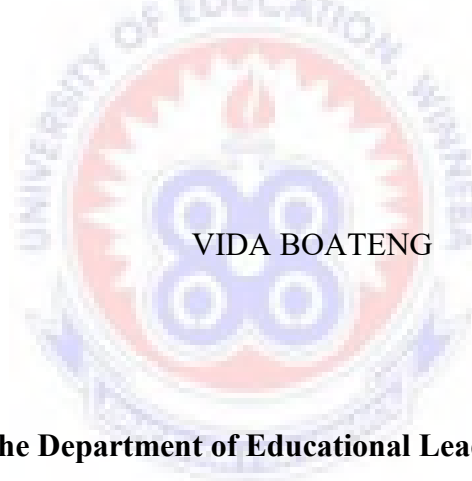UNIVERSITY OF EDUCATION, WINNEBA

USAGE OF INSTRUCTIONAL MATERIALS AND ITS CHALLENGES IN

LESSON DELIVERY IN THE AKROPONG CIRCUIT OF THE ATWIMA

NWABIAGYA DISTRICT

VIDA BOATENG

A Dissertation in the Department of Educational Leadership, Faculty of Education

and Communication Sciences, submitted to the School of Graduate Studies,

University of Education, Winneba in partial fulfilment of requirements for award

of the Master of Arts (Educational Leadership) degree

DECEMBER, 2020

DECLARATION

STUDENT'S DECLARATION

I, VIDA BOATENG, declare that this project report, with the exception of quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

SIGNATURE……………………………..…

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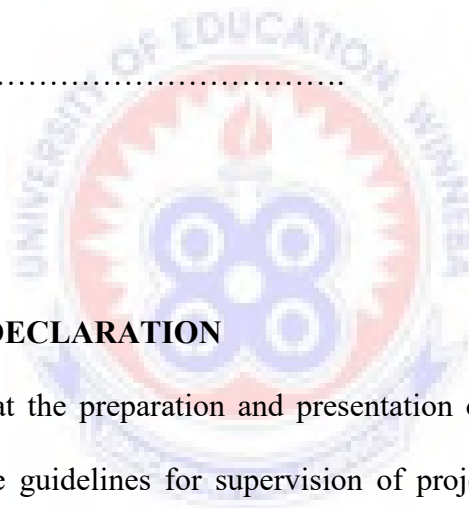
SUPERVISOR'S DECLARATION

I hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines for supervision of project report as laid down by the University of Education, Winneba.

NAME OF SUPERVISOR: REV. SR. DR. MARY ASSUMPTA AYIKUE

SIGNATURE…………………………………………………

DATE…………………………………………………………

ACKNOWLEDGEMENTS

I wish to express my profound gratitude to God the almighty for His direction and favours granted me throughout this academic work. My profound appreciation also goes to my Supervisor; Rev. Sr. Dr. Mary Assumpta Ayikue for his productive criticisms and guidance throughout this research.

I also wish to express my gratitude to my husband and my children who stood by me in some of the difficult times while on the programme. Finally, to all who have helped in bringing this project report to a successful completion, I say may God bless you all.

DEDICATION

To my husband and children.

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ABSTRACT

The purpose of the study was to explore the usage of instructional materials and the associate challenges with the usage in lesson delivery in basic schools in the Akropong circuit of the Atwima Nwabiagya District in the Ashanti Region. The objectives of the study were to determine the instructional materials available, find out the effect of instructional materials usage on lesson delivery, and to ascertain the challenges on the use of instructional material in lesson delivery in Basic Schools in the Akropong Circuit of the Atwima Nwabiagya District. Descriptive cross-sectional survey design using the quantitative approach was used for the study. The target population of the study consists of all the 95 headteachers and teachers in the seven public Junior High Schools in the Akropong Circuit. Purposive sampling technique was used to select all the seven head teachers. Simple random sampling technique was also used to select 10 teachers from each of the seven Junior High Schools making a sample size of 77 for the study. The study found among others that charts, text books, library books, laboratories for practical work, pictures were kinds of instructional materials available in basic schools. Also, the effects of the use of instructional materials were that it improves pupils participation in lesson delivery, promotes retention, and also helps to remove dullness during lesson delivery. Again, lack of finance to acquire or improvise needed instructional materials, lack of electricity to be used for instructional materials that uses electrical power and inadequate in-service training to upgrade the knowledge of teachers towards the proper use of modern instructional materials were some of the challenges in the use of instructional materials. It is recommended based on the findings that the Atwima Nwabiagya District Education Service should make available adequate teaching and learning materials to enhance teaching and learning in basic schools under the supervision of the Atwima Nwabiagya District Education Service.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The development of a nation depends on the number of educated people a nation has been able to equip with the needed skills, knowledge, desires, and aspirations, which are acquired through formal education in school. Education is the primary means of bringing about changes, development and contributes to the economic development of any nation (Morgan, 2008).

It is recognized the world over that education is a very important tool in national development. This is because it is through education that the nation‟s human resources which ultimately determine the character and pace of its social and economic development is developed (Ato, 2010).

The purpose of schools is to educate students. To educate means to help students change and to help them learn and do new things. When teachers have helped students to read, identify parts of speech in a sentence, use the scientific method, or write a cohesive paragraph, they have educated these students (Ato, 2010). This view leads to a fundamental question all teachers have to ask themselves: what do I want my students to know or be able to do following instruction that they did not know or do at the start of instruction?

Caring critics (Ato, 2010) often suggest that education conceived solely as a process of pre-planned student behaviour change can lead to a preoccupation with narrow expectations or learning outcomes and afford the student virtually no role in the creation of his or her own educational program. Critics recognize the importance of a teacher‟s ability to creatively build upon a student‟s prior experience and to seek multiple, not necessarily predefined, outcomes from instruction. But despite the merits

of alternative views, education for most teachers is conceived, practiced, and assessed with the primary function of helping to change learners in desired ways (Ato, 2010).

In the words of Morgan (2008), education is viewed as an instrument for promoting and controlling change, for transmitting national values, economic skills and as a medium for incorporating into rapidly changing national society, typified by pluralism in relation to beliefs and roles and the individual''s attachment to one or many of these.

Gbordzoe (2005) also stated that education should be used to transform human resource. Education is also concerned with, the united concern of a people for the right upbringing of its children and improvement of its national life.

The findings from studies by the World Bank and other international organizations on the quality of learning achieved in the developing countries points to the great importance of the following school inputs: teachers (class size, teacher training and morale); instructional materials (textbooks and other reading materials; writing implements (radio, computer and other instructional media); school buildings and facilities; nutrition and health of children; language of instruction; and examinations (Eshiwani, 1986). The World Bank indicated that majority of countries in Africa experience shortage of qualified teachers at all levels. Classroom instruction is often given by unqualified or untrained teachers. Despite the fact that some schools may have the best facilities; yet they fail to produce strong students due to the negligence of teachers towards the use of instructional materials in the teaching and learning process. In this situation, the provision of good teaching resources is likely to improve the quality of learning. This is likely to be the case because provision of such instructional materials will help promote systematic learning activities in the classroom and supplement teachers' limited knowledge (Eshiwani, 1986).

The role of instructional materials or teaching aids to enhance teaching for desired social and behavioral changes cannot be over-emphasized since it is a pre-requisite in affecting behaviour of learners of every field. According to Iwu, Ijioma, Onoja and Nzewuihe (2011), effective instruction cannot be fully accomplished without the use of instructional materials. The reason for this cannot be far-fetched; they include advances in technology which ushered in instructional materials especially the projected and electronic materials as the most radical tools of globalization and social development. This has affected the classroom teaching-leaning process positively.

The technological breakthroughs on teaching materials or teaching aids include projected and non-projected, auditory, audio-visual and visual electronic materials which are important landmarks in knowledge transfer (Iwu, et al., 2011). Teaching aids provide the teacher with interesting and compelling platforms for conveying information since they motivate learners to learn more and more. Also it provides opportunities for private study and at the same time stimulate learners" interest and curiosity. It goes further in helping the teacher to overcome physical difficulties that could have hindered his effective presentation of a given topic (Iwu et al., 2011).

Makori and Onderi (2014) indicated that there is significant consensus across school effectiveness literature regarding the importance of resources in the teaching and learning process. It is the positive combined effect of these factors of resources that impact on students" or pupils" teaching and learning and/or achievement. It can therefore be argued that lack of one or several of these factors undermines the impact of resources on students" achievement. For instance, Steele (2007) observes that teachers may be inefficient in the use of certain resources and therefore weakening their impact on the teaching and learning process. Subsequently, if the resource"s impact is weak because it is inappropriately used by a teacher then it follows that its relationship to or impact on

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students" achievement may be negative or poor. It is also possible that the teachers using a particular resource are not well trained or competent enough and therefore the impact of that resource in the teaching and learning process may be poor or rather weak.

Engin-Demir (2009) as cited in Makori and Onderi (2014) argues that merely equipping schools with such facilities is not enough to raise student achievement, rather what matters most is whether these facilities are utilized properly. In that connection many studies have reported wide ranging verdicts on teaching and learning resources such as no significant effect, little association, inconsistent, negative or mixed results because they have failed to take care of the aforementioned factors in their investigations. Policy-makers would want to make informed decisions in terms of spending wisely on resources that would result in higher students/pupils performance or returns. Regrettably this has been a recurring concern in the educational research literature for some time now (Marks, 2010). This study seeks to investigate the usage of instructional materials and its challenges on lesson delivery in selected basic schools in the Awima Nwabiagya District.

1.2 Statement of the Problem

Instructional materials are very important in lesson delivery in the educational sector to enhance teaching and learning. Bolick (2003) maintained that teaching aids are integral components of teaching-learning situations and not just a supplement but a complement to the teaching-learning process. Thus, if there must be an effective teaching-learning activity, the utilization of instructional materials is very necessary.

