educational and professional associations. Creswell suggests that researchers need to protect their research participants, guard against misconduct and impropriety that might reflect on their organizations or institutions, and promote the integrity of research. All the research instruments used had an introductory front page that clearly stated the intent and purpose of the study. For ethical reasons, I decided to change information such as the names of teachers to ensure their anonymity. Again participants were also assured that information provided would be treated confidential. Finally, all authors cited have been duly referenced at the reference section.

3.11 Chapter Summary

The research design employed for the study was a case study. Two basic schools in Ewutu Effutu Municipality were selected through convenience and purposive sampling procedures for the study. Semi-structured interview, focus group discussion and observation protocol were used to gather data for the study. Data was analysed by thematic procedure based on the themes arrived at during the data collection.



CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION

4.0 Introduction

This chapter presents analysis of qualitative results of the study. In all, 15 Participants were involved in the study. Comprising six learners, six teachers, two head teachers and an Officer from District Assembly were interviewed. The following themes were derived from the data coding: State of School infrastructure in Ewutu Effutu West District, available school infrastructure and learners' learning in Ewutu Effutu West District, Educational authorities and the state of School infrastructure Ewutu Effutu West District and enhancing learners learning through a well-maintained school infrastructure Ewutu Effutu West District. The data was collected using multiple methods. These are semi-structured interview, focus group discussion and observation.

4.1 Results of Qualitative Study

The results of this study have been presented in themes in line with the study objectives. Within each theme, results have been categorized into sub themes.

4.1.1 Demographic characteristics of Participants

The demographic variables of the Participants were important in this study. Demographic characteristics such as gender, age distribution, lengths of service as well as academic qualification and level of Participants were looked at. The responses are presented in Table 4.1.

Table 4.1: Demographic characteristics

Demographic characteristics	Occurrence
Gender	
Male	6
Female	9
Length of Service	
6-9 years	6
10-14 years	7
15 years and above	2
Professional / academic qualification	
Bed English	3
Bed Economics	1
Bed Home Economics	2
MPhil Educational Admin. & Mgt	3
Level of learners	
J.H.S. 2	6

Source: Fieldwork data (2020).

From the Table, the study had a total of fifteen Participants with 6 being male and 9 female. The results reveals that the study had more or less the same number of male and female Participants and was therefore able to have a representative view of infrastructure utilized by both gender. Table 4.1 shows that three possessed Bachelor of Degree in English Education, one possessed Bachelor of Degree in Economics Education from the University of Cape Coast, whiles the rest studied at the University of Education Winneba. None the less two had Bachelor of Degree in Home Economics Education and one officer had Master of Philosophy in Educational Administration and Management. Majority of Participants had served for the period of ten to 14 years and beyond. All the learners were in form 2 who had enrolled for the period between 6 to 9 years.

4.2 State of school Infrastructure in the (2) selected basic schools in the Ewutu Effutu West District

4.2.1 School infrastructure and its accessibility in schools

The interview revealed that infrastructure are facilities that are provided within a school to help teachers and learners undertake their learning and teaching activities. They include potable drinking water, durable school building, canteen, toilets and urinals, capacity library, furniture and text books. The above theme was used to arrive at answers to Research Question 1:

What is the state of School infrastructure in selected public basic schools in the Effutu Municipality?

From the interview data Participants were asked what in their view constitute school infrastructure in their schools and how available are they? Participant # 1 mentioned that good drinking water is a necessity and as such every school must have even though not available on the school premises and that learners fetch water elsewhere.

School building is said to be one of the essential facilities needed to enhance learning as such Participants mentioned it as part of the infrastructure. Participant # 3 indicated that they don't have a proper canteen but it is their wish that the canteen gets completed so they can have a better place to eat. 3 Participants from the other school also mentioned canteen as part of school infrastructure even though their vendors sell under trees. Participant 2 said;

Vendors of food items sell their wares under trees to learners during break periods. There are no structures built for their activities and learners buy food and eat whilst standing. Learners who cannot stand would either sit on the bare floor or on the corridors to their class rooms.

A place of convenience as mentioned by interview data Participant 2; it is very important since human beings excrete waste from the body, hence it is crucial that it is

properly constructed to enhance hygiene especially for the adolescent girls and teachers who struggle to defecate at a good place when nature calls. Participant # 4 added on by saying it is another important facility in a school that is why they have one for students, teachers and recently constructed one for the head teacher.

Interview data Participant # 2 said a school infrastructure includes a well-equipped library with good books that are enough for learners to read and use as reference for teaching and learning. Participant # 5 and 6 also mentioned library as part of school infrastructure. Textbooks are described as an essential material in the success of the basic education system delivery. Adequate and rapid provision of this material is essential to effective delivery of lessons by teachers and enhanced academic prospects of learners.

Teachers improvise by adopting various methods to cope with the situation. In schools where there are no textbooks or insufficient textbooks teachers have to group a number of learners to a book and let them read in turns. Notes and passages are written on black or marker boards for learners to copy. Teachers often are challenged in giving assignment to learners to take home because many do not have the requisite textbook. To alleviate learners' struggle the schools have had to appeal to parents to consider buying books for their children until government supplies become adequate.

4.2.2 Difficulty with the use of school's infrastructure

It is essential to create a stable environment in which teachers have adequate facilities to teach and for learners to also learn for teaching and learning to take place effectively. This is achieved when a teacher can effectively impart knowledge for learners to adapt.

Provision of portable water in schools is an important discussion in school systems. Access to good water in schools contributes to improvements in healthcare through good hygiene and sanitation practices and reduces time spent on moving to and from far distances in search of water. In the two (2) schools sampled, one school had a standing tap that supplied portable water to the school. The other school was faced with difficulty to fetch water from the mission house since it is a mission school, they did not have any source of water located on their school premises. Learners fetched water regularly every morning in order to wash their hands after visiting the toilets or for drinking purposes. In response to my question on availability of infrastructure, Participants #3 and #4 had this to say:

We do not have water. In the school the only source of water is from the mission house, this takes about 30 to 40 minutes to get water.. You know that washing should be done with a running water especially in this Covid-19 era. But because of the situation we fetch water into a veronica bucket which you can see, this is not enough for the number of students on this compound". "No, we do not have running water so we go to fetch water everyday sometimes delaying morning session. When the tap does not flow we go into the community to look for some because there is nothing to store more water in.

Another Participant from the interview stated that "some contact hours are lost to fetching of water" (Participant #1). These statements are supported from the focus group data which stated that "when the water in the veronica bucket is finished, learners tear pages from their exercise books to clean their dirty hands after eating, while others rub their hands on their uniforms since they can't afford buying sachet water to wash their hands" (FGD data, Participant #3). Fetching water from outside the school premises appeared to have imposed additional burden on both learners and teachers. Whilst learners lost contact hours with their teachers for classroom learning, teachers on the other hand must supervise the learners to fetch water. This has the tendency to disrupt classroom teaching and learning activities because learners would have to fetch water during school hours. Time spent or wasted on fetching water could have been

saved for learning if there was water on the premises of these schools. In response to my question on what has been done about it, a Participant responded that, there was an NGO that wanted to get us a standing pipe but they were not given any space by the church so the project never took off, probably because they had a source from the mission house.

Participants from other school admitted that “there is a standing pipe that flows always and so learners and teachers have easy access to it as such there is frequent hand washing for personal hygiene and to help adhere to the protocol”(interview data, Participant # 5). The means by which these learners carry the water to the school may be frustrating. Where the source of water is not easily accessible, learners would be at risk of not using enough water to clean which would affect their health. Sickness would keep learners from school which means they would miss out on lessons within the period that they were absent from school. This could hamper effective teaching and learning. Provision of classroom infrastructure constitutes a major requirement for a complete educational system. Significantly, teaching and learning occurs in classroom enclosures which provides protection from the whims of the weather and intrusion of outsiders so that a friendly atmosphere is created for effective learning. In an in-depth interview, a Participant shared this view of classroom as an important facility. Participant # 3 indicated it is ok with the building of classrooms but sometimes it gets warm because of the number of learners.

My attention was drawn to specific classroom infrastructure in the school that was inadequate; the cupboards were not in good shape except for a class that had a complete block cupboard with a wooden door and a lock. This is what a Participant had to say:

“The cupboards are not completed because they are without doors so books cannot be placed in it. The learners scatter them when they have to arrange

them, also misplacing some. And so if you are a teacher facing such a problem you either use your money to get it fixed or stand the chance of having your books misplaced”. (Interview data, Participant # 2)

Furthermore, the interview data reveals that Some classrooms conditions like broken doors and windows, perforated ceiling, cracks, floor potholes, heat, overcrowding and noise thus hindering learning when it rains or during afternoon when the sun is up. This interview data is supported by focus group data from the same source indicating the authenticity of the data, it stated that “I have reported to school severally seeing human excrete, theft and certain awful discharges from having sexual intercourse on our tables as such it becomes difficult to keep valuable items in the class and clean”, (FDG data, Participant # 6). The interview data revealed in another school that when a building is close to the sea, the sea breeze tends to cause a lot of damage to the building especially with the metallic materials in the building or structure. This was expressed by a Participant saying the nails in the roofing sheet keeps getting loose, hence making the roofing sheets very weak, rusty and making noise whenever there is a heavy wind blowing (FDG data, Participant # 11).