Ema and Ajayi (2004) postulates that teaching equipment and materials have changed over the years not only to facilitate teaching-learning situation but also to address the instructional needs of individuals and groups. Instructional materials are

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therefore objects or things the teacher uses in the classroom while teaching to ease off his teaching activities. Teaching aids eliminate the abstract nature of certain subject matters by concretizing the facts in the lesson content. However, it is observed that, in the study area, standard of learning is below expectation due to perceived challenges in the use of instructional material in the teaching and learning processes. For instance libraries as teaching and learning resource in general contribute to other areas such as: lifelong learning, literacy enhancement, informed citizenship, recreation, creative imagination, individual research, critical thinking and ultimately empowerment in an increasingly complex world (Krolak, 2005). Mji and Mkagato (2006) also add that library usage contributes to the improvement of the learners" higher order of learning skills such as analysis, problem solving and evaluation. Unfortunately, in Sub-Saharan Africa which includes Ghana, school libraries are either not available or in poor condition or both (Etsey, 2005). However, availability of libraries is one thing and utilising them effectively is another; for instance, Seniwoliba (2013) reports that in Ghana libraries are not fully utilised by either teachers or pupils.

Notwithstanding the numerous benefit of the use of instructional material in the teaching and learning processes, not much study had been conducted on the usage of instructional materials and its associated challenges. Most of the information available is on the importance of teaching and learning aids and few on the challenges in its usage. Also, existing studies on instructional materials have focused more on their usage in the teaching and learning processes creating a gap on its availability and associated challenges. It is therefore imperative to find out the challenges in the use of instructional materials in lesson delivery in Basic Schools of the Atwima Nwabiagya District.

1.3 Purpose of the Study

The purpose of this study was to evaluate the usage of instructional material and its challenges in basic schools in the Akropong circuit of the Atwima Nwabiagya District in the Ashanti Region.

1.4 Objectives of the Study

Specifically, the study sought to:

1. determine the instructional materials available in Basic Schools in the Akropong circuit of the Atwima Nwabiagya District.

2. find out the effect of effective use of instructional materials in lesson delivery in Basic Schools in the Akropong circuit of the Atwima Nwabiagya District.

3. ascertain the challenges on the use of instructional material in lesson delivery in Basic Schools in the Akropong circuit of the Atwima Nwabiagya District.

1.5 Research Questions

1. What are the instructional materials available in basic school in the Akropong circuit of the Atwima Nwabiagya District?

2. What are the effects of the use of instructional materials in lesson delivery in Basic Schools in the Akropong circuit of the Atwima Nwabiagya District?

3. What are the challenges in the use of instructional material in lesson delivery in Basic Schools in the Akropong circuit of the Atwima Nwabiagya District.

1.6 Significance of the Study

The study would be significant in the following perspective:

The findings of the study would help teachers, heads of basic schools and the Ghana Education Service to appreciate the effect of proper use of instructional materials in lesson delivery in the teaching and learning process. The findings of the study would inform teachers on the appropriate use of instructional materials to improve teaching and learning.

The outcome of the study would add to the existing knowledge on the effective use of instructional materials. The outcome of the study would also serve as a blueprint for future researchers who would conduct further studies on the challenges on the use of instructional material in lesson delivery.

1.7 Delimitations of the Study

The study was delimited in to the challenges in the use of instructional materials in lesson delivery in basic schools in the Atwima Nwabiagya District. The ideal situation would have required the researcher to conduct the study in all the basic schools in the whole district but the study was further delimited to Basic Schools in the Akropong circuit of the Atwima Nwabiagya District due time and long distance between schools and financial constraints. The study may therefore be generalized with caution.

1.8 Limitations of the Study

The researcher faced some challenges in the conduct of the study. The researcher could have used all the basic schools in the Atwima Nwabiagya District to conduct the study, but was limited to basic schools in the Akropong circuit of the study area due to financial constraints as there was no bursary from government for the

research work so further study should be conducted in the remaining basic schools in the Atwima Nwabiagya District to overcome this problem.

Some of the respondents delayed in filling the research questionnaires and the researcher had to constantly remind them. This notwithstanding, the researcher was able to collect the necessary data for the study.

1.9 Organization of the Study

The study is made up of five chapters. Chapter One comprises background to the study, statement of the problem, purpose of the study, research questions, significance of the study, delimitation of the study, limitation of the study and organization of the study.

Chapter Two deals with the literature related to the topic under study. Chapter Three outlines the research methodology, research design, study population, sample and sampling procedures, research instrument, reliability and validity of the instrument, data collection procedure, data analysis and ethical consideration.

Chapter Four outlines the analysis of data and discussion of the findings of the study. Chapter Five, covers summary of the findings, conclusions, recommendations and suggestions for further research.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The chapter reviews related literature of the study under the following topics: instructional process, instructional planning, teaching and learning resources, the concept of instructional materials, kinds and categories of teaching aids and the significance of instructional materials among.

2.1 Instructional Process

This section describes the instructional process. The instructional process comprises three basic steps (Ato, 2010). The first is planning instruction, which includes identifying specific expectations or learning outcomes, selecting materials to foster these expectations or outcomes, and organizing learning experiences into a coherent, reinforcing sequence. Triyoga (2010 supported this by stating that instructional planning is the first step in the instructional process.

The second step involves delivering the planned instruction to students that is, teaching them. The third step involves assessing how well students learn or achieve the expectations or outcomes. Notice that to carry out the instructional process the three steps should be aligned with one another. That is, the planned instruction should be logically related to the actual instruction and the assessments should relate to the plans and instruction (Ato, 2010).

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                    ┌─────────────┐
                    │  Planning   │
                    │             │
                    │ instruction │
                    └─────────────┘
                     ↗           ↖
            ┌──────────────┐   ┌──────────────────────┐
            │  Delivering  │   │ Assessing Expectations│
            │              │ ↔ │                       │
            │ Instruction  │   │  or learning outcomes │
            └──────────────┘   └──────────────────────┘
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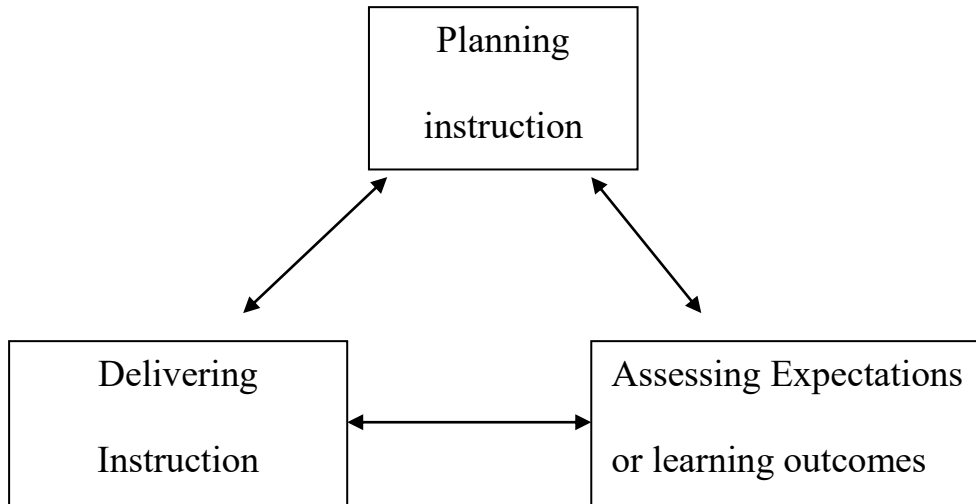
Fig 1. Steps in the instructional process (Ato, 2010)

Figure 1 shows these three steps and the relationships among them. Notice that the diagram is presented as a triangle rather than as a straight line. This indicates that the three steps are interrelated in a more complicated way than a simple one-two-three sequence. For example, in planning instruction (step 1), the teacher considers the characteristics of students and the resources and materials available to help attain desired changes (step 2). Similarly, the information gained at the time of student assessment (step 3) is useful in assessing the appropriateness of the learning experiences provided students (step 2) and the suitability of intended expectations or learning outcomes (step 1). Thus, the three steps are interdependent pieces in the instructional process that can be aligned in different orders (Ato, 2010). All the three steps in the instructional process involve teacher decision making and assessment. Obviously step 3, assessing expectations or learning outcomes, involves the collection and synthesis of formal information about how well students are learning or have learned. But the other two steps in the instructional process are also dependent upon a teacher"s assessment activities (Ato, 2010). For instance, a teacher"s planning decisions incorporate

information about student readiness, appropriate methods, available instructional resources, materials, student culture, language, and other important characteristics obtained from diagnostic assessments. Similarly, during instruction the teacher employs formative assessment to obtain information to help make decisions about lesson pace, reinforcement, interest, and comprehension.

Ato (2010) stated that, it is worthy of note that formative assessment includes observations and feedback intended to alter and improve students" learning while instruction is taking place. Thus, the entire instructional process, not just the formal assessment step, depends upon decisions that rely on assessment evidence of various kinds. The processes of planning and providing instruction are important activities for classroom teachers. Not only do they occupy a substantial amount of their time, but teachers define their teaching rewards in terms of their students" instructional successes.

Teachers like to work with students, make a difference in their lives, and experience the joy of a student "getting it." Teachers feel rewarded when they know that their instruction has reached their students. Since the classroom is where pride in teaching is takes place, it is not surprising to find that teachers guard their classroom instructional time jealously.

2.2 Teaching and learning resources

There are teaching and learning resources that teachers use in the teaching and learning process. Makori and Onderi (2014) indicated that there are teaching and learning resources that are available to schools. The following section highlights some of the teaching and learning resources.

2.2.1 Library resource

The immediate benefit of access to reading resources is the promotion of reading culture which in turn underpins the growth and strengthening of literacy skills. The positive outcomes of reading culture is a marked increase in reading fluency, vocabulary acquisition and usage, ability to express ideas and concepts more clearly and accurately (Busayo, 2011 cited in Makori & Onderi, 2014). In a school setting, a functional school library system fulfills a number of purposes (Busayo, 2011; Krolak, 2005), they are

Provision of material resource to enhance academic growth and development; Guidance of students on the choice of relevant materials for study; Provision of support to the teaching programme of school; Provision of assistance to pupils in terms of developing of skills in the use of books and libraries; Acquisition of the relevant books and other reading materials relevant to the school curriculum. In other words libraries provide access to supplementary materials that complement and enhance the learning provided by prescribed textbooks; The library helps to guide students in all aspects of their academic endeavour including developing research skills.

Makotsi (2011 cited in Makori & Onderi, 2014) observes that regular access to books while at school and developing the habit of reading for pleasure have dramatic results in terms of increased vocabulary, text comprehension, and improvement in writing skills and self-expression.

Libraries in general also contribute to other areas such as: lifelong learning, literacy enhancement, informed citizenship, recreation, creative imagination, individual research, critical thinking and ultimately empowerment in an increasingly complex world (Krolak, 2005). Mji & Mkagato (2006) also add that library usage contributes to the improvement of the learners" higher order of learning skills such as analysis, problem solving and evaluation.

Sadly, in Sub-Saharan Africa which includes Ghana, school libraries are either not available or in poor condition or both (Etsey, 2005). However, availability of libraries is one thing and utilising them effectively is another; for instance, Seniwoliba (2013) reports that in Ghana libraries are not fully utilised by either teachers or pupils.

2.2.2 Textbooks resource

According to Gichura (2003), the importance of textbooks in the teaching and learning process has been widely recognised in the literature. Textbooks provide structure and order in the teaching and learning process (Johansson, 2006; Triyoga, 2010) and in the classroom, they are considered as useful and effective tools or instruments whose purpose is to facilitate the work of the teacher on a daily basis (Johansson, 2006) observes that textbooks give students stability and confidence. Textbooks also provide security and confidence to inexperienced teachers (Triyoga, 2010). However, Glennerster, Kremmer, Mbiti and Takavarasha (2011) observe that an average child does not benefit from textbooks. Triyoga (2010) observes that there is no ideal textbook, ideal for every teacher, ideal for every group of learners and ideal for every teaching situation. And for that matter it is advisable to use them carefully and alongside other aids or other materials (Triyoga, 2010). In support, Mudulia (2012) also argues that the use of textbooks among other materials raises academic standards and efficiency of a school system. Triyoga (2010) further identifies a number of limitations associated with the use of textbooks. They include in authenticity, distorting content, may not reflect students‟ needs and may deskill teachers.

According to Mudulia (2012), poor performance in schools in Sub-Saharan Africa has been associated with shortage or lack of core textbooks cited in Makori & Onderi, 2014). In this case, Eshiwani (2001) argue that poor performance of students in Kenya is attributed to poor teaching methods and acute shortage of textbooks. Shortage

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of textbooks may often result in students or pupils sharing textbooks. In some cases one textbook is shared between 6 or more pupils or sometimes no textbook at all (Makotsi, 2011; UIS, 2011). Worse cases of textbook- Pupils ratios have been reported in the literature, for instance in some schools in Macia the ratios are between 1:40 and 1:100 (World Bank, 2008). In Cameroon the ratio of textbook- pupil is 1:13 (UIS, 2011). In Fiji Islands, the textbooks were either outdated or not available in sufficient number in some rural schools (Lingam & Lingam, 2013).

The whole situation of inadequate textbooks is exacerbated by the lack of supplementary instructional materials (Seniwoliba, 2013). Shortage of textbooks therefore put pressure on teachers and also affects the amount of homework they assign to pupils or students.

2.2.3 Laboratory resource

In the words of Kibirige and Hodi (2013) the importance of laboratories in providing learners with opportunities to experience science by employing scientific research procedures. One such opportunity is engaging learners in the inquiry processes through which they can acquire research skills. Also learners gain in terms of understanding the nature of scientific problem solving. Similar views are shared by Owolabi and Oginni (2012) who observe that one of the activities in science is experimentation because it provides a forum for practicing the theoretical knowledge gained in the classroom and for demonstrating the psychomotor skills of a teacher and learner, thus reinforcing the fact that students" engaging in laboratory equipment and processes is key to achieving the learning objectives. Students who are not engaged in the laboratory equipment see science as abstract and irrelevant (Owolabi & Oginni, 2012).

According to Kibirige and Hodi (2013), learners who use laboratory investigation improve their understanding of physical sciences. Mudulia (2012) also reports on a relationship between availability of resources and achievement of science, arguing that high performing schools have higher availability of laboratory equipment and chemicals or consumables than low performing ones. However, acute shortages of laboratory equipment and consumables have been reported in Zambia, Nigeria, South Africa and Fiji among other countries (World Bank, 2008). There are also reports of poor quality science materials in Fiji (Lingam and Lingam, 2013). Lack of proper use of laboratories has also been reported in South Africa and Portugal (Kibirige & Hodi, 2013). Other issues highlighted in the literature in relations to teaching science include science teachers lack teaching skills and competency and professional development is absent (Kibirige & Hodi, 2013).

2.2.4 Furniture resource

The World Bank (2008) indicated that, in many countries, furniture is either lacking or poor. In some situation the shortage has been described as acute. For instance, in the Fiji islands, school furniture was reported as poor and inadequate to the extent that in some schools furniture shortage was acute and students and/or pupils had to sit on the floor (Lingam & Lingam, 2013).

In Culcutta, India, a study involving head teachers of primary schools, identified lack of electricity, space and furniture as major challenges facing the schools. In Kenya, many schools in the Nairobi inner-city have inadequate furniture; they are either broken or lost (Dierkx, 2003). Learners need physical comfort when sitting, reading and writing and furniture plays a key role in ensuring the comfort of learners. Four key areas in relation to furniture and the learning process: Well designed and constructed, Correctly sized, Fit for its purpose, If possible made and repairable locally.

Poor furniture design has been associated with back pain and more especially in girls (Higgins, Hall, Wall, Woolner, & McCaughley, 2005).

2.2.5 Other resources

The classroom physical environment is one of such other resource. Quality physical environment is very important because studies have shown that it can significantly affect student achievement (Victoria Institute of Technology, n.d.). Similar views are echoed by Siddhu (2011) who based on a study in India, observed that quality of classroom conditions have strong positive effects on girls. Adedeji and Olaniyan (2011) note that many rural schools across African countries lack essential infrastructure thus making the learning environment less safe, less efficient and less effective. In Kenya in 1999 a government commission of inquiry on education system in part linked declining standards of primary education to inadequate and unsuitable physical facilities (Dierkx, 2003). Schools with poor physical environment are less likely to attract both teachers and students or pupils (Alhassan & Adzalilie-Mensah, 2010). In the area studied, some schools have poor infrastructure and therefore have poor physical environment which does not help to attract teachers and pupils to the school for teaching and learning to go on smoothly, which is a major concern to parents

2.3 The Concept of Instructional Materials

Instructional Materials are materials of visual, audio and audio - visual category that helps to make concepts abstracts and ideas concrete in the teaching/learning process. They are also materials which the teacher uses in supplementing his teachings (Olawale, 2013). Instructional Materials include materials used to facilitate learning for better results. Likewise, it is the use of the chalkboard, charts, models, overhead projectors, films, television and computers in teaching process (Olawale, 2013). Hence, it is not just

the use of tools of technology alone but a systematic, integrated organization of machines hard wares and soft wares and man, teachers etc. for the solution of problems in education.

Olawale, (2013) postulated that, the instructional materials at a distal level may be only represented by the availability and presence of textbooks in classrooms; whereas, at the proximal level, attainment of the grade level and skills required by the materials may be more critical for the teacher and student. For parents, it may be that having "portable" instructional materials, that are visible, durable, and easy to carry may be a significant determinant of the utilization of materials.

The concepts of teaching aids have gone beyond simple aids, instructional technology, and media to communication and educational technology. Instructional aids include those objects that are commercially acquired or improvised by the teacher to make conceptual abstraction more concrete and practical to the learner hence the relevant materials utilized by the teacher during an instructional process for the purpose of making the contents of the instructions more practical and less vague (Iwu, et al., 2011). In order to ensure an effective teaching learning process, it is important for the teacher to be thoroughly acquainted with the teaching resources and services available to him/her.

The components of instructional materials available to teachers and students are in large numbers and also vary according to the functions of each of them. Pictures (motion and still) graphics, maps, radio - recording and play back and the equipment used to get some of these utilized can be regarded as the components of Audio Visual Aids, or Instructional Aids. Examples of instructional materials are charts, maps, diagrams, comics, models, globes, slides, film strips, television, radio cassettes, video,

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recorders, cinema, public address system, laboratories and museums, flash Cards, flannel boards, card boards, Calendar, Computers, etc. (Olawale, 2013).

As stated by Orakwe (2000), instructional media are gradually finding their ways into the classroom where modern and versatile teachers are exploiting new ways of transferring learning to the younger generation through the use of prints, visuals and audios or the various combinations of these trios which make up all we have in instructional media. Thus instructional media are the information dissemination devices used in the classroom for easy transfer of learning. Ema and Ajayi (2004) opined that instructional materials creates change and progress only when the teacher is knowledgeable and knows how to make use of it thus portraying the professional attributes of the teacher and the general knowledge or his creativity in selecting, developing and using instructional materials effectively.

Effective communication is the outcome of careful selection of appropriate medium or combination of media available by an effective teacher. Hence an instrument for accelerating the pace of all human transformation, to shake – off inertia in people, achieve mobilization and direct their productive forces in improving their living condition. This shows the impact of the teacher in influencing the future development and growth of a learner. The success of using teaching aids to meet the teaching objectives demands effective use and communication skills of the teacher to satisfy instructional delivery (Iwu, et al., 2011).

Eshiwani (1986) states that lending institutions in the education sector in Africa that is, the World Bank, the African Development Bank, etc. seem to be convinced that the provision of instructional materials, especially textbooks, is perhaps the most cost effective way of increasing the quality of education in Africa These institutions are concerned with the scarcity of learning materials in the classrooms in Africa. For

example, in a recent major policy paper, the African Development Bank observed that the supply of appropriate teaching materials is particularly inadequate in large part of Africa. While this is to some extent a question of finance, the issue of producing and distributing adequate teaching materials for African schools goes much beyond the question of funds. As there is an urgent need not just for any teaching materials and text-books, but for materials that are more closely in tune with the realities and needs of African societies, a major field of lending activity opens up here.