The focus group data showed that teacher to student ratio was not the best so their class rooms ought to be increased so that number will of pupil in a class can be reduced to enhance effective teaching and learning. Participant indicated that “even though we have been fortunate to have been blessed to have a 3 unit class room bock, the numbers in the classes are still overwhelming, focus group data Participant #12

4.2.3 Infrastructure and effective learning of learners

The extent to which school facilities have improved teaching and learning environment of the schools under study. Participant #1; we are not waiting only for infrastructure to help the children, but we are here purposely for them. So, we are going to help them

and still wait for other infrastructure. Participant #2 said if classrooms that is the backbone of any school's infrastructure is pleasant with paintings and decorations, spacious and well ventilated, learning will be enhanced. Facilities such as laboratories, good place of convenience, quality desk, pipe born water and many more will surely facilitate teaching and learning process.

The study indicated that facility provision must be all-inclusive. It should include adequate textbooks, furniture and other learning materials in order to achieve significant improvement. An interview Participant number 5 from the other school indicated that; even though the infrastructure are inadequate, students are motivated by teachers to read the available books in the library to enhance their reading skills.

With the focus group discussion, Participant #12 said with the classrooms available, learners do manage with the space, since the ventilation is good, it enables them learn without difficulty especially for those who are ready to learn. The roof keeps them safe from rains and the scorching sun". The discussion made it clear that the physical conditions of the school buildings positively influence the attendance and completion of learners.

4.2.4 Types of infrastructure that are not in use or available

In an educational system, the conditions of the school directly impacts the performance of the learners. Some of the facilities were not seen at the premises of the schools visited, some were also seen but not in use. Upon the inquiry that I did, Participants Participant #3 and #4 from the interview data indicated that here is no standing pipe in the school which makes it difficult to practice good hygiene. As you can see over there that structure is a toilet facility but it is not in use because there is no water available so it has been locked up.

Interview data Participant #2 explained that the ICT lab is not in use due to the fact that they needed a class room for the learners to study in and after some time of not getting any, they had to improvise by turning the lab into a classroom since there were computers to be used in the lab. Participant # 1 said;

The construction started, that is the foundation but due to lack of building materials we stopped so, we do not have a canteen but rather use the trees under. Something can fall from the tree and enter their food whilst eating. It has become a great worry. May be a discussion among the parents and teachers at a PTA meeting can help raise funds to complete it in time. If they cannot afford then at least there must be a structure for the people to come and sell their food underneath so that our food will be protected.

The focus group dialogue indicated that there are some building materials available that can help continue the project but the monetary aspect is more and so because of that the project has not been completed. Focus group data, Participant #3 said something can be done about getting funds for the canteen to come into existence. Focus Group Participant #8 said there is no canteen and so we stand around the selling area or eat in our class which is not permitted. If a canteen is available it will help us a lot.

4.2.5 Usage of infrastructure

The data was from the question whether learners refuse to use the infrastructure available or they do not know their uses and how they function. This is what the Participant had to say during the interview and focus group discussion.

Participant number 2 mentioned that “if the infrastructure that are not available are made available, the learners will learn how to use it. As such no one is refusing to use any of the infrastructure”. Participant 1 added on by saying the infrastructure available are being used except ones that are not completed. While the 3rd Participant said, there is nothing like that we are using what we have and there is no difficulty but getting a

safe place for nature's call becomes difficult because the facility has not been opened for use.

Participant #6 said all the infrastructure are being used. Participant #5 gave further details that learners have been guided and spoken to on how every infrastructure at the premises must be used and kept well as such there is no difficulty. Participant #7 also clarified that if a pupil seem to face any problem with the use of a facility like the library or ICT, there is always someone around to give assistance to enable them use it. Whiles Participant #8 indicated concisely that learners are able to use the facilities unless those who may be challenged, even those learners are also helped by teachers.

4.2.6 Infrastructure benefit

A good school should have useful facilities such as libraries, toilet, pipe born water, spacious classrooms, labs etc. The researcher sought to examine the general advantage of infrastructure, this is the outcome of the interview granted. This describes the benefit of infrastructure. Participant #2 said with adequate facilities learners will come to school. Truancy reduce, making school a good place to study, making learning interesting and gets the children motivated. It improves the attendance and interest of learners in learning. It is important to have good infrastructure to improve teaching and learning.

It means that inadequate infrastructure may lead to learners dropping out leading to a poor learning environment especially with the building facilities. School infrastructure do influence the quality of education, as such the motivation also extends to the teachers and parents as well. This is what Participant# 1 had to say. Participant # 3and #4 respectively added that as for the benefit they get it form the classrooms since it keeps

them safe from the bad weather conditions and if the school gets all the needed infrastructure, learners will be proud of their school by staying to learn and not leaving.

Teachers in school with schools with good infrastructure have less absenteeism than teachers in schools with deficient infrastructure, said by Participant #5. Teachers and parents can significantly contribute to the development of the school by sponsoring some project construction aimed at instilling discipline, ethics and values in students that will help them to develop their personality to become better citizens in future said by Participant #6. The government may not be able to construct all projects for all schools as such individuals must also see it as a corporate responsibility to assist to improve teaching and learning, by Participants # 7. #8 said they feel comfortable in school since they can go and read any time which has improved their reading, can also use computers to get work done and they are getting more learners because of their facilities.

4.3 Available school infrastructure and learners learning

To create an enabling environment, it is therefore prudent to have the necessary infrastructural facilities in place to excel academically in order to promote effective teaching and learning. The above theme was used to arrive at answers to Research Question 2:

How does the available school infrastructure affect learners' learning in selected public basic schools in the Effutu Municipality.

4.3.1 Subjects lacking infrastructure provision

When adequate attention is given towards the development of infrastructure, the members of the schools are able to benefit in many ways. But when it turns the other way then learners will not be able to achieve their goals and objectives. These are the answers to the question what would you say are the; subject or programmes that require provision of certain infrastructure to enhance effective teaching and learning? With a follow up question; what facilities enhance the learning of subjects?

The Participant #1 answered by saying

There was a room reserved for ICT lab but since the place was not being used for its purpose, it has been turned into a classroom since there was an urgent need for it. As at now there is no ICT lab for the primary so there is the need for computers to enhance its practicality if not another class may be reserved and used again as such if the computers are brought, they will be used to enhance the learning of ICT.

Participant #2 added that an ICT lab was constructed for the JHS and since the primaries lacked such a facility, they used to go there but at a point the learners were asked to pay since the security man was being paid to ensure the place is safe from theft and to maintain the place. At the same time there were clashes with the JHS classes which didn't help to enhance effective teaching and learning. At a point the pupil stopped going there because they were not paying their contribution, they claimed their parents are not giving them money. There is no ICT lab for learners to practice what they have learnt.

In the course of the interview Participants #3 and 4 revealed that there is no science lab for experiment and practical which does not promote the learners interest in science and not to talk of pursuing further studies in science, it is therefore seen as a difficult subject. In a focus group discussion in the same school, a Participant said there is no library for reading, so when it is time they sit in their class for the books to be brought to them to

read and afterwards they 'are taken back and packed in a wooden box and locked for the next period.(Focus Group Participant #6).

Another Participant from the focus group discussion explained that the books are even not enough for them to read as such some have to sit by others to read, this still persist and we hope our request will be granted by government and individuals to get enough books and a proper library to promote reading. (Participant #7)

The Participant from the other school had this to say concerning the subject that requires provision of certain infrastructure to enhance effective learning. A subject that needs classroom teaching and learning materials is BDT (Basic design and technology). These resources are needed to run it since teachers have to improvise most especially when a class is needed when the grouping is done, teachers resort to tree under to have their lesson. They bear the cost of materials in order to teach the learners. Example; cooking utensils and some drawing materials to aid in the teaching process; by Participant #5.

In actual sense there are policy makers that is (GES) that makes sure a particular infrastructure is in place to study a particular course. Example BDT (Basic design and technology) which comprises of visual art, home economics and pre technical skills are optional for Junior High School learners to choose. When it's time for the BDT, the learners are split into three groups for the three subjects. The third group normally meet outside or share a class which does not make teaching and learning effective. There is the need for more classrooms which we are hoping to get. (Interview Data Participant #6)

Participant #7 also added to the need for more classrooms to reduce large class size to help make learning effective. Also the school lacks a science laboratory where experiment can take place to enlighten learners on what the subject so they get interested in science since most of them have this phobia for it. It will be of great benefit if science lab is built with enough apparatus for experiment.

Furthermore, Participant 8 disclosed that the ICT as a subject requires the use of computers, since they are few the full class cannot make use of the few computers, so they are divided into two so that some of the learners can have access to the computers to understand the subject better. More computers will be needed to enhance the learning of the subject. According to focus group# 2, the library lacks book shelves to arrange or to display books for easy identification, seats are not enough and so sometimes reading is done in class which does not enable frequent reading to better their vocabulary. The benches at the library are the same ones used for other social gatherings so sometimes there wouldn't be any to sit on. There should be permanent desk meant for the library alone, shelves for books to be displayed for easy identification

In a focus group discussion, Participant #9 mentioned that there aren't pre-tech tools as well as visual art to enhance effective learning of BDT which put lot of burden on the teachers to use their resources to acquire the needed TLM to enable them teach well. So in a situation where an equipment for practicals is not available, it distracts the process of teaching and learning.