Among the studies reviewed from Eastern, Central and Southern Africa on instructional materials indicated that there is a scarcity of teaching materials in most schools due to fiscal stringency experienced by most countries in the region. The scarcity seems to go beyond the availability of funds. Most countries in the region have yet to develop a national capacity for the development of low-cost teaching materials that are pedagogically sound. Some of the reasons that have led to inefficiency in the production of teaching materials in most countries in Africa are: lack of expertise in the design, preparation and evaluation of materials; inadequate training of teachers in the use of these materials; lack of production capability, and poor organization of distribution (Eshiwani, 1986). However, in Ghana, the Ghana Education Service has developed a national capacity for the development of low-cost teaching materials that are pedagogically sound for distribution to schools but they are sometimes inadequate.

2.4 Conceptual Framework

A conceptual framework is a model of presentation where a researcher explores and represents the relationships among the studied variables (Orodho,n2004). This study adopted the diagrammatical framework, as shown Figure 2.2.
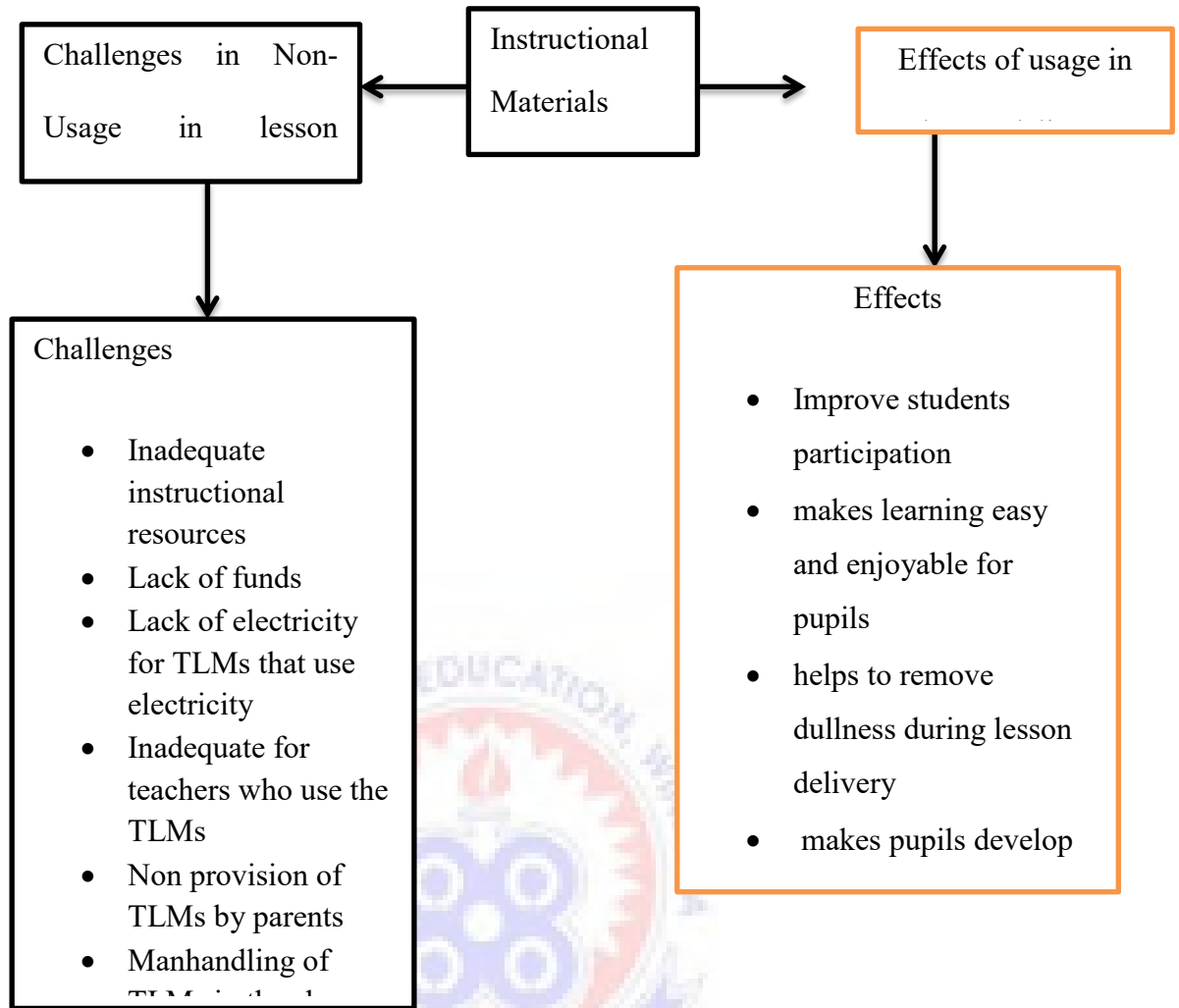
Fig. 2.2 Conceptual Framework

Source: Researcher's construct

Figure 1.2 provided an overview of the relationship between the variables to be tested and instructional resources. The independent variables in this study were instructional resources, while usage and challenges in the use of instructional resources in teaching and learning served as the dependent variables. As can be seen from the figure, there are consequences when teachers use or fail to use instructional resources in teaching. Usage of instructional resources results to general improvement in teaching and learning.

2.5 Kinds and Categories of Teaching Aids

There are so many kinds and categories of teaching aids. Different instructional materials are available to be used in teaching any subject effectively, but not all topics require the same type and quality of materials. These materials can be purchased, locally made, or improvised or even imported when necessary for effective instructional delivery (Adekeye, 2008).

Adekeye (2008) listed four major categories of instructional materials; visual aid, Audio-visual aids, auditory aids and printed materials. The criteria for classifying instructional materials or teaching aids include the degree of expertise/technical skills needed for production, nature of the material, physiological parameter or sensory modality, the place the material is produced and miscellaneous characteristics. For effective instructional delivery, instructional materials are summarized under the following categories: Projected and electronic materials, Non-projected materials and Phenomenal and manipulative materials (Iwu, et al., 2011).

Projected and electronic materials are forms of media which could be visual, audio and audio-visual in nature that requires projection and electricity in their use for teaching and learning situation. This can be categorized into tape recorders/recording, radio, slide projectors, overhead projectors, Episcope video cassette/video disc machine and computer instructional system (Iwu, et al., 2011). The computer has been found to be the most suitable and versatile medium for individualized learning because of its immense capacity as a data processor used for different games by children. Nwoji (2002) acknowledge three broad ways by which computer contributes to teaching and learning situation, these are mass instruction, individualized information and group learning.

More so, the computer technology has made it possible for teachers and students to avail themselves of interest facilities where they can obtain needed information. The audio (deal with sound only) the visual (as in sight) and audio-visual (a combination of audio and visual i.e. sound and vision) for instance: Audio: These include such things as Radio, Record players, cassettes, gramophone etc. These aid teaching through the sense of hearing. They can be used in teaching of and at the same time programmes can be expertly presented via them.

Visual: The category of this consist of maps, Film steps, specimen, pictures, charts, Blackboard, posters etc. This category appeals to the pupils through the sense of sight, the saying that seen, is believed applies to some extent in this context. Until facts are presented in form of visual aid, pupils may not readily grasp the meaning of ideas, concepts and facts.

Audio-Visual: As have said already, this group consists of a combination of both audio and visual materials. They are therefore things like Television films and projector etc, the use of these aids learning greatly (Iwu, et al., 2011).

2.5 Non Projected Media

Not all media (visuals). There is a large variety of non-projected visuals/media which are not plugged into an electrical outlet that can make instruction or training more realistic and engaging. For isolated places, rural areas and schools with low budgets, these simpler materials may be the only media that make sense (Sarfo & Adentwi, 2011). Anyawu (2003) asserted that non-projected materials are those materials that do not require any form of projection before they can be utilized. They include: Chalkboard/white board, Flip chart, Specimen, Model, Textual and Non-textual materials.

Textual materials are the print materials such as textbooks, journals, periodicals, newspaper among others while the non- textual materials include charts, chalkboards, films, videotapes, audiotapes, regalia, festivals and games. Iwuet. al., (2011) expressed that textual and non-textual materials together assist the students in acquiring clear concepts of subject matters as well as provides security for the unprepared teacher and an escape hatch from a teacher who is instructing outside his field of specialization. While specimens are the real objects or things a teacher can use for effective teaching of science concepts; it makes the science teachers work easier and more participatory.

2.6 Phenomenal and Manipulative Materials

These are the community based resources that promote teaching-learning of moral values and cultural activities of the learners.

Phenomenal Materials

Phenomena are instructional situations such as features, resource persons and other community resources that are directly apprehended by the learner in direct contact with experiences that far transcends volumes of recorded literature (Iwu et. al., 2011). Phenomena are under-utilized because of time, finance, knowledge of the teacher, inflexibility of the school time table and other infrastructural problems. This class of teaching aids or instructional materials deals mostly with the affective domain but do not preclude the psychomotor and cognitive domains.

Manipulative Materials

Manipulate materials are those instructional materials which the learner handles skillfully and expertly to bring about the desired behavioral changes. They are very important in the development of skills in professional training (Iwu et. al., 2011).

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Manipulative materials promote complete mastery of the content materials and the specific objectives. They form part of instructional and performance evaluation. The greatest significance of these materials is that they express the channel through which the required learning takes place, hence cutting across all aspects of skills development and mastery learning. They are also vital for effective instructional delivery because skills such as communication, patience and assertiveness are easily demonstrated, learnt and observed through instructional games.

2.7 The Significance of Instructional Materials

According to Olawale (2013), many educationists agree that instructional materials bring about improvement in the teaching/learning process as well as permit teachers and students to interact as human beings in a climate where people control their environment for their own best purposes. Also, most educators generally and equally agree that the creative use of variety of instructional materials will increase the probability that student would learn more, retain better and bring about the skills they are expected to perform. Apart from their ability to process meaningful sources of information, instructional materials help the teacher with the means for extending his horizon of experience as well as providing the teacher with rich sources of procuring communicative materials which could be produced jointly by the teacher and the students. Several studies have been conducted to test the value of instructional materials and other sensory devices. These researches have proved that instructional materials when properly used in teaching learning situations can accomplish a lot of complex tasks (Olawale, 2013). According to Alorvor and el Sadat (2011), the importance of teaching and learning materials are as follows: It helps to remove dullness during lesson delivery; It makes learning easy and enjoyable for pupils; It makes pupils develop

interest in the lesson; It creates a link between what is real and what is abstract so that concepts are more easily understood; It also serves as a useful tool for lesson evaluation.

Instructional materials also offer real experiences in giving the teacher basis for thinking and understanding. They supply concrete basis for conceptual thinking and therefore reduce meaningless responses of students. At the same time, they overcome the limitations of time, space and size by helping the students to understand things that are too small or too big, or too slow or too fast. Therefore instructional materials can provide members of a group with a common or joint experience. They also break language barriers and ease difficulties and in the end make the lesson more meaningful. They save time and thus enable students grasp ideals more effectively and faster. Likewise, they help to simplify and emphasize facts and clarify difficulties. They reinforce other teaching methods and materials. They improve the efficiency of other method and effectiveness of teaching process (Olawale, 2013). However, before a teacher selects his instructional materials, he should consider the following which will serve as his criteria for selection.

Reliability: As much as possible, teachers should make sure that the Instructional Materials so selected can be used to achieve the objective of the particular lesson. It is wrong for a teacher teaching pilgrimage to come into the class with an apparatus required to teach ablution. In this case, the Instructional Materials cannot be relied upon to achieve the objective of the lesson (Olawale, 2013).

Relevance: Care must be taken to ensure that only instructional materials that relate to the topic are used while teaching (Olawale, 2013).

Cost: The instructional materials should be within the reach of the teacher or the school. The cost of the instructional materials will determine whether it can be bought and used or not; otherwise the teacher selects only that instructional material that costs less. In an

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event of the inability of the school and age limit. It is wrong to bring into the class instructional materials that cannot be easily used to convey meaning of facts, ideas and concept to the pupils because of the limit of the pupils. A primary one school child may not be interested in a lesson in which telescope is used to present facts. This means teaching instructional materials are not just selected on the basis of their attractiveness but on the basis of certain criteria that will ensure their effectiveness in the teaching and learning processes (Olawale, 2013).

2.8 Selection and Usage of Instructional Materials

Olawale (2013) stated that the utilization to a large extent judges the value of teaching aids by the degree in which it singly or collectively satisfies the derived instructional needs. Teaching aids are not ends in themselves but means of attaining specific instructional functions. The ability of the teacher to effectively utilize the available media optimizes the attainments of instructional situation; this varies with the level of utilization. The teacher who wants to use instructional materials should consider the following variables to guide him in the selection of the types to be used in the teaching learning exercise (Olawale, 2013).

Availability

The teacher should ensure that the instructional materials to be used are easily available for use before the date of use. It means that the materials should be in store and the teacher should look at it and test it before the day of the lesson. If the teacher has to prepare it himself, he should do so at least a day before the lesson. No instructional materials that are not available or not easy to prepare should be noted by the teacher in his lesson plan (Olawale, 2013).

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Accessibility

It is the duty of the teacher to ensure that the materials to be used as instructional materials are not only available but also accessible to him. If they are already made materials they should be within reach of the teacher on the date and time of use. There should be no excuse that the materials are readily available but locked up in the store because the store-keeper is nowhere to be found or the keys to the store have been misplaced (Olawale, 2013).

Affordability

The instructional materials to be used should not be expensive the cost should be such that either the teacher or the school can afford. It is no use to say that something is available but not affordable due to high cost. There should be a budget for instructional materials and when this is done the cost should not be outrageous; it should be within the budget of the school (Olawale, 2013).

Suitability

The teacher using the instructional materials should ensure the appropriateness of the materials for his intended learners. The materials should be suitable for their age, experience and intelligence. The legal, safety and ethical aspects of the materials to be used should equally be considered. The materials should not portray any anti-social attitude. They should also be free from any bias, distortion or prejudice. If the materials would need electric power then an alternative should be sought to avoid disappointment from electricity (Olawale, 2013).

Simplicity

The instructional materials to be used should be simple to operate or manipulate. The teacher should test the materials and ensure their workability before the actual date

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of use. There should not be any technical problem and where electricity is to be used provision should be made for an alternative power. No teacher should use electric failure as an excuse for non-performance. In a situation where an instrument demands the hands of a technician, he (the technician) should be on hand and the teacher should have an insight into the operation of the instructional materials (Olawale, 2013).

Quality

The instructional materials selected for teaching by the teacher should be of good quality. Teachers should avoid the idea of "managing" with poor quality materials because he might not achieve the desired aim (Olawale, 2013).

Recency

The instructional materials should be the best or nearest to the best; it should not be out of date. The instructional materials should reflect current and original thought. Bozimo (2002) advocated the following criteria in the selection of teaching aids: Appropriateness of the materials to instructional objectives; Freedom of the content from bias; Quality of the format, print, sound or photography; Degree of the quality and variety of the materials; Availability of the materials and how to operate the materials; How reasonable the time and effort are for both the students and the teachers.

Anyawu (2003) also identify three ways by which the teacher should prepare for the use of teaching aids; by previewing the material before they are brought to the class, the operational level of the intended materials and actual presentation. Thus, the basic guidelines and requirements for utilization and use of instructional materials in effective instructional delivery include the following: Specification of objectives; Maximal fit with instructional tasks; Preparation and preview; Multidimensional presentation; Environmental situation and Measure of outcomes.

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2.9 Relationship between Effective Teaching and use of Instructional Materials

Bolick (2003) opined that teaching aids are integral components of teaching-learning situations and not just a supplement but a complement to the teaching-learning process. Thus, if there must be an effective teaching-learning activity, the utilization of instructional materials will be necessary. According to Ema and Ajayi (2004) teaching equipment and materials have changed over the years not only to facilitate teaching-learning situation but also to address the instructional needs of individuals and groups. Instructional materials are therefore objects or things the teacher uses in the classroom while teaching to ease off his teaching activities. Though not all the problems in teaching-learning are solved but it goes a long way in influencing the reality of teaching and learning activities. Teaching aids eliminate the abstract nature of science by concretizing the facts in the lesson content.

2.10 Challenges in the Selection of instructional Materials

Teaching aids are sometimes available in large quantity but how to make the best instructional use of those available with the modern innovation are grossly lacking and faced with a lot of problems in its use by teachers (Iwu et al., 2011). Among these problems are:

Lack of Fund: Some of the materials are very expensive to provide by teachers. Examples are projected, electronic mass media and media that are retaining permanent knowledge to the students.

Teacher's Attitude: Many of the school teachers are ignorant of using those instructional materials and induction course, lecture and seminars are not organized in teaching profession as they are organized in the civil services to up-grade knowledge and to facilitate the use of sophisticated instructional materials. Teachers also do not make

maximum use of the few instructional materials at their disposal, because many of them do not have the knowledge of operating them.

Learner's Attitude: With the stealing of those instructional materials and problem of the students mishandling those instructional materials while teachers are not in the classroom, there is the problem of not leaving the instructional materials in the classroom, so that student can make use of them at their leisure and convenient time. Lack of facilities: Many schools have no good building to store materials for safety (Iwu et al., 2011).

2.11 Prospects of Teaching Aids

Iwu et al. (2011) indicated that, the importance of instructional materials lies in the fact that abstract ideas and information expressed in printed pages become tangible and concrete when they are translated or reflected in forms of instructional materials and resources. The implications of using teaching aids can be summarized as follows: They are used to explain points; To create reality and supply events; To encourage active participation; To saves the teachers time; To enables students to visualize or experience something; To facilitate different learning styles; To arouse learners interest; To provides meaningful and useful sources of information to teachers and learners; To develop continuity of reasoning and coherence of thoughts; To reduces verbalism or repetition of words; To promotes closer and effective communication between the teacher and the learners (Iwu et al., 2011).

2.12 Summary

The literature was reviewed on the usage of instructional materisl and its challenges in lesson delivery. The review indicated that instructional materials were

available for teaching and learning process which included: charts, textbooks, pictures, whiteboard, posters, graphs, diagrams, library books, symbols, video tape recorder, laboratories for practical work, projectors and audio cassette recorders.

Also the effective usage of instructional materials create a link between what is real and what is abstract and also improve pupils participation in lesson delivery. The challenges in the usage of instructional materials included finance, electricity to use and mishandling of instructional materials by learners.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the methodology of the study. It includes the research design, sample and sampling procedures, population, data collection instrument, pilot testing, validity and reliability of the research instrument, data collection procedure, data analysis procedure and ethical considerations.

3.1 Research Design

For the purpose of this study, the researcher adopted the mixed method design. The term „mixed methods research‟ is broadly accepted to refer to research that integrates both qualitative and quantitative data within a single study (Creswell 2007; Clark, 2007). A key aspect of the definition of mixed methods research is the „mixing‟ of the qualitative and quantitative components within the study (Simons & Lathlean, 2010). „Mixing‟ refers to the process whereby the qualitative and quantitative elements are interlinked to produce a fuller account of the research problem (Glogowska, 2011). This integration can occur at any stage(s) of the research process but is vital to the rigor of the mixed methods research (Glogowska, 2011).

It is generally understood that, at the most basic level, quantitative research involves the collection and analysis of numerical data, whilst qualitative research considers narrative or experiential data (Hayes, 2013). Creswell (2007) and Clark (2007) defined mixed method design as "a research design with philosophical assumptions as well as quantitative and qualitative methods" (p.5). According to them, this design allows the researcher to collect and analyze data or information using both

qualitative and quantitative approaches in order to produce a better and in-depth understanding of the research questions.

In combining qualitative and quantitative data collection, mixed methods research capitalises on the strengths of both qualitative and quantitative research, whilst ameliorating their weaknesses to provide an integrated comprehensive understanding of the topic under investigation (Scammon, 2013, Andrew & Halcomb, 2009). In contrast to multi-method research, which has only the advantage of collecting data using multiple methods, mixed methods research has the potential to combine qualitative and quantitative characteristics across the research process, from the philosophical underpinnings to the data collection, analysis and interpretation phases.

The main aim of mixed method design is to allow the researcher to complement the weakness of a quantitative design with the strength of a qualitative design. This design is also used for direct comparison of qualitative and quantitative results (Creswell, 2007; Clark, 2007). For quantitative part, the cross-sectional survey design was employed.