Focus Group Participant # 10 added that the BDT department needs more attention since an extra class room is very paramount with its teaching apparatus which can't be over looked because it that which will enable the subject to taught well for easy assimilation and appreciation of the subject by the learners. The issue with the type of program or subject with its needed infrastructure seems to run through in both schools as such the various appeals and letters have been sent to the authorities and must try to help schools with the needed facilities to enable teachers teach with ease.

4.3.2 Facilities lacking in the class room that impedes learning

Teaching and learning occurs in classroom which provides protection from the whims of the weather and invasion of outsiders so that a pleasant atmosphere is created for effective learning. In an in-depth interview, a Participant shared this view of infrastructure that are relevant but absent in the classrooms. “The class rooms do not have cupboards to keep books in as a result they are arranged on the teacher’s table or on the floor which makes them dirty and disorganised (interview data Participant# 1). This individual was sentimental about the state or nature of the desk or furniture in the class. “furniture is in a bad state, some are actually destroyed to fix others while a small amount of money could have purchased a piece of wood for repairs and replacing chalk board for marker boards to reduce dust to promote teaching and learning. (Interview Participant # 2). Participants # 3 lamented over the classroom situation with more comment like the locks of the doors are not good and burglary and nasty act like smoking and sex scenes occurring during closing time and so they meet the mess in the morning, which sometimes becomes disturbing for lessons to take place.

In a focus group discussion in the same school, it was made known that in the class there is a wall built like cupboard at a corner but the only thing needed a door and shelves to enable the books to be kept properly and neatly to allow space especially at the teacher’s desk for easy movement and assessment (Interview Participant # 4). The issue of electricity came up in the course of the Focus Group Participant,” even though we study in day light, electricity is essential for teachers to have presentations using their laptops since the power may not go all the way to complete the lessons with the various classes making lessons objective disrupted since the battery’s power may elapse within the course of the lesson making learners very disappointed and disturbed. This issue occurred when one teacher had a presentation but the power went down in the

course of the lesson making lesson end all of a sudden”. (Focus Group Participant # 2). None the less the data from the Focus Group Participant gave more insight about the classroom situation saying “the class really gets warm in the afternoon whereby they could if there was power or electricity fans would have really helped in cooling the place, but since there isn’t learners really get uncomfortable which distracts lessons”.(Focus Group Participant # 2). These Participant indicated that they needed an ICT lab with adequate computers for effective studies, a library well furnished with good books and furniture, cupboards and desk for classroom to make staying in school very comfortable. These suggestions further confirms what other Participant mentioned during the interview as a lack of these infrastructure in the school causing problems. Meanwhile electricity was not left out in the mention of the needed infrastructure for the school BDT teaching and learning materials and science lab with its apparatus.

With regards to the other school, it was mentioned that the class rooms does not have cupboards so books are kept in the staff common room, this problem seems to run through most of the schools nonetheless it should be discussed as it is seen as a detriment to effective teaching and learning. Because they are exposed, whenever sweeping and dusting is done, they get more dirty and messy. Nonetheless Participants 11 and 12 lamented a lot on the lack of tables and chairs for teachers to sit on to feel at ease to teach, this does not help in any situation at all. These infrastructural challenges runs through most of the public basic schools; apparatus for experiments are insufficient and teachers will have to procure some teaching materials themselves to enable them teach effectively. After a long deliberations, what the Participants were pointing at was the fact that when it comes to teaching and learning materials there is nothing good to write home about since teachers adopt various means to be able to salvage the situation. For instance, there is grouping of learners to few text books to enable them relate with

what the teacher is teaching, it is not so convenient but improvising is the order of the day since nothing is adequate. Most parents in this school are low income earners and so will always lament when there has to be purchasing of learning materials for their wards. There is perception that since school is free, everything else is also free so parents are adamant and respond poorly with educational related items that will promote the intellectual development of the child.

4.3.3 Necessary basic infrastructure to enable effective teaching.

Participant indicated that there was an ICT lab and a library built by the current MP Hon. Alexander Afenyo Markins, which is clearly evident on the premises of the school. Participant #12.

Upon further interrogations, it was revealed that the ICT lab and library is to serve the entire community and neighbouring schools that wants to have access to the place. Due to this, the school does not have much control over it since it has been handed over to government to operate and manage. Certain suggestions were made concerning its usefulness; there should be enough computers and desk so that one class can have one session without splitting the class. A Participant lamented on the fact that there is a huge problem with BDT which is of much concern. “Teachers carry learning materials to and fro for a successful lesson”. (Interview Participant #6) In the focus group discussion, the need these infrastructure was brought to light; TLM like sewing machines or set of sewing equipment, cooking wares for home economics, measuring tools, cutting tools, setting out and marking out tools for practical during Pre-tech lessons. Modelling and casting tools, painting tools and drawing tools for visual art lessons. It was clear that teachers were burdened with the responsibility of providing the necessary materials for effective teaching and learning since they are not available

in the school projectors in the class for presentation of some lessons to vary the methods of teaching. The need for text books and reading books was also highlighted.

4.4 Educational Authorities and the state of School infrastructure

The Ministry of Education through the Ghana Education service, District Assembly, and other cooperate bodies bear a responsibility to work together to develop approaches that will contribute to significant , measurable and sustainable progress towards achieving Ghana's national education goals with the limited resources available. The above theme was used to arrive at answers to Research Question 3:

In what ways do educational authorities contribute to the state of School infrastructure in the selected public basic schools in the Effutu Municipality?

4.4.1 How government and other organisations contribute to the infrastructural development of the school

Participants showed clear knowledge about who is responsible for provision of facilities at basic school level. They indicated that the district assembly and the community are supposed to provide infrastructure in basic schools in Ewutu Effutu Senya District and how District Assembly and other organisations go about their contribution, in response to the question how government and other organisations contribute to the infrastructural development of the school. Interviewee #1 had this to say in response:

I believe we are all under the Ministry of Education (MOE), but some of the powers have been moved to the District Assembly, unless for some cases where NGOs come in. The District Assembly provide infrastructure to the schools upon request or fund projects as part of their responsibilities to help raise the standard of education. Normally it is the District Assembly that sponsor projects but sometimes when there is the need for others and it is not forth coming, other benevolent individuals come in to help with needed infrastructure by writing to the Education office and the District Assembly to go on with a particular project as part of fulfilling their social responsibilities.

However this is what an official from one of the offices had to say; basically government provides the building of schools as well as furniture and some text books, unless in extreme cases where very remote areas that do not have school buildings and the various communities would want to put up a structure for the interest of their children. (Interview Participant #13)

In the course of the interview it was further revealed that government does not factor the other facilities like Library, ICT lab and a staff room into the structural design of a school building in most cases. Because if it did the new 9 block design should have been thirteen instead, that is factoring the infrastructures mentioned earlier and even giving a room to our girls to change when it's that time of the month, but it is not so. That is the case pertaining in most Ghanaian schools.

4.4.2 Process of soliciting funds for establishment of school infrastructure

District assemblies often struggle to meet the needs of its stakeholders because of low revenue generation challenges coupled with their competing expenditure outlays. Hence schools are compelled to finding ways and means to get money for a project to aid in effective teaching and learning. Participants share their experience.

Parents were supportive since they helped in organizing a Speech and Price giving day with the motive of appealing to the dignitaries invited to construct an ICT lab which was very paramount to us. Letters were sent to them and they honoured the invitation by attending. This need has by God's grace been established by the M.P. Alexander Affenyo Markins which is the ICT lab we have now. Old students have also contributed immensely to the construction of a urinal for teachers and Head teacher and also with the donation from PTA to aid in the construction of a classroom block attached to the ICT lab.(Interview Participant #6).

On soliciting for funds Participant #2 had this to say:

Some old students upon enquiry on the needs of the school contributed GHC 2,000.00 for doors and 5 cupboards for 5 classes during the previous administration, but unfortunately that project was not completed and the Head went on pension. Since then there hasn't been any contribution from any group or association towards any project.

None the less Participant #9 gave further insight with regards to getting funds for projects. In GES at the end of every year, a compiled report is sent to the region, it is collated from the various districts to the headquarters and that will be the basis of negotiation with the central government to ascertain sponsorship for infrastructural provision to enable effective teaching and learning to take place.

Also the fact that individuals organisations could sphere head the development of a project for a school is also very welcomed and encouraged.

4.4.3 Difficulty in acquiring infrastructure for the school

According to some head teachers interviewed, community mobilization towards facility provision is discouraging because they believe that since government is providing free education at basic school level, the community should not be tasked to assist. After writing to the District Assembly through the education office, we can wait for so long and nothing seems to be happening which brings about delay on the part of the assembly. Teachers often have to improvise in order to ensure teaching and learning takes place from Participant# 2.

An officer stated that;

I may not be able to give empirical reasons for the challenges the government faces with regards to financial issues. Even when schools write to the Office it doesn't happen there and then, the Assembly will be copied and they will also have to include it in their budget for approval before funds are released from central government. Based on central government's budget, they are sometimes unable to satisfy all the schools with needs since they may lack adequate funds to do that.

Participant# 6 had this to say;

Sometimes you will write to the office, follow up and be told there aren't enough funds so we have no alternative than to appeal to NGOs who may be interested in helping or not, still needs permission from the district since the school is not for the Head teacher. Example is when securing a three unit classroom block and other learning materials, a letter is written to the Education office then to the Assembly to support such a project. I know there are tons of request from other schools and so it tends to delay. The teachers buy their own practical materials, carry them to and fro to enhance teaching and learning.

These responses indicated how much the schools are managing with the available resources and without soliciting for funding it will be a detriment to both students and teachers making the core aim of making education assessable futile.

4.4.4 PA involvement in the development of school infrastructure

Parent Association (PA) is a group set up in an educational institution that shows interest in the school by providing financial and other resources for the development of a school and wellbeing of teachers. It tends to be reliable and trust worthy. While school management committee is established by schools with its members selected by the community members to manage the school even though some do not function properly. The following are responses to how the PA and SMC get involved in the development of school's infrastructure:

The SMC is not that active but the PA meet to deliberate on issues regarding the school and come out with ways to help salvage the situation, sometimes offering services or donating. Recently meetings are not encouraging due to low turnout of parents and the few that attend don't make good contributions to issues on board. Covid 19 has worsen the situation due to the protocols to be observed, members don't attend meeting properly. Since school resumed, no meeting has been held so far. In the past they used to attend in their numbers and agree on contributions to make to help the school with needed resources but afterwards payment becomes an issue and so promises are not fulfilled. (Interview Participant #2)

The parent Association is supportive since they helped in organising the speech day we had, which we ended up with the 3 unit class room block and an ICT lab. Even though they don't come for meetings regularly, the few that comes are supportive and that is how come we are able to do this much. But with

covid, the attendance is not encouraging but still managing. The SMC is not that strong as compared to the PA. (Interview Participant #6)

The official also confirmed by saying that depending on the leadership of the school, the PTA is able to do a SWOT analysis and then raise funds for the commencement of a project to promote teaching and learning.”

It is clear from the above submissions that educational authorities tend to contribute to the state of school’s infrastructure since rapt attention is not given to request made by school heads. The District still must wait for financial resources to be released from central government for developmental projects and supplies to be rolled out in the district. This delays execution of critical projects like construction of classroom blocks and the supply of essential learning materials and equipment for use in basic schools

4.5 Enhancing pupil’s learning through a well-maintained school infrastructure.

Government and development partners have a responsibility to work together to develop methods that will contribute to improvements in infrastructure and learning outcomes with the limited resources available. This is the outcome of the interview on how learners learning can be enhanced through a well-maintained school infrastructure.

The above theme was used to arrive at answers to Research Question 4:

How can a well-maintained school infrastructure enhance learners’ learning in the selected public basic schools in the Effutu Municipality?

4.5.1 Identifying educational programs and infrastructure to enhance learning

This is the response to whose responsibility is it to identify the educational programme and the infrastructure that will enhance its learning.

Interview data R 5 said the Ministry of Education is to identify the kind of programme and the needed infrastructure to enhance the learning of such a subject. For instance the learning of ICT needs a well-equipped lab with

adequate computers to make learning effective and practical”. Another Participant acknowledged the ministry of education and the Ghana education service to be in charge of programme and its learning apparatus for schools and that they have nothing to do with it; (Participant # 2)

R#6 indicates that there are policy makers that is GES, they ensure that a particular infrastructure is place to study a particular course. The head teacher can make a request for a particular facility for a course or programme to be studied conveniently. An example is the BDT programme which has three aspect so if it is one stream, there ought to be an additional class so when it is time for that lesson, they split the students into each class. With this a formal request is done by the head if that facility is not available”.

These responses implicate that authorities responsible for providing education know exactly what infrastructure to provide to enhance the learning of a particular subject or programme but it is unfortunate some are inadequate while some others may not have at all making the teaching and learning of such a subject very difficult.

4.5.2 Decisions whether a structure needs maintenance or replacement

For teaching and learning to take place, it is necessary to create an environment in which teachers have good facilities to teach and for learners to also learn. This is achieved when a teacher can effectively impart knowledge into learners without disruption because a facility or structure in a bad shape may not help to achieve a set goal.

The following are response to how one makes decision regarding whether an educational structure needs maintenance or replacement to enhance teaching and learning:

Participant #6 “When you see a building collapsing or in a bad state, then you know it needs repair or replacement. If it’s a minor problem you try and fix it before it gets worse, if the funds are there. For instance there was a crack in my office wall, it was so deep you could see from outside. I got a little cement and had it fixed before it got worse”.

Participant #2 said; when a member of staff brings to the notice of the head of any problem on a facility or I should also see any fault somewhere then you know there is a need for improvement or replacement of a facility to enhance learning. We see other schools soliciting for help, so sometimes we write to the office and get no result. Through some staff members we are able

to solicit for funds from individuals and get help sometimes. One teacher has been able to get help by getting philanthropist to donate to each class a veronica bucket with its stand since one veronica bucket is what is available now, which does not promote proper hand washing in this Covid era.

It is very clear heads know when and what to do to get a facility in a good shape or procure to enhance effective teaching and learning.

4.5.3 Maintenance culture in the school

Maintenance is a periodic enhancements to facilities to meet health and safety needs, improve energy efficiency, reduce fire risks, and develop the environmental quality. During emergency and unforeseen actions to repair destruction caused by (storm, flood, theft, outside damage, etc.) It is the responsibility of the authority to take charge of such maintenance. In the case of some situation in Ghana, we have NADMO coming in to save the situation and some corporate bodies donating to affected schools. This is the response from the Participant #2 on the question of describing the maintenance culture in the school by stating that;

It is not bad but it takes time for the problems to be fixed because there isn't enough money. Learners are sometimes seen destroying about 6 desk to repair 2 broken ones. If other staff cooperates well the maintenance culture will be good, desk and other furniture won't have to be in a bad shape for learners to try to fix it by destroying other ones to fix others so things won't get out of hands. A piece of wood can be bought to fix broken desk instead of destroying other faulty desk to repair others whiles all could have been fixed at a time. This is all because there is no money for maintenance.

Participant from another school are inclined with the maintenance culture and do their best to practice it by saying that:

The maintenance culture is good because the staff is proactive. You can see we are close to the beach, so the roofing which is made of zinc always needs to be repaired at least every week by getting a carpenter to tighten the sheets to the walls so it does not remove. If the sheets could be changed to slates, would have been a massive help to us. The sea breeze weakens the nails easily by getting rusty so every now and then there ought to be maintenance because just a little wind can rip off the roof.(interview data Participant #6).

During emergency situation, whose duty is it to see to the maintenance of the school's infrastructure. The response given to the question are as follows;

I quickly report on time to the Education office to be communicated to the district assembly for onward submission during situations like flood destroying a part of a class or a structure suddenly collapsing. We had a pillar at the primary side breaking and had to bring NADMO and the education officers to see what can be done to prevent worse occurrence. (Participant # 2)

Participant #6 from the second school also said if the situation is beyond their control they write through the education directorate to the municipal assembly for immediate action.

4.5.4 Day to day maintenance

For maintenance culture to be practiced there is the need for a frequent check on facilities which is the core mandate of the head of the institution. After an interaction with the heads and this is what they said;

I do check if any facility or teaching and learning materials are faulty so that remedies are taken to save the situation before it hampers the teaching and learning process. The daily routine is done by the head so that any facility at fault can be repaired immediately to prevent further deterioration and delay in getting help to fix the situation for lessons to go on successfully because it sometimes takes about a year for response to come from the office. (Participant #2)

Participant #6 says the school with the help of the head see to the day to the day to day maintenance of the school's infrastructure. When a problem is reported and it is not a major issue, the head tries to solve it by getting an artisan to fix it before it gets out of hand. It is the duty of the head to see to the day to day maintenance of the school and also teachers are given the chance to also draw the attention of authorities in case they come across any problem or damage in infrastructure.

4.2.5 Benefit of good maintenance culture

This is the response to the question; what benefits do good maintenance culture or practice bring to the school and the pupil at large? Participant #2 said when properties of the school are maintained and properly cared for, the valuables of the school will be protected from thieves and drug addicts who defecate, steal and do all sort of unseen

things. There won't be a need to spend more money to repair a spoilt item since proper checks are always done so situations that can affect teaching and learning will be properly managed.

Learners and teachers become comfortable to learn in a safe environment since maintenance of infrastructure is done regularly. The school itself becomes well organized and beautiful because facilities will be in a good shape which eventually increases enrolment. (Participant # 6). Participants are aware of the importance of good maintenance of infrastructure and advantages it brings to the school in terms of teaching and learning. It adds more value to the school and becomes attractive to others to enrol their wards.

4.2.6 Data from Observation

In addition to the data collected with the help of the interview and focus group discussion, the researcher also moved to the various schools to observe how the schools' infrastructure influence learning and to ascertain the extent to which the answers provided during the interview reflect the reality on the ground. The participants were observed with the view of identifying the state of school infrastructure of the schools, the available infrastructure and learners' learning as well as enhancing pupils' learning through maintained school infrastructure. The following are results that came out of the observed responses.