The second part was the qualitative paradigm; which involved the use of semi-structured interviews. The purpose of this is to find out what was on the minds of the participants by selecting few of them (Fraenkel & Wallen, 2006). In as much as the quantitative questionnaire allows the researcher collect data from a large sample; it does not give the in-depth data that the researcher could get through interviews. Thus, interviews give the participants the opportunity to respond to questions in their own words. This process allowed the researcher to interpret the data based on the quantitative and qualitative paradigms:

3.2 Population

Saunders, Lewis and Thornhill (2012) define a research population as the total collection of subject or elements about which a researcher wishes to make inference and draw conclusions. According to Kusi (2012), population is a group of individuals or people with the same characteristics and in whom the researcher is interested. Saldana (2010) views, a population as the totality of all subjects that conform to a set of specifications comprising the entire group of persons that is of interest to the study and whom the research results can be interested in generalizing conclusions. The target population of the study consists of all headteachers and teachers in the seven public Junior High Schools in the Akropong Circuit of the Atwima Nwabiagya District. Seven head teachers and 83 teachers comprised the population of the study.

3.3 Sample and Sampling Techniques

Sampling is the act, process, or technique of selecting a suitable sample, or a representative part of a population for the purpose of determining parameters or characteristics of the whole population. Gall and Borg (2007) defined sampling as a technique used for selecting a given number of subjects from a target population as a representative of the population in research. Sampling enables the researcher draw conclusions about populations from samples.

A sample size of 77 was selected through multi-stage sampling techniques. Multi-stage sampling approach requires the use of more than one sampling technique when selecting sample size in a study (Creswell, 2009). Multi-stage sampling is justified by allowing a larger sample for quantitative data collection and a smaller sample for interviews or qualitative data. Two sampling techniques were used; purposive sampling and simple random sampling.

The purposive sampling technique was used to select all the seven head teachers of the seven Junior High Schools. Simple random sampling was also used to select 10 teachers from each of the seven Junior High Schools. The main aim was the triangulation of the quantitative design with the strength of a qualitative design. This design is also used for direct comparison of qualitative and quantitative results (Creswell, 2007 ; Clark, 2007).

The lottery type of the simple random sampling method was used to select the 70 teachers for the study. Here „"YES""" and „"NO"" was written on pieces of papers and folded for the teachers to pick and those who selected the „"YES"""which was 10 in the folded papers for each of the seven schools were selected, making a total of 70 for the teachers and seven purposively selected head teachers. In all 77 respondents were sampled for the study. The sample size of 77 was calculated using the De Vaus (2002) sample size population proportion formula shown below.

$$n = \frac{N}{1+N (0.05^2)}$$

$$= \frac{95}{1 + 95 (0.05^2)} = \frac{95}{1.2375} = 77$$

n = Sample Size

N = Population

3.4 Data Collection Instruments

The researcher used closed ended questionnaires and semi-structured interview as the data collection instruments for the study. A closed ended questionnaire is a data collection instrument which is often used in quantitative studies. It contains

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predetermined standardized questions or items meant to collect numerical data that can be subjected to statistical analysis (Kusi, 2012).

The closed ended questionnaire was meant to assist respondents to provide uniformity of response and to enable more information to be gathered. They also provide easier and accurate analysis of the data to obtain precise interpretation of the responses and have high degree of respondent‟s objectivity. A questionnaire is cost effective and less time consuming as compared to other research tools. The questionnaire was divided into four parts; Part A- looked at the demographic characteristics of respondents, Part B- availability of instructional materials for teaching integrated science, Part C- effect of effective use of instructional materials, Part D-challenges on the use of instructional materials in lesson delivery.

3.5 Pilot Testing

Basically, pilot testing means finding out if a survey, key informant interview guide or observation form will work in the "real world" by trying it out first on a few people. In the words of Bell (2008), the reason for piloting is to get the bugs out of the instrument so that the respondents in the study area will experience no difficulties in completing the questionnaire and enable one to have preliminary analysis to see whether the wording and format of questions is appropriate. The purpose is to make sure that everyone in the sample not only understands the questions but understands them in the same way. To determine the validity and reliability, the 30 questionnaires were piloted on 30 respondents, selected randomly from a school outside the study area. The purpose of the pre-test was to enable the researcher to make necessary changes to items which may be inappropriate, determine the level of ambiguity of the questions for corrections and ambiguous items were modified.

3.5.1 Validity and Reliability

Validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are (Joppe, 2000). To determine the validity of the instrument, the questionnaires were given to my supervisor and experts in the field of educational research for corrections, suggestions and observations to ensure its face and content validity. That was done to help the researcher rectify and be able to select good and valid instrument to come out with credible results.

Reliability is a measure of the degree to which a research instrument yields consistency in its results or data after repeated trials. The questionnaire was administered on the same group of respondents twice in the pilot study within a two-week period between the first and the second test and the coefficient of reliability from the two tests correlated. The reliability test yielded Cronbach alpha of 0.87.

3.6 Data collection procedures

The researcher sought permission from the Atwima Nwabiagya District Director of Education to conduct the study after the University have approved of the research topic. The District Director of Education gave the researcher permission to conduct the study. The researcher then paid a courtesy call on all the sampled schools to interact with the respondents. The questionnaires were afterwards distributed personally to the respondents on the approval of the management of the various schools. The researcher collected the filled questionnaires after a period of two weeks had elapsed.

3.7 Data analysis

The data was cleaned with the aim of identifying mistakes and errors which may have been made. A codebook for the questionnaire was prepared to record the responses.

The data was computed using the Statistical Package for Social Sciences (SPSS) version 16.0 software package. The data collected was analyzed using simple descriptive statistics such as tables with percentages and frequencies. The researcher used the tables with frequencies and percentage to analyze and answer all the research questions.

The interview data was transcribed, read through and analysed using constant cooperative analysis (Glasser, 1966). The qualitative data was used to support the statistical analysis by using verbatim statements from the respondents. The final procedure was the triangulation of both qualitative and quantitative data. This took the form of quantitative data supported by interview or qualitative data to arrive at a reasonable conclusion.

3.8 Ethical Considerations

Ethical issues come up at every stage of academic work. Ethics are norms for conduct that distinguish between acceptable and unacceptable behaviour (Resnik, 2011). The respondents were not coerced into responding to the questionnaire, they did that on their own volition. Problems of plagiarism were addressed by acknowledging all sources of information appropriately. The researcher assured respondents of their confidentiality and anonymity by not putting their names on the questionnaire as a form of identity and that the information they will give will be used for academic purposes only.

CHAPTER FOUR

ANALYSIS AND DISCUSSION OF RESULTS

The purpose of this study was to evaluate the usage of instructional material and its challenges in basic schools in the Akropong circuit of the Atwima Nwabiagya District in the Ashanti Region. This chapter presents the data analysis and discusses the results obtained using Statistical Package for Social Sciences (SPSS).

4.1 Demographics of Respondents

Table 4.1 Demographic Characteristics of Respondents

Sex	Frequency (N)	Percentage (%)
Male	47	61.0
Female	30	39.0
Total	77	100

Table 4.1 presents the demographics of respondents used for the study. From the table, 47 respondents representing 61% were male whiles 30 respondents representing 39% were female.

Sex	Frequency (N)	Percentage (%)
21-30	29	37.7
31-40	33	42.9
41-50	13	16.9
51-60	2	2.6
Total	77	100

Moreover, 33 respondents representing 42.9% had their ages between the 31-40 age range, 29 representing 37.7% were between 21-30, 13 representing 16.9% were

within the 41-50 age range with only two respondents representing 2.6% being within the 51-60 age range.

Teaching experience	Frequency (N)	Percentage (%)
1 – 5	32	42.7
6 – 10	22	29.3
11 – 15	6	8.0
16 years Above	15	20.0
Total	77	100

With regards to the experience of respondents, 32 representing 42.7% had 1-5 years of teaching experience, 22 representing 29.3% had 6-10, 15 had 16 years and above experience with six respondents representing 8% having 11-15 years teaching experience.

Educational Qualification	Frequency (N)	Percentage (%)
1 – 5	32	42.7
6 – 10	22	29.3
11 – 15	6	8.0
16 years Above	15	20.0
Total	77	100

Finally, 35 respondents representing 46.7% had Bachelor Degrees, 27 representing 36% had Diploma/HND whiles 13 respondents representing 17.3% had Masters Degrees.

What are the instructional materials available in basic school in the Akropong circuit of the Atwima Nwabiagya District?

4.2 Availability of Instructional Materials for teaching Integrated Science

The respondents were requested to indicate the availability of instructional material in the teaching of integrated science in the basic schools in the Akropong circuit of the Atwima Nwabiagya district in the Ashanti Region. They were to indicate whether the instructional materials were readily available for the teaching of integrated science. Table 4.2 contains the result and availability of instructional materials or not available.

Table 4.2 Instructional materials available for basic school

Item	Instructional materials	Levels of Availability			
		Available (3) F (%)	Not Available (2) F (%)	Don't know (1) F (%)	Mean $\pm$ SD
1	Charts	53(68.8)	23(29.9)	1(1.3)	2.68+.498
2	Text book	45(58.2)	25(32.9)	6(7.9)	2.51+.643
3	Pictures	43(58.9)	24(32.9)	6(8.2)	2.51+.648
4	Whiteboard	42(54.5)	31(40.3)	4(5.2)	2.49+.599
5	Posters	39(50.6)	35(45.5)	3(3.9)	2.47+.575
6	Graphs	35(45.5)	41(53.2)	1(1.3)	2.44+.525
7	Diagrams	35(45.5)	36(46.8)	6(7.8)	2.38+.629
8	Library book	28(40.6)	35(50.7)	6(8.7)	2.32+.630
9	Symbols	23(31.1)	45(60.8)	6(8.1)	2.23+.589
10	Video tape recorder	15(20.0)	58(77.3)	2(2.7)	2.17+.446
11	Laboratories for practical work	13(17.1)	59(77.6)	4(5.3)	2.12+.461
12	Projectors	12(16.0)	58(77.3)	5(6.7)	2.09+.470
13	Audio cassette recorder	14(18.4)	54(71.1)	8(10.5)	2.08+.536

Respondents" responses were measured on a scale of 1-3 (available, not available and don"t know) with the highest value indicating their levels of agreement to the

availability of instructional materials for the teaching of Integrated Science. The teaching and learning resources that were considered ranged from charts to audio-cassette recorders.