1. Results from state of school infrastructure in public basic schools.

With reference to the state of school infrastructure in public basic schools, the researcher observed that one of the schools had no pipe-borne water at the school premises but had access to water from the mission house since it is a mission school. Place of convenience was not available for use even though one had been constructed

but locked up. This was due to non-availability of water at the premises and so both learners and teachers find enclosed areas to ease themselves or use neighbouring houses in case nature calls. Meanwhile this was a different situation in the other school, they had water at the premises of the school and a constructed toilet and urinal. There was no proper library so in times of reading, books were brought out from wooden boxes and locked up after using. The other school had a library even though desk was insufficient. The class rooms were over populated, and needed a bit of space for ventilation. A foundation for a canteen project was seen on sight but no work in progress, food vendors were seen under trees. As opened as the vending areas were, the wind blew freely carrying towards the area sand and other invisible particles that could contaminate the food the learners were buying and possibly the vendors' commodities. Some class rooms needed some phase lift and furniture while others were ok for learning. One of the schools was fortunate to have an ICT lab where the learners visited in turns when it was time for ICT, none the less the other school complained of not getting access into the lab since it was built on the premises of the J.H.S stream as such there was an issue of the primary learners not maintaining the place as such learners couldn't have access to the lab as at the period for ICT, but sat in their class for the whole period. Science laboratory was unavailable at the schools as at the time I visited.

2. Results from the observation on available school infrastructure and learners learning.

Regarding the available infrastructure and learners learning, it was observed that certain subjects lacked infrastructure provision to enhance its effectiveness. An ICT lab and library were not found in one of the schools except from benevolent individuals, BDT and science didn't have equipment and apparatus for practical work and experiments hence during the time for these subjects teachers improvised by getting materials that

could be used for practical to enable learners understand the subject and develop the love for it. The class room lacked cupboards for keeping their books but books were seen on teachers table, looking clumsy, enough desk to match the class population and text books to make it conducive for learning, since during English lesson learners were seen grouping to share the few text books available. Unavailability of electricity made the class rooms really hot in the afternoons and for presentations because teachers who used their computers run out of battery during presentation which creates a huge gap in terms of technology application in schools.

3. Results from observation on enhancing learners learning through a well-maintained school infrastructure

In terms of enhancing learners learning through a well-maintained school infrastructure, it was observed that one of the schools had poor maintenance practice looking at the nature of the building and furniture, while the other school looked well-kept and teachers and learners seemed to be a bit comfortable in the school. Heads of the schools were seen especially in the morning going about probably inspecting and checking for damages in order not to interfere with teaching and learning. Teachers and learners used the facility on the premises appropriately, but in another school, learners went their own way to repair their broken desk by getting pieces of wood from other desk to fix theirs and these desk were seen packed at the back of one of the classes. If the plan for school designs are well evaluated with innovative technologies, such as well-equipped classrooms, staff rooms, good wash rooms, laboratories and adequate learning resources it can meet the needs of learners and teaching staff.

The following analysis of the data will illustrate;

The State of school infrastructure in the two selected basic schools in the Ewutu Effutu West District in the central region of Ghana.

Qualitative data obtained from interviewees suggest varied levels of infrastructure a school should have in spite of the fact that they lack some set of complementary facilities, teaching and learning materials in their schools. A further inquiry into how available the facilities were in their schools, some Participants indicated that they lacked pipe born water at the school premises which compelled them to fetch water elsewhere making it difficult to maintain good hygiene and sanitation, from Participant #3; we do not have water. In the school the only source of water is from the mission house, this takes about 30 to 40 minutes to get water. You know that washing should be done with a running water especially in this Covid-19 era. But because of the situation we fetch water into a veronica bucket which is not enough for the number of students on this compound.

Others had standing pipes which actually enhanced hand washing in this Covid era promoting effective personal hygiene and sanitation. The issue of lack of place of convenience was also raised indicating that learners and teachers struggle to get a place convenient to respond to nature's call. From an observation conducted a teacher and two learners who had to visit the loo sort for permission and had a neighbour's place and learners had to used bushes away from the school to be able to ease themselves. This wouldn't be so if the constructed toilet had water so that the place will be used for teachers and learners comfort in school to promote soundness of mind for studies. On the contrary the school with toilet facility used the place with ease and no one had to risk leaving the premises to ease themselves.

For a complete educational system, a class room is a major requirement for protecting learners and teachers from the bad weather even though it gets really warm due to the large class size making learners uncomfortable to study and so the need for more classrooms. A focus group discussion helped to discover that there were broken doors, windows, floor holes, perforated roofs which leads to leakage when it rains, burglary from outsiders after school hours as well as human excretes and nasty sexual scenes. This makes it very disturbing coming to school to clean such mess before learners can settle for lessons to begin and difficult to keep valuable items.

Schools that were close to the sea also had a feel of the deterioration by the breeze to the metallic materials in the building making their roofs very weak. Hence a change in the roofing sheet to suit the weather condition will help reduce the cost of maintenance. The canteen services was not left out since it is an essential activity associated with human beings. Most of the Participants complained about the vigorous activities of the sellers taking place under trees with learners squatting to eat in an airy environment where sand is sometimes blown in their food. With the help of observation done, it was evident that sellers sold under trees and had to reposition themselves when the sun became hotter, learners were spotted standing, while others sat on dry grass in order to eat since there was no proper shed or sitting area to sit comfortably.

In spite of the fact that the schools lacked an infrastructure or the other, the schools under study are motivated to come to teach and learn because they could manage with what was available even though if attention was given to them would have rather improved teaching and learning. Library is essential to the development of every individual since it helps to improve the reading skills of learners. Those who responded to this facility not being available also indicated that learners are still motivated to read

regardless of inadequate books and the facility itself. Those who had the facility also lacked enough furniture and books as well but also manages anyway.

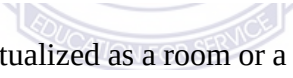
The absence of an ICT and science lab was of great concern to teachers and learners since the subjects to be studied are practical and will enable them to have hands on experience. This connotes that indeed the schools do not have the centres for practical of some subjects but they still manage to use their classroom to learn with the help of the teacher providing some improvised materials to make lessons effective. Participants made it known that through Information and Communication Technologies, schools have new sources of information and resources at their disposal, allowing both learners and teachers to make immediate enquiries. At the same time, they can access communication channels and interactive applications.

It will help speed up the transfer of information, increase student interest, and allow processes to be automated, among other aspects to be taken into account. It will improve concentration and comprehension. The activities carried out through digital and collaborative tools will increase student concentration and therefore, will assimilate concepts more quickly, enhancing learning. This type of tool involves students in more practical learning, with the aim of reinforcing what they have learnt.

With the aid of ICT, it will promote independent learning for students. The incorporation of digital alternatives such as online courses, each student can learn at their own pace, making good use of time and resources thanks to the flexibility provided by digitalisation and connectivity. It will encourage critical thinking.

It will facilitates communication between teachers and students. The whole educational community can have quick access to the same resources. In this way, digital tools will allow direct and immediate interaction, without the need to be physically present. This was especially important during the confinement experienced during the 2020 health crisis, which brought about virtual meetings and learning which increased classroom productivity and collaborative work. There will be improvement in learning productivity by making good use instruction time, collaborative work, due to new teaching formulas.

The incorporation of technologies in the classroom will also improve motivation of students as it is a quick and practical technique to stimulate the study of new concepts. ICT in education will enable teachers incorporate new teaching methodologies, thus improving academic results and encouraging dynamism in the classroom. Moreover, its usage will imply the development of the digital skills needed to avoid the digital divide.



Laboratory has been conceptualized as a room or a building specially built for teaching by demonstration of theoretical phenomenon into practical terms. These results agree with Farombi (2008), who argued that laboratory is essential to the teaching of sciences and the success of any science course is much dependent on the laboratory provision made for it.

Also teachers and learners mentioned the benefit they will derive from the infrastructure when provided; it was made known that truancy to school will reduce if not stopped since the school will be very conducive and interesting abode to stay and learn without much inconveniencies especially with the availability of wash rooms to help cease going home to attend to nature's call. This corresponds to what one Participant said

saying “teachers in school with schools with good infrastructure have less absenteeism than teachers in schools with deficient infrastructure”

The facilities will help improve teaching and learning since the practical aspect will be enhanced as they practice. Schools that were fortunate to have libraries and ICT centres testifies of the improvement in their reading skills and gaining more insight on Information technology

Available school infrastructure and learners learning

Data gathered here answered to the question ‘What subjects require provision of certain infrastructure to enhance effective teaching and learning.

The study indicated that, facilities like the laboratories needed to enhance the effectiveness of its courses, not being available means most practicals cannot be performed in the classroom leaving it to always rely on the theoretical aspect. the subject information communication and technology(ICT) needs a laboratory and its accessories especially for the primary side of the school since that of the J.H.S is not available during contact hours due to the number of learners that go in turns during school hours and learners couldn’t contribute to help maintain the place.

It is evident that learners’ interest in science is gradually diminishing if not diminished since science is seen as a difficult subject and are scared to pursue further studies in science. In the focus group discussion it was added that when it was time for reading they sat in their classes, distributed books that were kept in boxes to read because there were no proper place to keep them. The issue was that the books are insufficient hence they sit in pairs to read. This is a compromising situation for learners since it was the only way to read.

Teachers raised the concern of basic design and technology (BDT) which comprises of visual art, home economics and pre technical skills not having the enough classrooms when the learners were grouped into the various units as such some study under trees and also procure most of the TLMs themselves making it difficult to convey them all the time for practical. This is in line with Participant #6 response “Teachers carry learning materials to and fro for a successful lesson”.

Data gathered concerning the infrastructure missing in the class room impeding teaching and learning were voiced out by most Participant indicating that books were kept on teacher’s tables making them messy since there were no cupboards. The issue of inadequate desk was raised in both schools. A focus group discussion drew attention to the lack of electricity which is very essential especially for teachers who like to use it for presentations. Sometimes presentations gets disrupted due to batteries running down as such if power was available, lessons will run smoothly. The text books shortage was not left out since it created huge problems for teachers in terms of teaching, learners won’t buy the required books because their parents complain of lack of funds, that of government are insufficient which makes it hard for learners to relate to what is being taught. These results were in agreement with Mbipom (2010) who described instructional materials as that which the teacher uses to achieve his set objectives. She further observed that lack of educational resources in our schools has been a major problem in the instructional process. She concluded that ideally, no effective education could take place without equipment, facilities, materials etc. In her observation, a school environment that was handicapped by the non-availability of these learning and teaching facilities may strongly affect the level of students’ academic performance. This then implies that learning equipment and materials have their own

effects on the academic performance of the students. Instructional materials are channels through which contents stimuli are presented to the learner.

From the focus group discussions; there are policy makers that is (GES) that makes sure a particular infrastructure is in place to study a particular course but the resources are either not available or inadequate. Various appeals made to authorities to make available certain facilities must try to help schools with such need to enable teachers teach with ease, even as the schools improvises and make do with what they have.

Educational Authorities and the state of school infrastructure

The Participants clearly indicated that the different government institutions and agencies under Ministry of Education provide varied infrastructure and school resources from the centre with little input from the district assembly level in basic schools in Ewutu Effutu Senya District. The data explains how District Assembly and other organisations go about their contribution, it is in response to the question how government and other organisations contribute to the infrastructural development of the school. This is in accordance with Interviewee # 6 statement saying; normally it is the District Assembly that sponsor projects but sometimes when there is the need for others and it is not forth coming, other benevolent individuals come in to help with needed infrastructure by writing to the Education office and the District Assembly to go on with a particular project as part of fulfilling their social responsibilities.

In the course of the interview an officer from the District Assembly revealed that government does not factor the other facilities like Library, ICT lab and a staff room into the structural design of a school building in most cases. Because if it did the new 9 block design should have been thirteen instead, and even giving a room to our girls to change when it's that time of the month. What.

It is as a result of low revenue generation challenges coupled with the Assemblies expenditure makes it difficult to meet the needs of schools. Hence schools were compelled to find the means of getting certain facilities through benevolent individuals. Not all schools are able to pull through soliciting for funds. One of the schools was fortunate to get the needed support to have some facilities in place, as indicated by one the heads of the school saying; parents were supportive since they helped in organizing a Speech and Price giving day with the motive of appealing to the dignitaries invited to construct an ICT lab which was very paramount to us. Letters were sent to them and they honoured the invitation by attending. This need has by God's grace been established by the Honourable M.P. Alexander Affenyo Markins which is the ICT lab we have now. Old students have also contributed immensely to the construction of a urinal for teachers and Head teacher and also with the donation from PTA to aid in the construction of a classroom block attached to the ICT lab".

Efforts are made by other teachers to also get the support but they said it comes in bits and much cannot be done. The heads of the schools lamented that community mobilization towards facility provision is discouraging because they believe that since government is providing free education at basic school level, the community should not be tasked to assist. And so the reason why help doesn't come on a silver platter, it is difficult acquiring some needed infrastructure for the school. Other reasons of delay on behalf of the Assembly to respond to demands made in terms of infrastructure provision was also mentioned. A confirmation was made by an officer saying; I may not be able to give empirical reasons for the challenges since I don't work with the central government. Even when schools write to the Office it doesn't happen there and then, the Assembly will be copied and they will also have to include it in their budget for approval before funds are released from central government. Based on central

government's budget, they are sometimes unable to satisfy all the schools with needs since they may lack adequate funds to do that. It is in line with what other researchers found. School buildings, furniture and equipment were dilapidated and basic materials like textbooks and stationary were lacking (Akyeampong, 2004).

With all these brouhaha NGOs that may be willing to help still needs permission from the district before they can go ahead to assist any school with infrastructure provision.

The Data describes how the PTA and SMC gets involved in the development of school's infrastructure, it was made clear that the SMC is not as vibrant as the PTA. The PTA meets to deliberate on issues concerning the school and comes out with ways of salvaging situations, but due to the covid-19, meetings turn out are not encouraging so contributions towards school project are not forthcoming. That notwithstanding, one of the schools indicated, some of them were very supportive in helping to organise speech day which has landed them a three unit classroom block and an ICT lab.

The officer from the Assembly also made it known that the supportiveness of the PTA depends on the leadership of the school. The District wait for financial resources to be released from central government for developmental projects and supplies to be rolled out in the district. This delays execution of critical projects like construction of classroom blocks and the supply of essential learning materials and equipment for use in basic schools.

Enhancing pupil's learning through improved School infrastructure.

With regards to the interview, the study revealed that the Ministry of Education identifies the educational programme and the infrastructure that will enhance its learning and that the school has no hand in that. It was made clear that unless a facility

is not in place to aid the study of a subject, the head teacher can make a request for such to enable effective teaching and learning of the subject.

These responses implicate that authorities responsible for providing education know exactly the right infrastructure to provide to enhance the learning of a particular subject or programme.

On the subject of how one makes decision regarding whether an educational structure needs improvement or replacement to enhance teaching and learning was clarified by Participants saying the heads of the school are those in charge as such immediately a fault or problem regarding infrastructure is detected, then it means it needs repair or replacement so they do what they are able to do if there is the means to and those that are beyond their control they solicited for funds with the help of some teachers to get help from philanthropist. An instance was when a school was able to procure a veronica bucket each for each class when they only had one for the whole school, with the help of an individual. Also fixing cracks in the walls of the school before it got worse was some ways of improving on infrastructure to enhance learning and teaching.

During times of unforeseen events like flood, fire out break or theft, Participant said the authorities take charge of repairs and maintenance like NADMO or NGOs and reporting it to the Education office then further to the district assembly to remedy a worse situation. This data was gathered with respect to the maintenance culture in the school which was described as satisfactory since there isn't enough funds to fix damaged infrastructure so learners are seen fixing their own broken desk which is in congruent with the results from the observation proved that behind one of the classes were pile of broken desk. One of the heads said teachers must also be proactive in order to report damages so that there can be timely intervention. This implies that if damages

are managed in time, much money won't be spent on maintenance and damages won't escalate.

Maintenance culture in other schools were said to be good since there were frequent checks on infrastructure most especially because they were close to the sea. It enabled them to keep their roofing sheets intact from rusty nails which easily get weak and can rip off easily. It was in confirmation with what was gathered during the observation where the Head was seen going round the school premises for checks as part of her routine.

In response to the interview, Participant #2 had this to say;

I do check if any facility or teaching and learning materials are faulty so that remedies are taken to save the situation before it hampers the teaching and learning process. The daily routine is done by the head so that any facility at fault can be repaired immediately to prevent further deterioration and delay in getting help to fix the situation for lessons to go on successfully because it sometimes takes about a year for response to come from the office.

It is the heads that see to the day to day maintenance of infrastructure so that it is controlled from interrupting lessons but with it is beyond their control, the authorities come in to salvage the situation for school to be in progress. The benefit schools derive from being proactive and practicing good maintenance culture are; Learners and teachers become comfortable to learn in a safe environment since maintenance of infrastructure is done regularly. It becomes well organized and beautiful because facilities will be in a good shape which eventually increases enrolment.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter provides a summary of the study and its major findings, conclusions from the analysis and recommendations made from the conclusions of the study.

5.1 Summary of the study

The study examined school infrastructure and learners learning in selected public basic schools taking Effutu municipality.

The objectives of the study were to:

1. To find out the state of School infrastructure in selected public basic schools in the Effutu Municipality.
2. To investigate how available school infrastructure influence learners learning in selected public basic schools in the Effutu Municipality.
3. To find out how educational authorities contribute to the state of School infrastructure in the selected public basic schools in the Effutu Municipality.
4. To find out how a well-maintained school infrastructure can enhance learners' learning in selected public basic schools in the Effutu Municipality.

The study was a qualitative approach that employed the case study research design. Three instruments namely interview guide, focus group discussion and observation protocol were used to gather primary information from the Participants. The population of the study included Junior high school learners, teachers, head teachers and a district assembly personnel. A sample of 15 Participants were involved in the study. They were selected through non-probability sampling methods (convenience and purposive sampling techniques).

Data was analysed by thematic procedure based on the themes arrived at during the data collection. The themes were related to the research questions and interpreted on the number of issues raised by Participants.

5.2 Summary

The research revealed the following major findings;

1. What is the state of school infrastructure in selected public basic schools

The study revealed that the major infrastructure provided in schools sampled was a classroom block without the complement of other infrastructure and learning material, lack of pipe born water at the school premises compelled learners to fetch water elsewhere which led to poor hygienic and sanitation practice, contrary to this those with the pipe born water had improved sanitation. A toilet facility to provide comfort for learners and teachers was sighted but was not in use due to non-availability of water hence rendering them stranded whenever nature called. This result is in agreement with (Kapur, 2019), it has been comprehensively understood that the infrastructure development in schools is regarded to be having a considerable influence in enabling them to achieve the desired educational objectives. However, inadequate provision of furniture and textbooks to schools affected effective teaching and learning since learners had to adjust their sitting position to accommodate others and others couldn't refer to what the teacher taught since there are no books. Meanwhile the roofs of the classrooms provided had no ceilings and were perforated as well leading to rain leaks. Thus, teaching and learning were affected in the afternoon because of heat and density of the class. Theft from delinquents were common due to damaged doors and windows which also left scenes of sex and human.