From the table above, Majority of the respondents confirmed that charts, text books, pictures, whiteboard, and posters were readily available for the teaching of Integrated Science. The details were given as follows; 53 respondents representing 68.8% agreed to the availability of charts (M=2.68, SD=.498), 45 representing 58.2% agreed to the availability of textbooks (M=2.51, SD=.643), 43 representing 58.2% agreed to the availability of pictures (M=2.51, SD=.648). 42 representing 54.5% agreed to the availability of whiteboards (M=2.49, SD=.559), and 39 representing 50.6% agreed to the availability of posters (M=2.47, SD=.575).

However, majority of the respondents confirmed that the following resources were not available for the teaching and learning of Integrated Science in the schools; graphs, diagrams, library books, symbols, video tape recorders, laboratories for practical work, projectors, audio cassette recorders, whiteboard, posters, graphs, diagrams and library books. The responses were categorised as follows; 41 respondents representing 53.2% said graphs were not available (M=2.44, SD= .525), 36 representing 46.8% said diagrams were not available (M=2.38, SD=.629), 35 representing 50.7% asserted library books (M=2.32, SD=.630), 45 representing 60.8% asserted symbols (M=2.17, SD=.446), 58 representing 77.3% said video tape recorders (M=77.3%, SD=.446), 59 representing 77.6% said laboratories for practical work (M=2.12, SD=.461), 58 representing 77.3% said projectors (M=2.09, SD=.470) with 54 respondents representing 71.1% asserting that audio cassette recorders were not available.

According to Gichura (2003), textbooks plays an integral role in the learning process of students. This was supported by Johansson (2006) and Triyoga (2010) as

outlined by the findings from respondents who confirmed the availability of textbooks. In Iwuet et al., (2011) and Anyawu (2003) view, textual and non-textual materials do not require any form of projection and can be utilized largely for usage in the classroom. They outlined flip charts, whiteboard, posters among others which was also confirmed from respondents" responses from the study. The study confirmed the unavailability of graphs, diagrams, library books, symbols, video tape recorders, laboratories for practical work, projectors and audio cassette recorders.

Busayo (2011) and Krolak (2005) outlined the importance of a functional school library as they provide material resource to enhance academic growth and development and serves as guidance for students. Unfortunately, majority of the respondents asserted the unavailability of library books which goes contrary to the views of the researchers above. Makotsi (2011 cited in Makori & Onderi, 2014) also emphasize the relevance of libraries to schools. These views throw light on the fact that every school a fully-functional library to enable teachers and students accrue it benefits. Moreover, the unavailability of laboratories also poses major threats to schools who are in this situation.

As stated by Kibirige and Hodi (2013), laboratories provide learners with opportunities to experience science by employing scientific procedures. Owalabi and Oginni (2012) also outlined that Students who are not engaged in the laboratory equipment see science as abstract and irrelevant. Thus, students" disengagements to laboratory is likely to affect their understanding of concepts especially abstract ones. Much as students need laboratories, these laboratories must be stocked with materials (visual and audio-visual) to enable students enjoy its benefits as stipulated by Iwe et al., (2011).

What are the effects of the use of instructional materials in lesson delivery in Basic Schools in the Akropong circuit of the Atwima Nwabiagya District?

4.3 Effect of the usage of instructional materials on lesson delivery

Instructional materials facilitate teaching and learning activities and consequently, the attainment of the lesson objectives.

Table 4.3: Effect of the usage of instructional materials

Item	Instructional materials	Levels of Agreement				Mean $\pm$ SD
		SA (5) F (%)	A (4) F (%)	D (2) F (%)	SD(1) F (%)	
1	Create a link between what is real and what is abstract	52(78.4)	17(22.1)	4(5.3)	3(3.9)	3.55+.773
2	Improve pupil''s participation in lesson delivery	52(68.4)	14(18.4)	10(13.2)	-	3.55+.719
3	Make pupils develop interest in the lesson	48(63.2)	24(31.6)	1(1.3)	3(3.9)	3.54+.720
4	Serve as a useful tool for lesson evaluation	43(56.6)	26(34.2)	7(9.2)	-	3.47+.663
5	Offer real experiences in giving the teacher basis for thinking and understanding	40(52.6)	27(35.5)	9(11.8)	-	3.41+.696
6	Solve certain language barrier problem	40(52.6)	28(36.8)	4(5.3)	4(5.3)	3.37+.814
7	Promote retention	38(53.5)	22(31.0)	7(9.9)	4(5.6)	3.32+.875
8	Help to remove dullness during lesson delivery	43(56.6)	20(26.3)	6(7.9)	7(9.2)	3.30+.966

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Table 4.3 gives respondents'' views on the effect of the effective use of instructional materials on lesson delivery. From the table, Majority of the respondents strongly agreed or agreed that instructional materials play important roles in lesson delivery. Fifty-two respondents representing 78.4% strongly agreed that instructional materials create a link between what is real and what is abstract whiles 17 respondents representing 22.1% agreed (M=3.55), 52 respondents representing 78.4% strongly agreed that instructional materials improve pupils participation in lesson delivery, 14 representing 18.4% agreed (M=3.55), 48 representing 63.2% strongly agreed that instructional materials make pupils develop interest in the lesson, 24 representing 31.6% agreed (M=3.54), 43 respondents representing 56.6% strongly agreed that instructional materials serve as a useful tool for lesson evaluation, 26 representing 34.3% agreed (M=3.47), 40 respondents representing 52.6% strongly agreed that instructional materials offer real experiences in giving the teacher basis for thinking and understanding, 27 representing 35.5% agreed (M=3.41), 40 respondents representing 52.6% strongly agreed that instructional materials solve certain language barrier problems, 28 representing 36.8% agreed (M=3.37), 38 respondents representing 53.5% strongly agreed that instructional materials promotion retention, 22 representing 31% agreed (M=3.32) whereas 43 respondents representing 56.6% strongly agreed that instructional materials help to remove dullness during lesson delivery, 20 representing 26.3% agreed (M=3.30).

In Bolick''s (2003) perspective, teaching aids are integral components of teaching-learning situations and not just a supplement but a complement to the teaching-learning process. This is buttressed by Ema and Ajayi (2004) who asserted that teaching equipment and materials have changed over the years not only to facilitate teaching-learning situation but also to address the instructional needs of individuals and groups.

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The study exposed the fact that instructional materials create a link between what is real and what is abstract, improve pupils participation in lesson delivery, make pupils develop interest in the lesson, serve as a useful tool for lesson evaluation, offer real experiences in giving the teacher basis for thinking and understanding, solve certain language barrier problem, promote retention, and helps to remove dullness during lesson delivery. This confirms the view of Olawale (2013) who affirmed that instructional materials bring about improvement in the teaching/learning process as well as permit teachers and students to interact as human beings in a climate where people control their environment for their own best purposes.

4.4 Challenges on the use of instructional material in lesson delivery

It is apparent that when instructional technology is properly used, it captures the human mind, the teacher becomes more organized in selecting media and the method for presenting content so as to stimulate learners and enhance better understanding of the concept.

What are the challenges in the use of instructional material in lesson delivery in Basic Schools

in the Akropong circuit of the Atwima Nwabiagya District.

Table 4.4: Challenges on the usage of instructional materials

Item	Challenges	Levels of Agreement				Mean $\pm$ SD
		SA (5) F (%)	A (4) F (%)	D (2) F (%)	SD(1) F (%)	
1	Lack of finance to acquire or improvise needed instructional materials	34(46.6)	25(34.2)	14(19.2)	-	3.27+.768
2	Parental attitude toward providing their wards with the needed TLMS such as exercise books textbooks	27(35.5)	37(48.7)	8(10.5)	4(5.2)	3.14+.812
3	Lack of electricity to be used for instructional materials that uses electrical power	23(31.9)	33(45.8)	12(16.7)	4(5.6)	3.04+.846
4	Poor maintenance culture of existing instructional materials especially projected media	22(28.9)	34(44.7)	15(19.7)	5(6.6)	2.96+.871
5	Insufficient time allocation to accommodate effective instructional materials utilization in lesson	18(24.7)	33(45.2)	18(24.7)	4(5.5)	2.89+.843
6	Mishandling of instructional materials by learners in the absence of the teacher	14(18.4)	38(50.0)	22(28.9)	2(2.6)	2.84+.749
7	inadequate in-service training to upgrade the knowledge to teachers toward the proper use of modern instructional materials	10(13.2)	36(47.4)	24(31.6)	6(7.9)	2.66+.809

SA=Strongly Agree, A=Agree, D=Disagree, SA=Strongly Disagree

Table 4.4 gives a representation of respondents" views on the challenges teachers face in using instructional materials for lesson delivery. It can be depicted from the table that majority of the respondents strongly agreed or agreed that several challenges threaten the effective use of instructional materials in lesson delivery. From the table 34 respondents representing 46.6% strongly agreed that lack of finance to acquire or improvise needed instructional materials posed a challenge to the usage of instructional materials, 25 representing 34.2% agreed (M=3.27), 27 respondents representing 35.5% strongly agreed to parental attitude toward providing their wards with needed TLMs such as exercise books and textbooks, 37 representing 48.7% agreed (M=3.14), 23 respondents representing 31.9% strongly agreed to lack of electricity to be used for instructional materials that uses electric power, 33 representing 45.8% agreed (M=3.04), 22 representing 28.9% strongly agreed to poor maintenance culture of existing instructional materials especially projected media, 34 representing 44.7% agreed, 18 respondents representing 24.7% strongly agreed to insufficient time allocation to accommodate effective instructional materials utilization in lessons, 33 representing 45.2% agreed (M=2.89), 14 respondents representing 18.4% asserted mishandling of instructional materials by learners in the absence of the teacher, 38 representing 50% agreed (M=2.84) and 10 respondents representing 13.2% strongly agreed to inadequate in-service training to upgrade the knowledge of teachers toward the proper use of modern instructional materials, 36 representing 47.4% agreed.