Meanwhile schools close to the shores had their roofs weakened by the breeze hence always maintaining to prevent it from ripping off. In the study, no appropriate canteen structure was spotted as such food vendors sold under trees at the mercy of the weather conditions without any shed, learners ate whiles standing squatting and others seated on dry grass sometimes struggling to prevent sand from being blown into their food. Learners admitted they ate at that area since there were no alternatives. Teachers reported that learners are motivated to read even in the absence of ate books by bringing them in chop box and locking it after reading in class. Those with libraries also lacked enough furniture and books but were also motivated anyway.

Some teachers complained of ICT labs not being accessible to primary learners due to the time schedules of the Junior high school learners and the location of the lab which seemed accessible to the JHS learners since it is on their premises sometimes demand some fee from parents to maintain the lab since the learners sometimes cause damages especially the kids. This as a result has led to only JHS learners using the facility. Other schools also lacked enough computers for studies rendering them to sit in groups which did not enhance individual experience with demonstrations taught. From the analyses based on the literature, provision of adequate infrastructure will curb discomfort amongst learners and teachers making school an interesting place to be and leading to effective teaching and learning.

2. How does the available school infrastructure affect learners' learning

From the analyses developed in this research, certain subjects require the availability of particular infrastructure to enhance effective teaching and learning. Teachers and learners however indicated that there was a need for well-equipped labs for the learning and promotion of science and Information communication and technology to have a

practical experience of what is being taught since the subject is more effective when practiced. Majority of students did not express their interest in the sciences since it was seen as difficult where as if they were provided with the necessary resources for experiment it would have made them rather appreciative hence the desire to pursue further studies. Reading time was interesting to learners since it would help improve on their vocabularies and diction but if the situation may not be that feasible because the comfort to have a book to a pupil was futile, learners had to be paired in order to get access to a book. This does not allow learners to own the book.

The study explored that the study of basic design and technology (BDT) comprising of visual art, home economics and pre technical skills do not have the available space when learners are grouped into the various subject units, those who do not get access to a class study under trees for that period. The need for extra classrooms has become paramount in order to get learners comfortable for studies without having to move desk back and forth. There was the issue of conveying the learning resources whenever there was practical, TLRs are not adequate as a result most teachers procure their TLR in order to have a successful lesson. These results are in agreement with Etim (2011), who concluded that instructional materials should be made available for teaching economics as their availability produced the interest of both the teacher and the students.

It was also discovered that the class room lacked certain infrastructure that impedes learning and teaching. The concern of absence of cupboards in class was raised as books were kept on teacher's tables and underneath when there was no space left. This actually rendered the books to be in bad shape and dusty. It is best when books of learners have a proper storage place to ease them of carrying them around and give teachers the comfort to use their desk for effective marking. Attention was drawn to the issue of

inadequate desk for learners to sit on as well as absence of electricity in class rooms to enable teachers carry out presentations. Teachers who bring their laptops for presentations may not complete their lessons due to batteries running low battery. The study discovered that text books were always inadequate as such learners were paired to use the available books or else some may not get what the teacher taught after the lessons. It serves as a source of reference anytime learners want to recall and enable learners participate in the course of teaching.

3. In what ways do educational Authorities contribute to the state of school infrastructure

This study threw more light on authorities and their contributions to the state of school infrastructure by indicating that Ministry of Education and other institutions contribute to the development of infrastructure in schools. Participant stated emphatically that the district assembly sponsor projects in the schools but then other benevolent societies also come in to aid them with their needs. Before any organisation wants to start a project in any school, the education office is notified by writing and copied to the Assembly for approval before any project can commence. The reason for the absence of certain facilities was also clarified by a Participant saying government does not factor library, ICT lab and staff room into the structural design of school building, under normal circumstance there should have been a provision of girls' changing room in times of having their period nonetheless it is not so in most schools in Ghana due to low revenue and high expenditure of the assembly. Schools are compelled to solicit for funds from individuals and co-operate organisations.

Parents were supportive when they helped organise speech day in one of the schools, appealed to dignitaries like the MP Hon. Alexander Affenyo Markins which got them an ICT lab and a library on the school premises but at the same time to serve the community at large. PTA also aided in classroom block construction as well as Old students contributing to the construction of urinal for the school. These facilities are paramount for every educational institution to enhance effective teaching and learning. Other teachers lamented how difficult it is sometimes to get aid, and even when it comes it is not much. The head teachers believe that the free education has made community members adamant in helping the school with its need thinking government must provide everything.

Branham (2004) stated that the condition of school infrastructure has crucial consequences for school performance particularly in school attendance and drop-out rates. He argues that the best teachers, the best administrators and the best principals have absolutely no value in improving education if learners do not come to school. From the study, the officer made it clear why there are delays on the part of the Assembly in responding infrastructure request from schools; he stated that when the they are copied, it is then included in their budget for approval before funds are released from central government. Based on central government's budget, they are sometimes unable to satisfy all the schools with needs since they may lack adequate funds to do that. As such schools are grappling with the provision of requisite basic school infrastructure.

4. How can a well-maintained school infrastructure enhance learner's learning

It was made known in the study that the Ministry of Education is responsible for educational programme or subject studied and its associated infrastructure to facilitate its study. This implies that there should be available TLM for every subject studied since the authorities identify the programme themselves and know how useful it is for a holistic development.

It was made known in the study that the Heads as part of their duties detects faults in a facility and decides if it needs improvement or replacement to enhance teaching and learning. When repairs that are beyond their capacity, they try to appeal to for support. However during moments of disaster like flood, fire out break and the likes, authorities like NADMO or NGOs as well as alerting the Education office then copy the Assembly to help remedy the situation. The internal generated funds of basic schools amount to nothing much as such some are not able to practice a good maintenance culture since some teachers lamented that learners are sometimes compelled to fix their broken desk by breaking other broken desk to get pieces of wood to fix others. Teachers were suggested by their head to be proactive to help manage the situation before it gets worse, a stich in time they say saves nine

From the findings of this study other teachers also testified of good maintenance culture since there are frequent checks done on infrastructure their facilities with iron and metals from getting rusty because of the sea breeze. Michael (2019), found out that the inadequate or poor school facilities affect the academic performance of secondary school students and teachers negatively. It was further revealed that maintenance culture of available facilities was a major problem. In confirmation to this, the head teacher was seen checking around the premises and buildings for any damages as part

of her duties. There are numerous benefits a school attain if there is the practice of proper maintenance culture; schools are able to go about teaching and learning without disruptions, it keeps the facilities in shape and conducive for effective teaching and learning increasing enrolment.

5.3 Conclusion

Based on the findings the following conclusions are drawn:

a. Deplorable state of infrastructure

The analyses developed around the state of School infrastructure connotes that schools had some facilities but the complements were either not available or inadequate. Schools that lacked pipe borne water had to fetch water elsewhere to the school premises which inconvenienced the learners which do not enhance good sanitation. Urinals were available but not used due to the water issue. The design of the urinal is such that it uses water so if the place is opened for use in the absence of water, the place will be unhygienic. Furniture for learners were not enough to accommodate the learners as well as textbooks to guide learners when they want to refer for effective teaching and learning. This implies that furniture and text books provision is not encouraging. Leaked roof, broken doors and windows led to discomfort during raining, theft after school closes by unscrupulous people was the order since it is realised the next morning when school starts. Those close to the shore are vulnerable especially with the type of materials used for building hence always repairing and maintaining to prevent further damage. School canteen is nothing to write home about because it is not convenient for learners since they have not shed and benches to sit to eat, as a result learners are seen squatting to eat at the mercy of the weather.

Reading is a foundation for a child's development but schools without library read even though the books are inadequate and have no proper storage place, it actually diminish the interest to read because a book has to be shared to be used. ICT labs lacked enough computers and so the primary side of one of the schools couldn't get access to the lab with the excuse of not maintaining the place well. This has led to only JHS learners using the lab neglecting the primary learners. Lots of attention ought to be given to solving developmental challenges in educational system particularly at the basic level could be the ideal way of bridging the gap in infrastructure deficit in many basic schools in Ewutu Effutu District Assembly.

b. Available school infrastructure and learners' learning

Education is the backbone of a developed country, when taken for granted can affect its development and the people. For technological development of a state science education plays a major role as such to promote education, the learning of subjects like Science, ICT, literacy, BDT and others need to have the requisite labs, tools, equipment, TLRs to enhance its studies otherwise the interest in learners to study will diminish and the probability of further studies in the science fields will be discouraged because of the initial fear of the subjects. Reading is paramount in terms of educating a child since that is what one has to be familiar with before other subjects are introduced besides if learners are good with their vocabs and alphabets learning comes with ease. The act of reading will be more fun if there are enough books to read without sharing to read.