The literature review identified lack of funds, teachers" attitude, learners" attitude and lack of facilities as major challenges to the effective use of instructional materials. This is in respect to the view of Iwu et al., (2011).

These views were buttressed in the study with the researcher also recognizing from respondents other challenges. Such challenges were parental attitudes, lack of electricity, insufficient time allocation, mishandling of instructional materials, poor maintenance culture and inadequate in-service training.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The purpose of this study was to evaluate the usage of instructional material and its challenges in basic schools in the Akropong circuit of the Atwima Nwabiagya District in the Ashanti Region. Specifically, the study was to determine the instructional materials available in Basic Schools, find out the effect of effective use of instructional materials in lesson delivery and ascertain the challenges on the use of instructional material in lesson delivery in Basic Schools in the Akropong circuit of the Atwima Nwabiagya District. Chapter five presents the summary of findings of the study, conclusion (achievement of objectives) and recommendations.

5.2 Summary of Findings

The purpose of this study was to evaluate the usage of instructional material and its challenges in basic schools in the Akropong circuit of the Atwima Nwabiagya District in the Ashanti Region. The objectives of the study were to determine the instructional materials available, find out the effect of effective use of instructional materials in lesson delivery and ascertain the challenges on the use of instructional material in lesson delivery in Basic Schools in the Akropong circuit of the Atwima Nwabiagya District.

The study was descriptive in nature with the researcher adopting the usage of the quantitative research approach. The target population of the study comprised basic school teachers in the Akropong circuit of the Atwima Nwabiagya District in the Ashanti Region. Purposive and simple random sampling techniques were used as the

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sampling procedures for this study with the researcher arriving at a sample size of 77 respondents.

The study revealed that few instructional materials were available for teaching and learning process. These included: charts, textbooks, pictures, whiteboard and posters. Many instructional materials were however deemed unavailable and these included graphs, diagrams, library books, symbols, video tape recorder, laboratories for practical work, projectors and audio cassette recorders.

The study also revealed the relevance of the effective usage of instructional materials. Teachers affirmed that the effective use of instructional materials create a link between what is real and what is abstract, improve pupils participation in lesson delivery, make pupils develop interest in the lesson, serve as a useful tool for lesson evaluation, offer real experiences in giving the teacher basis for thinking and understanding, solve certain language barrier problem, promote retention, and helps to remove dullness during lesson delivery.

Finally, the study revealed some peculiar challenges that impede the effective usage of instructional materials in basic schools. These were lack of finance to or improvise needed instructional materials, parental attitude toward providing their wards with the needed TLMS such as exercise books textbooks, lack of electricity to be used for instructional materials that uses electrical power, poor maintenance culture of existing instructional materials especially projected media, Insufficient time allocation to accommodate effective instructional materials utilization in lesson, mishandling of instructional materials by learners in the absence of the teacher and inadequate in-service training to upgrade the knowledge to teachers toward the proper use of modern instructional materials.

The usage of teaching and learning materials in schools requires the acquisition of tools and materials such books, textbooks, electricity etc. It is therefore imperious that Authorities commit to the provision of basic teaching and learning materials for schools not only in the District but the country as a whole.

5.3 Conclusion

It can be concluded grounded on the findings that print resources were the most commonly available instructional materials in the selected basic schools. However, many of the available instructional materials were inadequate in both quality and quantity; despite their being accessible to teachers and students. Moreover, the teachers appreciated the role played using instructional technologies in teaching and learning process. However, they hardly use most of these instructional materials available in their schools. They mainly used charts, text books, pictures, whiteboard and posters. These instructional materials were most preferable to teachers because of their availability to the schools to improve teaching and learning.

It can also be concluded that the effective use of instructional materials create a link between what is real and what is abstract and also improve pupils participation in lesson delivery and make pupils develop interest in the lesson. The effective use of instructional materials again served as a useful tool for lesson evaluation. If the effective use of instructional materials has these effects then it would improve teaching and learning to promote students and school success.

Finally, the major challenge teachers expressed as impeding their effective use of instructional materials were lack of finance to improvise needed instructional materials, parental attitude toward providing their wards with the needed TLMS such as exercise books textbooks, lack of electricity to be used for instructional materials that uses

electrical power, poor maintenance culture of existing instructional materials especially projected media, Insufficient time allocation to accommodate effective instructional materials utilization in lesson, mishandling of instructional materials by learners in the absence of the teacher and inadequate in-service training to upgrade the knowledge to teachers toward the proper use of modern instructional materials. These challenges if addressed would go a long way to further improve the effectiveness of the usage of instructional materials.

5.4 Recommendations

The following recommendations were made based on the findings of the study:

1. The Atwima Nwabiagya District Directorate of Education should organize seminars, workshops and any other in-service courses frequently to familiarize and sensitize with a wide range of instructional materials and their potentials. This could trigger teachers" creativity and innovation in the use of instructional technologies in teaching and learning process.

2. The Atwima Nwabiagya District Directorate of Education should ensure that the teachers personally get information about the seminars/workshops to avoid communication breakdown and encourage them to attend.

3. The Atwima Nwabiagya District Directorate of Education Highly qualified experts should be used as resource people whenever seminars and workshops are organized to teach the teachers about the importance of instructional technologies in teaching and learning process. This will motivate teachers to take the seminars and workshops seriously and to implement whatever learnt.

4. The Atwima Nwabiagya District Directorate of Education with the aid of the Ghana Education service should have regular visits to the schools, through the

Quality Assurance Officers to assess the availability, state and utilization of instructional technologies. This will make teachers alert and prompt them to prepare and use the instructional technologies frequently.

5. The Atwima Nwabiagya District Directorate of Education with the aid of the Ghana Education Service should work hand in hand with parents, sponsors and other stakeholders in education to prioritize the provision of adequate instructional technologies to ease the problems of inadequacy of instructional technologies in public secondary schools.

6. The Atwima Nwabiagya District Directorate of Education with the aid of the Ghana Education service should provide some of the instructional materials to schools to subsidize their costs and encourage the local publishers/authors to produce more affordable instructional technologies. This should also trigger teachers to be innovative and initiative to produce instructional technologies locally or improvise the existing ones to suit their varied needs.

7. School administrators should be sensitized on the importance of instructional technologies in order for them to provide them in their school budget and provide storage facilities. The administration should involve teachers in acquisition of the instructional technologies and encourage them to use technologies in teaching. They should also encourage teachers to prepare instructional technologies locally by providing them with the necessary raw materials. This will encourage the teachers to use the instructional technology since they will they co-own them. They should also allow teachers to attend workshops and seminars whenever they are organized and called.

5.5 Areas for Further Research

An in-depth study could be done to investigate the teachers" and students" attitude towards the use of instructional technologies in teaching and learning in Ghanaian Basic schools.

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APPENDIX A

UNIVERSITY OF EDUCATION, WINNEBA

DEPARTMENT OF EDUCATIONAL LEADERSHIP

QUESTIONNAIRE FOR RESPONDENTS

The purpose of this study was to evaluate the usage of instructional material and its challenges in basic schools in the Akropong circuit of the Atwima Nwabiagya District in the Ashanti Region.

Please (√) tick the most appropriate response. Your Confidentiality is ASSURED

SECTION A: **Demographic Information**

1. Gender :

   Female [   ]

   Male [   ]

2. Age:

   21-30 [   ]

   31-40 [   ]

   41-50 [   ]

   51-60   [   ]

3. Educational Qualification:

   Diploma/HND [   ]

   Bachelor Degree[   ]

   Masters Degree [   ]

4. Teaching Experience:

   1- 5 years [   ]

   6-10 [   ]

   11-15 [   ]

Above16 years [   ]

SECTION B: KINDS OF INSTRUCTIONAL MATERIALS AVAILABLE FOR BASIC SCHOOL

Tick the appropriate option that corresponds with your answer to the following questions on the extent to which the following teaching and learning resources are made available to your school in teaching integrated science.

Respond with options 3 = Available, 2= Not Available, 1=Don't Know

	Instructional Materials	3	2	1
1	Text books			
2	Charts			
3	Library books			
4	Laboratories for practical work			
5	Pictures			
6	Graphs			
7	Posters			
8	Projectors			
	Video tape recorder			
	Audio cassette recorder			
	White board			
	Symbols			
	Diagrams			

SECTION C: EFFECT OF EFFECTIVE USE OF INSTRUCTIONAL MATERIALS IN LESSON DELIVERY (INTEGRATED SCIENCE) AT AKROPONG CIRCUIT

Tick the appropriate option that corresponds with your answer on the effect of effective use of instructional materials in lesson delivery. Respond with 4=Strongly agree, 3=Agree, 2 = Disagree, 1 = Strongly Disagree

	Statements	4	3	2	1
1	Instructional materials improve pupils participation in lesson delivery				
2	Instructional materials promote retention				
3	Instructional materials helps to remove dullness during lesson delivery				
4	Instructional materials makes pupils develop interest in the lesson				
5	Instructional materials creates a link between what is real and what is abstract				
6	Instructional materials serve as a useful tool for lesson evaluation.				
7	Instructional materials offer real experiences in giving the teacher basis for thinking and understanding				
8	Instructional materials solve certain language barriers problems				

SECTION D: CHALLENGES TEACHERS FACE IN THE USE OF

INSTRUCTIONAL MATERIAL FOR LESSON DELIVERY

Tick the appropriate option that corresponds with your answer to the following statements. Respond with options 4 = Strongly Agree, 3= Agree, 2 = Disagree, 1 = Strongly Disagree.

	Statement	4	3	2	1
1	Lack of finance to acquire or improvise needed instructional materials				
2	Lack of electricity to be used for instructional materials that uses electrical power				
3	Inadequate in-service training to upgrade the knowledge of teachers towards the proper use of modern instructional materials				
4	Insufficient time allocation to accommodate effective instructional materials utilization in lessons				
5	Parental attitude towards providing their wards with the needed TLMs such as exercise books textbooks etc.				
6	Mishandling of instructional materials by learners in the absence of the teacher				
	Poor maintenance culture of existing instructional materials especially projected media				

Thank you for your cooperation.