It was discovered that certain infrastructure were absent in the class like cupboards which compels learners to keep their books on teacher's table and on the floor leaving them in bad shape and dusty, since that was the alternative. Desk to sit was as well inadequate, the already crowded class room have learners sharing a seat. Lack of

electricity for presentation in class was mentioned as such teachers who bring their lap tops for presentations end abruptly due to battery running low, all these lapses similarly impedes learning and teaching.

c. Educational authorities and the state of school infrastructure

The schools follow the necessary procedure to get the authorities to get them the needed infrastructure by going through the Education Office to the District Assembly. On the contrary certain facilities are missing in most government basic schools because they do not factor library, ICT lab and staff room into the structural design of school building, not even a changing room for girls when it is that time of the month as confirmed by an officer from the Assembly. The reason for the lack of provision was attributed to low revenue and high expenditure of the Assembly. Benevolent individuals and societies are said to have also helped in the sponsoring of some projects in the schools with permission from the authorities. PTA aided in the construction of a classroom block and helped in organising a speech day where a school was able to appeal to the Hon. A. Markins to get them an ICT lab and a library which serves both the school and the community at large. Others are not fortunate to have concerned parents to help the school procure certain facilities. Sometimes there are delays with responding to school's request because it is then included in their budget for approval before funds are released from central government. Based on central government's budget, they are sometimes unable to satisfy all the schools with needs since they may lack funds. Support and response from the District Assembly to infrastructure provision in basic school is very poor none the less they can do better to enhance effective teaching and learning.

d. Maintained infrastructure and learners' learning.

In order to enhance effective teaching and learning of the various subjects, the required facilities to teach the subjects are to be made available in schools by the authorities to enable teachers teach with ease. The Head teachers of the schools help maintain the available infrastructure by doing proper checks on daily basis to detect faults for immediate remedy. During emergency situation like floods, theft or fire, they inform the Education office and the Assembly to know the extent of damage and further contact NADMO or NGOs for help. Schools lack funds to maintain facilities hence compelling learners to destroy broken furniture to repair others. There is a reduced interest of community members to contribute to school development agenda particularly on the framework of free education policy by governments towards basic education and the restrictions placed on schools levying learners in respect of parent-teacher association (PTAs) fees. As a result, community members are reluctant to assist in providing essential and critical facilities in schools for effective teaching and learning in the Ewutu Effutu District. Some teachers are told to be proactive while others aren't with regards to checking on damaged facilities in schools in order not to interrupt lessons when the situation escalates. The benefit they will derive from good maintenance culture are a conducive environment to teach and learn, promoting attendance and enrolment, just a few to mention.

In conclusion, insufficient school infrastructure, instructional materials, inadequate funds and poor maintenance culture have a negative influence on learners learning. The school equipment and materials like classrooms with electricity, laboratories, libraries, BDT learning resources computers with internet, textbooks, science apparatus, potable water and good place of convenience were not sufficient or unavailable for successful teaching and learning.

5.4 Recommendation

The Ghana Education Service through the District Education Directorate should provide adequate School infrastructure; pipe borne water, fully completed urinals, enough furniture, teaching and learning materials for the various subjects, furnish the selected schools with well stocked libraries to improve reading and supplying adequate number of computers to enable every child get access to a computer to improve teaching and learning at the selected schools. This will help improve on sanitation and hygienic conditions of schools and render the school a haven for effective studies.

The classrooms that need a phase lift must be attended to with urgency to curb any mishap, as a result windows, doors, perforated and rusty roofs and severe cracks must be mended in time. Cupboards are very important to store books. Government interventions (through Ministry of Education) in basic schools like building facilities, capitation grant, free textbooks and furniture to schools should be properly coordinated and centralized at the District level to reduce the shift time for their delivery to the intended beneficiary basic schools. The building designs for basic schools must be revised to include libraries, labs, staff rooms and a place for girls to change during their menstruation to motivate them come to school always. This would help avoid a situation where one government agency provides classroom alone whilst the schools wait for another agency to provide furniture, textbook and other logistics at another time. Ensuring such a quick to respond to deliver resources to basic school would go a long way to assure unhindered access and continuous teaching and learning.

Communities should be engaged to form part of the Ewutu Effutu District Assembly's initiative towards mobilizing assured funding for infrastructure provision. Through a better relationship involved in decision making will create an awareness among

teachers, school management committees, parent-teacher associations, chiefs, assemblymen, corporate organisations and civil society organisations in the District about current needs of each school. This will enable the school practice the act of good maintenance culture to promote effective learning and teaching.

5.5 Suggestions for further studies

From the Findings of the study, further research has been recommended in the areas below:

1. The influence of infrastructure deficit on assessment and teacher retention in public basic schools
2. An assessment of the extent to which the provision of school infrastructure development fund has promoted access and quality education in public basic schools.
3. An assessment of the role of laboratory with adequate equipment on learners learning in public basic schools.
4. A need to carry out a study to evaluate the effective implementation of the co-curriculum activities in public basic schools.
5. This study was conducted in Winneba in the Effutu Ewutu municipality; there is the need for a replication of this study in other municipalities to inspire more accurate national perspective on School infrastructure and learners learning in Public basic schools, in Ghana.

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APPENDICES

APPENDIX A

Interview Guide

UNIVERSITY OF EDUCATION, WINNEBA

DEPARTMENT OF EDUCATIONAL ADMINISTRATION AND MANAGEMENT

1. State of school infrastructure in public basic school

1. What in your view constitute school infrastructure in your schools and how available are these?
2. What difficulty do you encounter when using the school infrastructure?
3. How does the infrastructure in the school enhance the effective learning of the pupil?
4. Describe the types of infrastructure that pupil do not have or use at the moment?
5. Would you say students refuse to use these infrastructure or they don't know their uses and how they function?
6. What are the benefits of using infrastructure?

2. Available infrastructure and learners learning

1. What would you say are the subject or programmes that requires provision of certain infrastructure to enhance effective learning?
2. What are the infrastructure needed to enhance learning of such subjects?
3. What facilities does the classroom lack that impedes learning?
4. In your own view what basic infrastructure does the school need to enable effective teaching?

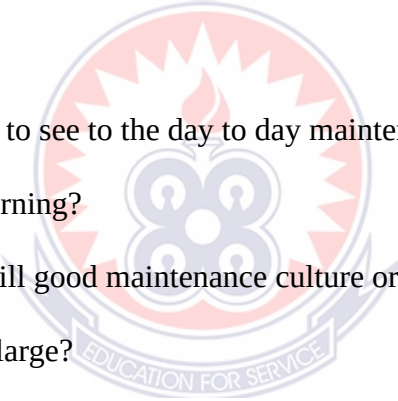
3. Educational authorities and the state of School infrastructure

1. How does the government and other organisations contribute to the infrastructural development of the school?
2. What procedure do you use to solicit for other funds for the establishment of school infrastructure?

3. What difficulty do you face in acquiring needed infrastructure for the school?
4. How does the PA get involved in the development of school infrastructure?

4. Enhancing learners' learning through a well-maintained school infrastructure

5. Whose responsibility is it to identify the educational programmes and the infrastructure that will enhance its learning?
6. How do you make decisions regarding whether an educational structure needs improvement or replacement to enhance teaching and learning?
7. Describe the maintenance culture in your school?
8. During emergency situation, for example in times of disaster, how do you go about repair of damage done to infrastructure in order not to disrupt teaching and learning?
9. Whose duty is it to see to the day to day maintenance of school infrastructure for enhanced learning?
10. What benefits will good maintenance culture or practice bring to the school and the pupil at large?



APPENDIX B

Focus Group Interview Scedule

AREA	Participant	QUESTIONS
State of school infrastructure in public basic school	Head teacher, Teachers and learners	1. How does the infrastructure in the school help in teaching and learning? 2. What might be the reason why a particular infrastructure may not be used?
Available infrastructure and learners learning	Teachers and learners	1. What infrastructure does the school lack and how have these affected teaching and learning? 2. What has been done about that? 3. What does the classroom lack that hinders teaching and learning in the school? 4. What infrastructure will motivate teachers and learners to be efficient and effective in teaching and learning? 5. Is there any infrastructure that you wish to have in the school that is not available?
Educational authorities and the state of School infrastructure	Heads Education officer	1. What has the authorities done to improve the situation of infrastructure in the school? 2. How does the PTA and SMC get involved in school's Infrastructural development? 3. How do you get government and ganisations and individuals to raise funds for infrastructure development in the school?
Enhancing learners learning through a well-maintained school infrastructure	HeadTeaachers Teachers	1. Whose duty is it to see to the day to day maintenance of the school infrastructure? 2. How are the infrastructure maintained or cared for in the school? 3. How would you explain the advantages of good infrastructure maintenance culture to the school and the pupil at large?

**CLASSROOM OBSERVATION CHECKLIST ON EDUCATIONAL
INFRASTRUCTURE AND LEARNERS LEARNING**

TASK/ Item	AV	N/A	INAD	COMMENT
State of School infrastructure				
1. Source of water				
2. Urinal or toilet facility				
3. Well-equipped library				
4. Sufficient books and desk				
5. Class size and ventilation				
6. Canteen				
7. ICT lab				
8. Science lab				
Available school infrastructure and learners learning				
1. TLRs for the subjects studied				
2. Nature of classroom infrastructure				
3. Windows, doors, cupboards, desk, books, electricity				
Enhancing learners learning through improved infrastructure				
1. Maintenance practice or culture 2. Frequent checks on infrastructure				

APPENDIX B

Letter of Introduction

